EPIC Consortium Members Directory: 802 **members**
Questions/Comments, please contact elisenda.lara@epic-photonics.com
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III-V Lab is an industrial Research Laboratory jointly owned by Nokia, Thales and CEA. It conducts R&D activities in the field of micro/nano-electronics and photonics semiconductor components for different applications, such as telecoms, defence, security, safety, space etc. Relying on a high level of expertise and advanced facilities in III-V materials growth and processing and their integration on Silicon, III-V lab develop a wide range of components. III-V Lab has also the capacity to produce limited quantities of epitaxial wafers, components, modules or subsystems). Such capacity is particularly adapted to address in a flexible way the rapid evolution of the market, offering to its members or partner industrial companies an early access to the components for their system development and even preliminary deployment. www.3-5lab.fr

3D AG is specialized in the processing of micro and nanostructures. We cover the support along the entire production chain from origination, tooling, upscaling and all the way to different replication types - and this all on a small prototype scale, as well as for mass

production. Our core competencies are durable nickel shims and tools from several base materials, i.e.: photoresist, polymers, wafers, steel alloys and others. Our state of the art galvanic tanks allow us to manufacture small shims and such of sizes up to 1100 mm x 1700 mm. Additionally, if you only hold a small-sized sample, we have a self-developed high precision step&repeat UV recombination machine enabling us to upscale your structure up to 1300 mm x 1500 mm. This can be as a large structured surface area, or a combination of features according to any layout. From lab to industrial sizes we manufacture your tooling for the mass replication of your structure. www.3dag.ch

3E8 is building silicon photonic solutions to exploit the “unfair” advantages of photons over electrons to solve data communication and next generation AI compute bottlenecks. 3E8’s proprietary platform leverages cutting edge photonic technologies to develop breakthrough efficiency electro-optical interfaces as needed for data-communication in datacenter, aerospace, and automotive applications. www.3e8.co

3photon is a start-up company which combines deep knowledge of crystals, polishing and optical coating in order to offer best solutions. We are located in Vilnius, Lithuania. More than 20 professionals are now working in company group. Our very close partnership with Lithuanian R&D institutions and capabilities of optical polishing and optical thin film coating allows 3photon to provide state of the art quality of laser optics (mirrors, beam-splitters, windows, etc.) and crystals (laser, non-linear, q-switch, exotic or rare). 3photon crystals and optics are used in industrial and medical lasers, defence related products and scientific research. www.3photon.com

3SP Technologies is a leading provider of innovative optoelectronic chips and modules for telecommunications, lidars and industrial lasers markets. In France, 3SP Technologies develops, manufactures and sells active optoelectronic components powered by in-house III-V chips. The company also provides foundry services using its related epitaxial and wafer processing expertise. Company mission is to provide innovative solutions including pump lasers and integrated lasers-modulators to meet our customers’ demands. www.3sptechnologies.com

4K-MEMS - Too small to see, too bright to go unnoticed. 4K-MEMS was founded in Neuchâtel, Switzerland, in 2020 to develop broadband NIR and SWIR light sources for the consumer market, especially for portable spectroscopy. We are a fabless company with a strong IP portfolio dedicated to developing novel solutions for high volume applications. Our

broadband infra-red sources are small, fast, efficient, and are packaged as SMDs for efficient integration into optical systems. www.4kmems.ch

4isp is on the market already more than 10 years. We are focused especially to the sales of CNC fibre lasers for cutting of metals and low power CO2 lasers for non-metallic materials cutting and providing of the needed services for these machines. Our customer always receives the complex service, starting with the correct machine' type choosing, thru providing of the needed consultancies, and is informed about the expected operational costs, costs for machine' transport, costs for machine' assembly and commissioning and the expected costs for service. We finished the building up of the largest show and service centre for lasers and CNC machines in Europe in the year 2018 and we called it EURAZIO. This centre is located nearby Prague, in the heart of Europe. The showroom provides possibility to see on own eyes more than 80 pieces of lasers and CNC machines. The most of these machines the customer can see personally in the fully workable status. www.4isp.eu

4D Photonics develops and manufactures customized systems for laser process monitoring. Customers use these systems to monitor their laser processes in real-time worldwide. The products are suited for a variety of applications – from microelectronics to components for e-mobility. Whether the materials used are steel, aluminum, copper or combinations thereof, the process monitoring solutions are designed to meet customer requirements in fully automated production lines. www.4d-gmbh.de

4JET Group helps customers with innovative and excellent products and services. Our solutions optimize or replace existing processes in the production of high-quality components and parts. We supply innovative laser systems for ablation, cleaning, patterning and modification of high-quality surfaces. By combining laser process technology, optics, software and mechanical engineering we create integrated production systems. Since our founding in 2006, we developed in a short time to become a leading supplier of laser systems and technologies for surface processing; several milestones and awards underline this progress. 4JET microtech develops and markets innovative laser systems for ablation, cleaning, patterning and modification of high-quality surfaces as well as for glass machining. Furthermore, the company offers a job shop for precision processing of glass, thin-films and optoelectronic components. www.4jet.de

ACM Coatings is the German subsidiary of Acktar Ltd. (Israel) and your production and distribution partner for Acktar products in Germany and Europe. Acktar Ltd. is the world leader in deep black, light absorbing coatings and materials. ACKTAR absorbing coatings and foils enhance the performance of an optical system, e.g. by reducing the signal-to-noise ratio and increasing the contrast. The coatings are completely inorganic, non-toxic and non-outgassing. ACKTAR coatings are applicable to a large number of substrates, have a high level of temperature stability (-269°C to +450°C) and are working in a wide spectral range (UV to IR). Applications for these deep black coatings are: Stray light absorption in optical systems, such as: portable devices, cameras for mobile phones, automotive applications, sensors and receivers, gauges, pyrometers, spectrometers as well as high-emissivity applications in the technical optics. We serve for example the industries aerospace, laser technology, technical optics, sensor technology, medical technology, biotechnology and industrial image processing. www.acktar.com or de.acktar.com

Acqiris, headquartered in Geneva, Switzerland is a leader in the development of high-quality, high-speed signal acquisition & processing solutions for OEM's in the field of SS-OCT (Swept-Source OCT), LIDAR, Fiber Sensing, Life Science, Ultrasonic, Medical Imaging, Commercial, Industrial and Research. Acqiris works with OEM's from the earliest stages of their product/project conception to volume manufacturing and through their product's life cycle. Now a privately held company, Acqiris has a history and expertise going back to the original Acqiris in 1998 and a pedigree from Agilent in 2006 and Keysight Technologies in 2014. With superior state of the art technology, dedicated application specific solutions, from low-end to high-end, addressing the needs of 8-bit to14-bit depth and 250MS/s to 10GS/s sample rates, imagine what you can see! www.acqiris.com

Admesy provides customers with innovative test and measurement solutions tailored for colour and light measurement in production processes. Founded in 2006, Admesy's mission is to seek for stable, reliable and accurate measurement devices. Within a decade, Admesy successfully developed this mission statement and became a well-known brand for a range of user-friendly and robust light and colour measurement devices. The current product portfolio includes light meters, spectroradiometers, colorimeters and 2D imaging colorimeters as well as accessories like stabilized light sources and integrating spheres. In just over a decade, Admesy has grown with over 35 employees at offices in Europe and Asia

and a worldwide network of distributors. Its headquarters, with research & development and production facilities with high-end clean room, is in the south of The Netherlands, next to the European high-tech area of Eindhoven. Three service and support offices in Asia were set up to provide local support to Admesy's customers. www.admesy.com

AFE

Advanced Fibreoptic Engineering Ltd (AFE) have a strong history of innovative development and manufacturing capability in fibreoptics, optoelectronics, mechanics, software and electronics. The majority of our projects are custom developments, exclusively manufactured for each customer at varying volumes. Products range from the packaging and alignment of optical devices and components (WDM), to full turnkey sensing systems across a range of market sectors. Products and systems are manufactured at our world class, state of the art facility based in Oxfordshire, UK. AFE are supplying and developing products and systems with leading companies in the defence, security, oil & gas, aerospace and test and measurement sectors. AFE also design and manufacture turnkey, 3 axis mechatronic systems which operate in harsh environments. www.afe-uk.com

ASE GROUP

Advanced Semiconductor Engineering (ASE) is the world largest provider of package assembly and test services for the semiconductor industry. ASE has a wide package portfolio including leadframe, laminate, wirebond, flip chip and wafer level technologies. ASE Europe serves the company's European customer base with focus on industrial, automotive, communications, and MEMS and sensors markets. The applications include optical sensors, lighting and optical communications segments which are expected to grow in the coming years. www.aseglobal.com

AEMtec

AEMtec is a global acting specialist for the development and production of customized and reliable micro- and optoelectronics. In the sector of miniaturization AEMtec provides a wide technology portfolio including Wafer Back-End Services, Chip on Board, Flip Chip, 3D Integration and Opto Packaging; all realized in cleanroom environment (ISO class 5 to 8). From concept to serial production including design and development, process management and industrialization the customers benefit from the services by a single source provider. AEMtec is certified by official organizations: ISO 9001, ISO 13485 (Medical) and ISO 14001 (Environment). www.aemtec.com

AEPONYX™ PHOTONICS IN MOTION

AEPONYX develops advanced integrated photonics with MEMS products. Utilizing the next generation photonics material -Silicon Nitride, with the fastest MEMS devices in the industry, we bring innovative products to market. AEPONYX has extensive experience in developing advanced technology. And we have grown a team with vast and deep expertise in bringing products to market. This is all driven by our key values of Teamwork, Trust, and Technology. These values make it all possible. AEPONYX is a leader in integrated photonics with MEMS. www.aeponyx.com

AeroDIODE

AeroDIODE is an ALPhANOV spin-off company specialized in optoelectronics solutions for semiconductor devices such as laser diodes or SOA (semiconductor optical amplifiers). AERODIODE offers, in particular, flexible optoelectronics solutions in the following 5 categories:

- Laser diode drivers: pulsed laser diode drivers, low noise laser diode driver, high speed laser diode driver, high power laser diode drivers
- Fiber-coupled Laser diode sources
- Fiber intensity modulators: fiber optic modulators and SOA pulsed drivers
- Synchronization electronics: pulse delay generator, pulse picker, digital delay generator
- Laser diode qualification test system and laser diode reliability test systems

AeroDIODE technology results from more than 12 years of innovation led by the founder team within the technological center ALPhANOV. www.aerodiode.com

Aero NDT TU Delft

The Aerospace Non-Destructive Testing Laboratory at Delft University of Technology is a research centre for Applied Optics and Ultrasonics in the Faculty of Aerospace Engineering. Our team of 20 researchers design, build and develop custom instrumentation for materials testing, structural analysis, inspection and monitoring. In recent EU projects, we have developed hyperspectral imaging technology for visible/NIR materials inspection (FP7 SYDDARTA) and high speed holography for visualising an impact on a composite plate at 1 µs time resolution (H2020 EXTREME). www.aerondt.tudelft.nl

AIFOTEC®

Aifotec offers significant and industry-proven experience in a variety of Photonic Development Services and Photonic Manufacturing Services as used in today's CMOS photonics applications. Aifotec's Hybrid Integration Technology experience allows packaging solutions across leading-edge process benches such as glass, ceramic, polymer and silicon, using either laser bonding, as well as different gluing technologies. In addition to this know-how Aifotec provides the equipment for the handling as well as packaging of material from single-die attachment, flip-chip on 6 to 8 inch wafers and pigtailed optical subassemblies. www.aifotec.com

€ Funded Research Projects Experience

- Plat4M: Photonic Libraries And Technology for Manufacturing
- PHASTFlex: Photonic Hybrid Assembly Through Flexible Waveguides

AIMEN is a leading research centre in Materials and Process Engineering. Located in Northern Spain, it operates as private, non-profit organization to provide high tech services and resources to a wide range of industries, from automotive to energy or medical devices. The research activity of AIMEN is mainly focused in materials engineering, robotics and manufacturing processes, all oriented to industrial applications and advanced manufacturing. The Laser Applications Centre of AIMEN is a dedicated infrastructure for research and development in laser based manufacturing and industrial photonics. This 1200 m2 facility is equipped with state of the art laser-based manufacturing equipment. AIMEN conducts applied research in applications of machine vision and optical sensing, laser materials processing (thick section laser welding, Additive Manufacturing, cutting, surface treatment, precision laser machining, down to nanofabrication), together with system engineering and optical system development. AIMEN participates and coordinates multiple national and international research activities, in either publicly funded programs or under industrial partnership. www.aimen.es

AIO Core is a spin-out company from PETRA established in April 2017 in Tokyo that provides leading-edge Silicon Photonics with the most cost-efficient solution for various scenes of optical interconnections, including: On-Board Optical Connection, High Performance Computing, and Active Optical Cables. AIO Core offers the world's fastest, smallest size, lowest power, and lowest priced Silicon-Photonics transceiver in the data center, between enclosures, between AV equipment, between boards, and within boards. Their leading-edge product, named “Optical I/O Core” is the first product from AIO Core and brings the fastest, smallest, lowest power-consumption and the most cost-effective solution to optical interconnection. www.AIOcore.com

Aircision is based in Eindhoven focused on developing Free Space Optics systems as a wireless alternative for backhaul communication. We build 6G ready, high capacity (10Gbps > 100Gpbs) free space optics systems that can be deployed fast (in under 6 hours), cover long distances (over 5km) and are highly secure. www.aircision.com

AIXEMTEC is a provider of high-precision assembly solutions for optical systems. We focus on the requirements of our customers. For this purpose, we offer machines and components for precision assembly as well as assembly services for optical systems. The combination of both business units is our strength. We are experts on assembly processes and know the challenges of every day production and based on that experience we develop standardized and competitive solutions. Our core competency comprises high-end assembly technology for highest precision in optics. Based on that expertise, we offer a wide spectrum of products and services in order to design and realize competitive production solutions for our customers. AIXEMTEC was founded in 2016 as a spin-off out of the Fraunhofer Institute for Production Technology IPT. AIXEMTEC is exclusive licensee of high-end Fraunhofer assembly technology. We combine our know-how regarding the assembly of optical systems with a customer-oriented business model. This business model allows us to look for the most economic production solution for our customers. www.aixemtec.com

AIXTRON

AIXTRON SE is a leading provider of deposition equipment to the semiconductor industry. The Company was founded in 1983 and is headquartered in Herzogenrath (near Aachen), Germany, with subsidiaries and sales offices in Asia, United States and in Europe. AIXTRON´s technology solutions are used by a diverse range of customers worldwide to build advanced components for electronic and opto-electronic applications based on compound or organic semiconductor materials. Such components are used in a broad range of innovative applications, technologies and industries. These include Laser and LED applications, display technologies, data transmission, SiC and GaN power management and conversion, communication, signaling and lighting as well as a range of other leading-edge technologies. www.aixtron.com

AKELA LASER CORPORATION

AKELA LASER was founded in 2003 as a consulting group serving photonics and opto-electronics industries. In 2010 Akela established its own manufacturing facilities in New Jersey, USA, and is currently a leading provider of high-power and multi-wavelength fiber-coupled and free-space laser modules, primarily for medicine, and also a supplier for emerging markets in industry and defense. Due to flexible design and manufacturing platforms, Akela offers the widest wavelength range in the industry and the highest number of combined wavelengths in more than thirty wavelengths combinations. In addition to standard product portfolio, Akela offers quick customization of the products to get specific wavelength combinations and power levels. New developments include modules for machine vision, laser cutting and welding of transparent plastics, and short-pulse Q-switched solid-state lasers for niche applications in medical diagnostics and semiconductor fabrication. www.akelalaser.com

AKHETONICS

Akhetonics is developing the first all-optical RISC processor. We are a start-up based and founded in Germany in 2021 with members from all over the EU. With our in-house developed photonic design automation tools and all-optical logic gates we are in a unique position to develop the first all-optical digital computation devices. Our goal is to usher in a

new era of digital devices that are radically more power efficient and boast a much lower latency by not relying on electronics. www.akhetonics.com

AKONEER

AKONEER is a Lithuanian designer and manufacturer of laser micromachining systems for industrial and scientific applications. Highly customized micromachining workstations incorporate ultrafast laser sources in combination with advanced beam steering in order to achieve micrometer-scale machining precision and repeatability. Know-how in ultra-short pulse lasers development and application assures optimized configuration of laser micromachining equipment to meet process quality and efficiency requirements. Workstations, designed and manufactured by AKONEER, are used for high precision cutting, drilling, micro-milling, welding, isolating, intra-volume marking of transparent materials, polymerization and related processes in science institutions and industrial lines worldwide. Akoneer' application laboratory accumulated in-depth knowledge in laser micromachining processes of various materials. Akoneer has developed various technology processes for semiconductor, solar cells, transparent and extra hard materials (sapphire, tungsten carbide) machining, as well as provided complete laser micromachining equipment for these processes. www.akoneer.com

AKTYVUS PHOTONICS

Aktyvus photonics – manufacturer of compact and robust DPSS laser systems for use in Harsh industrial applications. We are multidisciplinary team of professionals with diverse scientific backgrounds, sharing the passion for innovation and the experience in the field of solid-state lasers. The group's unique list of competences includes optical component manufacturing, mechanical engineering, and laser system architecture design - providing Aktyvus Photonics the necessary expertise and know-how to develop the new generation of laser sources. We are actively implementing additive manufacturing principles in our optical system designs, enabling innovative solutions that improve both our laser size/weight and its optical performance. The team research efforts are focused on the investigation and application of novel materials, whose enhanced thermomechanical properties can further enhance our optical system's capabilities and robustness. Our products are already employed in remote sensing, avionics, defense, and security applications. www.aktyvusphotonics.com

albis

Albis Optoelectronics is a leading designer, developer and manufacturer of high-speed IndiumPhosphide (InP) and GalliumArsenide (GaAs) based photodiode components. The broad product portfolio covers digital and analog applications up to 50 GHz, as well as specialty photodiodes for a variety of applications including telecommunications and data communications, monitoring and sensing, long wavelength LiDAR, and microwave photonic links. The fabrication facilities based in Rueschlikon (Zurich) offer full in-house production from front-end to back-end and include a class 100 clean room and extensive test and qualification laboratories. New products for emerging markets as well as customer specific modifications are developed by a team of experienced scientists and engineers. The company focuses on high reliable and high quality products fulfilling Telcordia GR-468 and MIL-STD-883E requirements. www.albisopto.com

Alcyon Photonics partners with customers to provide wide bandwidth and polarization management to photonics solutions such as transceivers, FBG or OTDR. Additionally, Alcyon Photonics' library of photonics designs brings comprehensive support to the design of photonics application requiring increased capacity for data transmission and minimal information loss in the fields of communication, sensoring or data comm, among others. www.alcyonphotonics.com

Aledia is a developer of LEDs based on disruptive microwire GaN-on-Silicon technology, it manufactures LEDs on 8-inch (200mm) silicon wafers. The cost of Aledia's LED 3D chips based on microwires is expected to be four times less than traditional planar (2D) LEDs. Aledia solves the important cost issue in the very large and growing LED market. The Aledia LED technology, made on large-size silicon wafers and with very low materials cost, represents a cost-disruptive solution. The technology is compatible with silicon CMOS technology and will be manufactured directly in existing high-volume silicon foundries. www.aledia.com

Alfalume in partnership with Innolume GmbH to develop and bring to market leading edge quantum-dot laser solutions for datacom, LIDAR and other applications. Together the two companies have more than 100 customers worldwide. www.alfalume.com

Alfamation, founded in 1991, have been working to leverage their passion for science and knowledge in order to create new ways of engineering functional test systems. They have challenged the traditional approach to functional testing through technological innovations that truly address the testing needs demanded by continually changing markets. Based on specific customer requirements, Alfamation offers a wide range of products, from individual test system modules to complete automated turnkey test systems. Alfamation strives to take an imaginative and out-of-the-box approach to creating products and services for design, test, and manufacturing engineers and managers in the automotive, consumer electronics, telecommunications, and medical industries. They have become the gateway to solutions previous only barely imaginable. www.alfamationglobal.com

Alite S.R.L., specializes in developing high-power laser sources and new monitoring systems. They are organized into two divisions, IDEA and I4SE. ALITE/IDEA focuses on the development of a custom laser source, a laser beam management device or supporting implementation of laser processing solutions in production workflow. ALITE/I4SE is a provider of innovative optical monitoring solutions for civil, mechanical, environmental, and biomedical sensing. www.alitegroup.eu

ALMAE TECHNOLOGIES entered into operation on Feb 1st, 2016 and has been created as a spin-off of III-V lab, a joint lab of Nokia Bell Labs, Thales and CEA-Leti. Almae Technologies has build an industrial R&D and production platform for advanced PIC fabrication based on proven photonic integration building blocks, objective being to exploit platform for chip and wafer fabrication to support Telecom/Datacom market growth, first products launched being a portfolio of 10/25G EML products. Almae Technologies is also offering specialized foundry services to partner companies in the field of Photonic chip manufacturing and is open to discuss with interested parties whatever the application field. www.almae-technologies.com

Alpes Lasers is a one stop shop for laser sources in the mid-infrared, it is component manufacturer providing Quantum Cascade Lasers to integrators of chemical detection systems applied to markets as diverse as combustion monitoring, industrial security or medical diagnostic. The devices operate CW at room temperature with mW to W range powers single- or multi-mode and emit up to 3 to 23 microns. The company concentrates on design and quality assurance thanks to its fabless operation. www.alpeslasers.ch

ALPhANOV is the Optics and Lasers technological center of the French Route des Lasers™ competitiveness cluster. Supported by the Aquitaine Region, it operates as a private, non-profit organization specialized in technology transfer in close collaboration with CEA/CESTA, CNRS, and the Bordeaux universities. ALPhANOV provides the technical resources and expertise required to fulfil the R&D challenge of innovative project in collaboration with SMEs and laboratories. Located in the Bordeaux area, ALPhANOV employs about 30 highly skilled

Researchers, Engineers and Technicians. Its 700-m² facility hosts several dedicated technology platforms, specific laser and metrology systems available for projects in every field of optics and lasers. ALPhANOV conducts scientific research in photonic technology in collaboration with academic laboratories from the Bordeaux University. The Center's expertise encompasses laser processing and micromachining, laser sources and optical fiber components, optical systems development and imaging. ALPHANOV is also currently involved in about ten laser technology-oriented national and European projects. www.alphanov.com

Altechna

Altechna, a leading European laser optics manufacturer, has completed a successful 2023 investment round, expanding its cleanroom production floor, capabilities in thin film optical coatings, optical and optomechanical assembly, and contract manufacturing. With expertise in Semicon, Medical, Defense & Aerospace markets, Altechna products are designed and optimized between 200 nm and 3 µm range for long lifetime high power laser systems, precision phase and polarization control, reliable and repeatable volume production with competitive offering. If your challenge involves anything between femtosecond and continuous-wave technology, starting from lens, HR mirrors, polarizers, dichroic mirrors, filters and moving to telescopes, objectives, periscopes or optical modules, we are here to support you with our innovative solutions. www.altechna.com

ALTER TECHNOLOGY GROUP

ALTER TECHNOLOGY is a quality driven company providing procurement, engineering and test services for E.E.E. (Electrical, Electronic and Electromechanical) components and electronic systems, within the space and harsh environment markets, where failure is not an option. ALTER TECHNOLOGY works in many markets including, but not limited to, Aerospace, Security, Transport, Emergency Services, Health & Safety and Automotive. www.altertechnology.com

AMAZEC PHOTONICS

Amazec Photonics is a company developing and using integrated photonic chip (PIC) technology for the development and production of next generation equipment for detection of cardio vascular diseases and distortions and an easy to use, patient friendly, noninvasive patented method for robust measurement of the Total Circular Thermal Blood Volume. Amazec Photonics started in 2021 and was founded by two real pioneers of Integrated Photonics and Integrated Photonics Sensing (Ton Backx and Pim Kat) and two anesthesiologists (Erik Korsten and Arthur Bouwman). Temperature resolution of the developed system is 0.0001 degree K equals 1fm phase shift of a 1550nm laser base wavelength with a precision of <5fm, a value not reached with electronic sensors due to noise levels. Amazec Photonics aims for an acquisition (exit) by a large company in cardiac equipment by 2026.. www.amazec-photonics.nl

AMF (Advanced Micro Foundry Pte. Ltd.) is a high-mix specialty commercial foundry that offers integrated optics manufacturing and design services. Its services enable customers to develop and manufacture Integrated Photonics Chips for a broad range of applications – Cloud computing, Cloud security, 5G communications, Autonomous Vehicles, and Diagnostic chips. Its technology platforms are customizable and based on Silicon, SOI, SiN, & Germanium. From the initial concept (including MPW support) to the manufacturing of a final product, its multidisciplinary team of Optical and Semiconductor experts works closely with its customers to ensure their utmost satisfaction. www.advmf.com

AMICRA Microtechnologies is a worldwide leading supplier of ultra high precision Die Attach Equipment specializing in submicron placement accuracy (±0.3µm @3 sigma). Equipment suppports Die Attach and Flip Chip bonding processes, including: in-situ eutectic laser bonding, dynamic alignment, active bond force with the largest bonding area. Additional capabilities include Wafer Inking, LED/LD Automated Test & Sort and Custom Systems. www.amicra.com

AMIRES is a consulting company for research, development and innovation projects. Our main strength is the creation of new international sustainable partnerships within innovation focused value chains and support for EU projects (e.g. H2020, Eurostars). Our developed projects remain the main enablers for our industrial clients and their growth and provide the important opportunities for R&D community. AMIRES activities focus on these strategic fields: Energy Efficiency, Photonics, Flexible and Wearable Electronics, Regenerative Medicine, Medical Devices and Diagnostic Tools. AMIRES developed a searchable database and visualization platform AMIPLEXUS – essential tool for innovation-related decisions. It allows visualization of more than 60000 projects within H2020, EUROSTARS, EUREKA, FP7 programmes and it includes selected national funding. It displays most relevant project information including list of all participants and it is a perfect tool for technology monitoring and partner search. User can search past or ongoing projects of any European organization or company. All EPIC members have free access to AMIPLEXUS with H2020 dataset – please ask EPIC secretariat for login details. www.amires.eu

AMO is a research service provider for nanofabrication with focused research & development, prototyping and contract manufacturing. AMO offers the entire infrastructure required for nanofabrication for semiconductor-based applications and related technologies. AMO competences are nanofabrication, nanoelectronics, nanophotonics and biotechnology.

Within many technical fields the employment of nanotechnology is enabling crucial improvements in product properties: Microelectronics is migrating to nanoelectronics and is creating largest storage densities and processor power – in the long term up to quantum devices. Thanks to new nanomaterials and manufacturing methods, integrated optics is developing into nanophotonics with the prospect of fast “on chip” optical data processing and the reduction of manufacturing costs. Nanostructures can now be manufactured in the size of biomolecules, thereby opening the possibility of highly exact analytical methods and the coupling of electronics with the biological world. The key to enter the nanocosm is the production technology for smallest structures. www.amo.de

€ Funded Research Projects Experience

- PhoxTrot: Photonics for High-Performance, Low-Cost and Low-Energy Data Centers and High Performance Computing Systems: Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board and Rack-to-Rack data links

AMPHOS

Member of the TRUMPF Group

AMPHOS ("Amplifying Photonics") is a spin-off of the renowned Fraunhofer ILT and RWTH Aachen University (LLT, TOS). AMPHOS manufactures ultrashort pulse laser systems with extremely high average power (>>100W) for scientific and industrial applications based on longterm experience in development of InnoSlab laser systems, opto-mechanical design and thermo-mechanical mounting technology. AMPHOS establishes a new standard in stability and reliability of ultrashort pulse laser systems. The inherent simple setup of the InnoSlab Amplifier in combination with industrially proven and optimized components allows for a new generation of robust ultrashort pulse laser systems. Since 2018 AMPHOS is part of the TRUMPF Group. TRUMPF is the world technological and market leader for machine tools used in flexible sheet metal processing, and also for industrial lasers. www.amphos.de

AMPLICONYX

NEW FRONTIER IN ULTRAFAST FIBER LASER PERFORMANCE

Ampliconyx offers a range of T-DCF based gain modules and amplifiers ideally suited for amplification of ultrashort laser pulses, both nanosecond, and picosecond, offering its customers unmatched performance from all fiber solution. Their mission is to enable widespread of fiber laser based micromachining and material processing technology by providing cost-effective and highly performing source of ultrashort laser pulses. www.ampliconyx.com

Amplitude

Amplitude Laser Group, created in 2001 by two visionary experts in lasers, manufactures and commercializes ultrafast lasers for scientific, medical and industrial applications. Leading the international market since its beginning, Amplitude offers a large range of

products: diode-pumped ultrafast solid-state lasers, ultra-high energy Ti:Sapphire ultrafast lasers and a full line of high energy solid state laser products. Always at the cutting edge of technology, Amplitude equips its customers with reliable lasers with the purpose to support them up to the accomplishment of their projects. The group consists of three manufacturing locations (Bordeaux and Paris in France, and Milpitas, CA., U.S.A.) and several commercial offices in Europe, Asia and North America, Amplitude and its 400 employees are committed to create and develop innovative lasers, manufactured compliantly with the highest quality procedures such as ISO 9001 and ISO 13485 certification standards. www.amplitude-laser.com

AMS Technologies is a leading solution provider and distributor of high-tech, leading-edge components, systems and equipment, with almost 30 years of experience to date and currently serving more than 1000 European customers. Optical Technologies is our key competency field with the broadest and most widely varying product offering, ranging from optical components and systems for the most differing of applications, over cameras for machine vision and on to capital equipment for fiber optic applications. Coupled with our Thermal Management Engineering team focusing on Photonics cooling and temperature stabilization and our Power Technologies focus on Laser Drivers, TEC controllers and Power Supplies, we enable and create custom Photonics Solutions. www.amstechnologies.com

Ansys Optics solutions offer robust design, optimization, and verification simulation software backed by world-class support. These tools empower designers to expedite the development of groundbreaking optical products while improving performance, reliability, and yield. With a suite of top-tier physics solvers, Ansys Optics provides user-friendly workflows for precise multiscale system design, from the nano to macro scale, enabling the design of diverse applications across various industries. www.ansys.com

Anteryon Optical Solutions is a manufacturing company that provides innovative optical solutions from idea to end-of-life for industrial markets. Anteryon Optical Solutions is founded in 2006 as a spin-off from Philips Electronics. Most of its core technologies originate from the 1980's when it was still part of Philips. Anteryon Optical Solutions designs, manufactures and tests optical components and sub-assemblies for industrial markets. It is in our DNA to be involved from the idea and be a catalyst in the innovation process of our customer. Our vision is "To be the preferred partner for Optical Solutions in BtB markets". Our core competences are clustered into three groups: replication of optical structures, structuring glass and ceramics, and assembly. Our solution always starts with a challenge that centers around optics. www.anteryon.com

APE is a worldwide trusted supplier of laser diagnostics and wavelength conversion for the ultrashort pulse (USP) laser industry. The diagnostics business covers autocorrelators for pulse width measurements, spectrometers, calibration light sources for cytometry, and other equipment for measuring and manipulating laser pulses. The business segment wavelength conversion includes optical parametric oscillators and amplifiers (OPO, OPA), frequency multiplication, as well as laser-sources for nonlinear Raman spectroscopy and label-free microscopy. www.ape-berlin.de

€ Funded Research Projects Experience

- FLAME: Femtosecond Light Amplifiers in the Megahertz Regime
- FINON: Female Investigators in Nonlinear Optical Nanoscopy
- MIR-LAB: Mid-Infrared Laser Assisted Bioprinting
- Projects related to the Development and Applications of Ultrafast Lasers
- Projects related to the Development and Applications in Cytometry

A-Photonics is an Aalto University research&business project (potential spinout in 2020) engaged in commercialization activities of its disruptive ultrafast laser technology. Its innovation centers around a key ultrafast laser component - a modulator, and SWIR actively mode-locked ultrafast lasers enabled by it. A-Photonics high-performance electrooptic nanomodulator givesaccess to new spectral regions using a scalable and low-cost silicon platform. A-Photonics 2um actively mode-locked lasers open new horizons in OCT imaging (e.g. of cornea as well as of cultural heritage), security sensing, environmental monitoring, non-destructive testing of coatings, and many more. www.aphotonicslasers.com

MEMBER OF THE NYNOMIC GROUP

APOS is the system integrator for spectroscopy-based measurement systems in the wood industry. APOS offers solutions for the panel board and pulp and paper industries, as well as for the thermal use of wood. APOS' strength is its expertise in the field of spectroscopic measurement technologies and distinctive application knowledge in terms of material and thermal use of wood on the other hand. APOS uses hardware components from its sister companies to assemble robust spectroscopy system hardware. APOS applies its proprietary hardware and software solutions and calibrations to provide turnkey measurement solutions to worldwide customers. Our systems are delivered ready-to-operate, with easy to use end user applications. Solving the customer's problem is our highest priority. The goal is always to deliver significant operational benefits to the customer, combined with short payback periods. APOS' systems are optimized and designed for use with various woody materials even under harsh environmental conditions. Following our global customers, materials from other regions like bamboo or rice straw have also become part of the portfolio. Starting with the inspection of incoming goods at the factory gate via various applications in production up to inspection of outgoing goods, the online measurement of production-relevant parameters

is APOS' task. APOS is part of the Nynomic Group, a medium-sized corporation focusing on non-contact measurement solutions in various industries. The Nynomic AG consists of the six companies APOS GmbH, Avantes B.V., LayTec AG, m-u-t GmbH, Spectral Engines OY and tec5 AG with their subsidiaries. In 2017, the group generated approx. EUR 60,7 million in sales with approx. 340 employees. www.apos.biz

Applied Materials has expertise in materials engineering is the foundation for all the integrated circuits and flat panel displays that you use every day in computers, TVs, and mobile devices. Just as semiconductor technology changed the world of electronics, photonics technology will change the world of optics as we know it. Today, the Engineered Optics group, is leveraging decades of expertise in manipulating materials at an atomic level on an industrial scale to now manipulate photons and create new optical devices based on nanometer-sized structures. These new components can realize any optical function (lenses, beam splitters, polarizers, color filters, etc.) while allowing much thinner components than current solutions. This new field of optics will have a huge impact on Artificial Intelligence, Machine Learning, Autonomous vehicles, AR/MR, and a lot more. www.appliedmaterials.com

Aquitaine Science Transfert is the Technology Transfer Office for Southwest of France. Our goal is the economic valuation of the public research results. We patent and license the inventions of researchers from all fields of expertise: health, pharmaceutical, medical devices, green technologies, energy, aeronautics, space, defense, IT, human sciences, etc. On behalf of our academic shareholders, we invest in technologies to bring them to a proof of concept level, helping industries and start-ups jumping into promising innovations. www.ast-innovations.com

Arden Photonics was founded in 2001 with the aim of developing, manufacturing and selling innovative products for the photonics industry throughout the world. We also provide technical consultancy in the areas of optical fiber and laser metrology. We specialise in test and measurement of multimode core launch distribution also known as EF, our flagship product the MPX-1 has been sold into research and production lines all over the world. Arden is also developing into a centre on measurement expertise in the ever-growing field of specialty optical fibers. David Robinson, founder and Managing Director of Arden Photonics Ltd, has 20 years experience in the photonics industry. He has worked extensively in the design and marketing of equipment for optical fiber and laser makers and component manufacturers throughout the world. His experience also covers Test & Measurement of photonics components in both technical and commercial capacities. www.ardenphotonics.com

ARQUIMEA RESEARCH CENTER is part of ARQUIMEA, a global technology company that develops innovative products and solutions to solve society's needs. ARQUIMEA has a long experience in digital and analog electronics, mainly in the aerospace industry. High precision mechanization is another area where ARQUIMEA has a strong background. Photonics is also part of our portfolio, where we commercialize high performance instrumentation for diode laser control and high quality RF generators based on photonic up-conversion. ARQUIMEA has also experience developing photonic integrated circuits. We are developing active circuits to generate high quality RF frequency synthesizer based on photonic down-conversion. We are currently working on several research lines in photonics. Related to sensing, optical integrated gyroscope schemes are also the subject of one of our projects. Photonic lab-on-a-chip is another research interest, and we investigate interferometric evanescent field sensing integrated with microfluidic circuits. In the area of quantum sensing we are investigating Nitrogen Vacancy (NV) Centres as high-resolution magnetometers for nanoscale nuclear magnetic resonance and hyperpolarized fluids. (Keywords: PHOTONIC INTEGRATED CIRCUITS PHOTONIC SENSORS ALL OPTICAL COMPUTING QUANTUM SENSING ARTIFICIAL INTELLIGENCE). www.arquimea.com

art photonics
broad spectra fiber solutions

art photonics was founded in Berlin in 1998 to develop and produce specialty optical fibers, fiber optic probes, laser cables and bundles for a broad spectral range from UV to Mid IR. While FlexiRay® fiber cables and bundles are focused on applications in laser technologies and medicine, the other product line FlexiSpec® provides the best fiber solutions for process-spectroscopy in biotechnologies, in chemical, petrochemical, pharma and food industries. FlexiSpec® fiber probes also enable biomedical tissue diagnostics in-vivo and can be used for environment pollution monitoring in a field. www.artphotonics.com

ASE
OPTICS EUROPE

ASE Optics Europe specializes in optical design, engineering and development of custom optical systems. In addition to designing and developing advanced systems we have production capabilities to meet prototyping and low range production needs. We can assembly, produce and test the final systems, offering a full service: systems manufacturing, quality control and validation tests. Our expertise and core values allow us to serve and cover the needs in optical design, engineering and manufacturing across a broad range of applications areas: optics and laser systems for medical devices and medical technologies, scientific instruments, life science applications, defense and aerospace optics and optronics, laser systems for industrial applications. www.aseoptics.com

Projects Experience

- Optical design for video-laryngoscopes: improvement of the image quality of an intubation device that offers a view of the glottis in complicated cases.
- Design and manufacturing of custom objective lenses for synchrotron: ASE Optics Europe desgined and manufactured three unique objective lenses for use in the synchrotron beamlines.
- Microscope objectives design and development: design, assembly and test of different custom microscope objective with strict requirements and constraints
- Laser systems for inspection and metrology: LIDAR, AMLOR; OCT, micro-inspection, fluorescence, facial detection, NDT equipment
- ITER Project: development and cosntruction an In-Vessel Viewing and metrology System (IVVS) for the inspection of the ITER tokamak.

R&D Funded Research Projects Experience

- Optogenerapy: Optogenerapy project aims to develop and demonstrate a new optogenetics implant for controlled beta interferon (IFN-ß) protein delivery for treating Multiple Sclerosis patients.
- Minalem: is project supported by Eurostars-2 program and CDTI. The objective is to design and develop new optical components to improve the light shaping and efficiency using surface micro and nano structured diffusers.
- FaBiMed: Fabrication and Functionalization of BioMedical Microdevices - was a European project to improve and develop new manufacturing techniques, based on micromoulding, specific for biomedical microdevices.
- Internal R&D: The Secretary of State for Research, Development and Innovation (Ministery of Economy) has awarded ASE Optics Europe for the development of its project, FASTTEST, a new metrology and inspection system aimed at improving the production lines of micro-feature manufacturers.

aseptUVa

Aseptuva develops a non-harmful UVC technology for targeted disinfection of catheter entry sites in a patient's body to combat hospital acquired infections. Our solution aims to save thousands of lives, reduce hospital stay period and ease the burden on nurses, thereby saving billions of healthcare costs. www.aseptuva.ch

€ Funded Research Projects Experience

- *Horizon2020: PhotonHub Europe for product development of in-situ disinfection technology to prevent pathogenic colonization in and around different catheters*

ASML

ASML is a world leader in the manufacture of the most advanced lithography systems for the semiconductor industry. ASML designs, develops, integrates, markets and services advanced systems used by customers – the major global semiconductor manufacturers – to create chips that power a wide array of electronic, communications and information technology products. With every generation, the complexity of producing integrated circuits with more functionality increases, and ASML is committed to providing customers with leading edge technology that is production-ready at the earliest possible date. ASML recently enforced the collaboration with TU/e and SmartPhotonics in Eindhoven, willing to support the Photonic market and its potential. www.asml.com

asphericon has the passion for revolutionizing the manufacturing of optical elements with new technologies, which is changing the degree of precision and quality that is possible. By combining a worldwide unique CNC control technology with high-end manufacturing processes, we routinely achieve unique levels of dimensional precision for optical components, assemblies and systems. www.asphericon.com

The Aston Institute of Photonics Technologies (AIPT) at Aston University is one of the largest photonics research centres in the UK. AIPT's success has been built on significant achievements in high-speed optical transmission and processing, nonlinear photonics, fibre grating technology, femtosecond laser material processing techniques, nano-photonics, fibre lasers, bio- and medical photonics, and in various fibre optic sensing applications. Underpinning these achievements is one of the strongest theoretical and advanced numerical modelling photonics research groups in the world. AIPT has an impressive portfolio of project funding, industrial and international collaborations, five spin-out companies, highly cited research papers and 60 patents. Current grant funding amounting to €20M, of which the largest fraction comes from EU projects, in particular the prestigious MULTIPLY COFUND Fellowship Programme in Photonics that will offer interdisciplinary training for international experienced researchers. MULTIPLY is open to new hosts organisations in order to increase options for prospective Fellows to work at top level host organisations. www.multiply.astonphotonics.uk
www.aston.ac.uk/eas/research/groups/photonics

Astrum is a supplier of high-power OEM laser systems and components for industrial and medical applications. Astrum LT focuses on the semiconductor technology as an efficient, most advanced and reliable source of innovation implementing both EEL and VCSEL technologies. The company has grown through extensive academic and industrial partnerships offering customized but competitively priced solutions for a wide variety of OEM laser solutions for pumping, amplification, seeding and laser driving for aesthetic, surgery, and electronic industry. The product range includes laser amplifiers, laser heads, optical modules, laser diode drivers to be soon extended with laser components for 3D sensing, ToF, LiDAR and gas sensing. A new 6,000m^2 laser chip epi and fabrication foundry in the vicinity of Prague, Czech Republic is scheduled to be up and running in 2022. www.astrum-lasers.com

ATLANT 3D Nanosystems is a global pioneer startup company combining unique advanced technologies to enable atomic layer 3D printing.The company was founded in 2018 with a vision of delivering the first-ever atomic layer 3D printing technology to enable rapid prototyping and manufacturing of micro and nanodevices with simple and smart approach and outside of the cleanroom. Our team combines interdisciplinary expertise in advanced technologies, e.g. micro and nanofabrication, atomic layer deposition, and high precision system development, chemical engineering and material science to create the company's core technology, know-how, innovation, and strategy. We provide our customers services and support with equipment to enable their ideas to be realized. The company product development and R&D is funded by several EU Horizon2020 projects together with the Innovation Fund Denmark and Sony. www.atlant3d.com

attocube systems was founded in 2001 and is recognized for innovation and excellence in the development, the production, and the distribution of cutting-edge components and solutions for nanoscale applications in research and industry. attocube offers motion and measurement solutions for high precision engineering applications. The portfolio includes nano-precise piezo positioning stages and an ultra-compact fiber-based laser displacement sensor, all working with nanometer accuracy and compatible with extreme environmental conditions such as ultra-high vacuum, radiation exposure, as well as cryogenic to elevated operating temperatures. Customized engineering solutions are developed for cutting-edge OEM applications, always optimized for the specific customer requirements. attocube has sales offices in the US and a broad network of worldwide distributors, covering more than 40 countries. Years of experience and a skilled team guarantee highest levels of consulting competence, a comprehensive on-site installation service and excellent after-sales support. www.attocube.com

AUCCEPT is offering Authentic Coaching and Consulting on Entrepreneurship and Photonics Technologies. Andreas Umbach has more than 20 years experience as founder and CEO of a technology start-up in a global industry. He has been responsible for the active and passive side of international mergers and acquisitions. He actively directed the company's direction in the field of photonic integrated circuits. Now he is aiming to consult on photonics technologies using his extensive network in this global industry. He is pleased to coach entrepreneurs and give advice on strategic business decisions throughout the lifecycle of the company. Support of the management team and leadership training are offered by direct coaching mandates or in the form of board positions. www.auccept.com

AUDI AG (Audi) is one of the world's leading automotive premium brands, and builds high quality, technologically progressive cars. An advanced, forward looking approach to corporate management and development constitutes the basis of our success. We place our customers' wishes at the very heart of our unceasing quest to find ever better solutions. This philosophy is reflected in our brand claim "Vorsprung durch Technik". This philosophy means developing and hardening new technologies for automotive usage. Clear goal is bringing new technologies at high quality to the customer first.The lighting department of Audi already took place in several national and international funded projects, for example PI-SCALE, MaMeK, R2D2, iLAS or SEEL. www.audi.de

AUREA Technology, as a leading maker of innovative optical instruments, provides the most advanced single photon avalanche photodiodes (SPAD), photon-pairs source, fast time correlation electronics and ultrafast laser diodes. AUREA Technology works closely with its scientific and industrial customers to meet the technical challenges of today and tomorrow in Quantum Cryptography, biotechnology, nanotechnology, life sciences, bio-medical, and aeronautics industries. www.aureatechnology.com

Austria Technologie & Systemtechnik AG (AT&S) is the European market leader and one of the globally leading manufacturers of high-value printed circuit boards and IC substrates. With 10,239 employees*. AT&S has successfully developed and manufactured products at six production sites in Austria. India. China and Korea for 30 years. With its extensive sales network. the company is present in Europe. Asia and North America. www.ats.net

MEMBER OF THE NYNOMIC GROUP

AVANTES is a world leader in the field of spectroscopy. They develop and manufacture spectrometers, light sources, software, fiber optic cables, and accessories. Avantes' products are highly customizable, adaptable to any specific application, and integrated into even the smallest housings. These products therefore find usage in many OEM applications and markets, as well as in the scientific and industrial world. With over 25 years of experience, Avantes continues to produce innovative applications in diverse fields including chemical, solar energy, agriculture, gemology, (bio)medical, semiconductor, light measurement and food processing technology. www.avantes.com

Company of the Leister Group

Axetris serves OEM customers with micro technology based (MEMS) infrared light sources, laser gas sensors, gas flow sensors & controllers and micro-optical components used in industrial, telecom, environmental, medical and automotive applications. Our multi-disciplinary and highly skilled engineering and manufacturing teams combine broad experience in design, manufacturing and metrology from MEMS components to advanced optical and electronic sensor modules. Axetris supports its customers with in-depth application know-how. Customers benefit from excellent product value, consistent high product quality and outstanding customer support. OEMs rely on Axetris worldwide as a competent partner for customer-specific solutions from concept to volume production. Axetris is ISO 9001:2008 certified and ISO TS 16949 compliant and operates its own 6-inch to 8-inch wafer MEMS foundry for its own products and contract manufacturing for external customers. A wafer back end, a sensor assembly and calibration facility under clean room conditions completes the manufacturing infrastructure of Axetris. www.axetris.com

B2SCIENCE

B2Science is a consulting and full-service provider for business development and marketing projects. Customers are from the scientific instrumentation industry, mainly photonics. The company is based in Berlin, Germany. 20 years of industry experience enable B2Science and its clients to working together at eye level. B2Science's project activities include: Developing and implementing growth strategies, creating and improving brand awareness in target markets, beating the competition by making sure that products are highly visible and their USPs are readily understandable, sales transformation through digital technologies, developing web applications and websites to improve the customer buying experience. www.b2science.de

BANDWIDTH10

Bandwidth 10 was founded in February 2011 by a team out of the University of California, Berkeley and industry veterans and has been shipping products since 2014. Bandwidth 10 is bringing revolutionary wavelength tunable Vertical Cavity Surface Emitting Laser (VCSEL) technology to the market, delivering cost-effective tunable solutions that are out of reach with conventional technologies. The company’s VCSEL technology covers wavelengths from 720nm to 1700nm, for sensing, data communications, LIDAR, swept sources and many other applications. With a leading edge tunable VCSEL design, optoelectronic packaging and control electronics teams, the company offers complete solutions with the laser ranging from TO and TOSA packages to SFP+ transceivers and control electronics. Our target Applications are Environmental Sensing, FBG sensing, Medical imaging, 3-D imaging, and LIDAR. Our Key Products are:

- 1050 nm Tunable VCSEL for Optical Coherence Tomography (OCT)
- 1550nm Tunable TOSA for Telecom, Sensing, LIDAR and Industrial applications
- 1550nm Tunable WDM VCSEL Transceivers for 5G Fronthaul and Access Networks

Bandwidth10 is based in Berkeley, CA, we have commercial and technical support on three continents: North America, Europe, and Asia, we have a new fabrication and packaging facility in Taiwan, and manufacturing established in North America and Asia.
www.bandwidth10.com

bay photonics
Advanced Photonics Assembly and Packaging

Bay Photonics provides a packaging service to Photonic and Microelectronic device developers and chip designers. We can help you bring your optoelectronic and PIC designs to a successful product market launch with our often-innovative packaging solutions. Drawing on our vast experience within datacoms, sensors, space and quantum sectors, we will help you design for Manufacture (DFM) and meet other essential requirements such as cost, time to market, performance etc. (DFX). Located at the EPIC centre in Paignton, England, and drawing on the unique history of the area and the Torbay Hi Tech Cluster (https://epic-centre.co.uk/torbay-hi-tech-cluster/). Our packaging capabilities include epoxy and eutectic die bonding auto gold and Aluminium ball and wedge wirebonding, optical alignment and hermetic sealing. www.bayphotonics.com

BBW LASER TECHNIK

BBW Lasertechnik is a leading German manufacturing service provider for laser-based manufacturing technologies. The company's core in laser material processing involves laser welding, laser cutting, laser drilling, laser ablation and laser microprocessing. The use of almost 50 different laser systems and the knowledge of 170 skilled employees are the prerequisites of its unique capabilities. This is extended by mechanical manufacturing technologies to provide complete assemblies. For the development of highly digitized and productive processes BBW provides its own equipment manufacturing. To ensure the quality of its laser processes BBW can rely on its test laboratories which includes metallographic examinations as well as online process inspections. International research in Eurostars and Pulsate projects enables BBW to apply the latest laser technologies and process and to be a innovative partner from the first trials over prototypes to serial production in laser material processing. www.bbw-lasertechnik.de

Becker & Hickl

Becker & Hickl, founded in 1993, have introduced a proprietary time-correlated single-photon counting (TCSPC) principle that made TCSPC more than 100 times faster than the existing devices. Moreover, bh introduced a multi-dimensional TCSPC process that records the photons not only versus the time in the signal period, but also versus other parameters, such as experiment time, wavelength, or spatial coordinates. The bh devices are designed to record multi-dimensional photon distributions, time-resolved images, sequences of photon distributions, or multi-dimensional time-tag data. The bh TCSPC products are complemented by bh picosecond diode lasers, detector modules, multi-spectral detector assemblies, and experiment control modules. Based on these components Becker & Hickl supply their own

confocal fluorescence lifetime laser scanning microscope and FLIM upgrade kits for laser scanning microscopes of various manufacturers. Moreover, bh is supplier of TCSPC modules for commercial time-domain optical tomography instruments. bh market activities include currently 5 workshops around the world and distribution of more than 1200 pages of TCSPC literature freely available on www.becker-hickl.com

Keywords: TCSPC, FLIM, microscopy, fluorescence, fluorescence lifetime, single photon counting, SPC, laser scanning.

BECKERMUS
The Art of Technology

Beckermus Technologies provides advanced assembly and integration services in the fields of Microelectronics & Micro-optics. We specialize in “bare die” assembly from all sorts of sectors and applications (telecommunications, automotive, AR\VR, Defense and other) with special expertise in NPI to volume production projects which involve integration of PICs with optical elements in active alignment positioning (optical fiber coupling, lenses, prism, beam splitters, mirrors etc..) We comply with ISO 13485 for Medical devices, AS9100D for aerospace as well as the IPC-A-610 & MILL-STD 883. www.beckermus.com

Berenschot

Berenschot is a consultancy firm with 350 employees and over 75 years of experiences in the private and public sector. Competences are broad but with a focus on photonics, solar, Internet of Things, printed electronics, flexible manufacturing, robotics and automation. We build ecosystems in those sectors by setting up sector roadmaps, project programs, financing, program management and business development. Our consortia are between 2 and 40 members, but also individual companies are supported. Starting in 2002 we already managed for more than 100 million euros in the photonics sector. Our flag ship is the MEMPHIS program, an R&D program for technology, components, applications and process equipment development. Projects have cross overs with application markets like healthcare, agri food, higtech systems and ICT, where we are dominant and have excellent networks. We are always looking for cooperation, you are more than welcome. www.berenschot.nl

BERLIN PARTNER for Business and Technology | BERLIN

Berlin Partner for Business and Technology offers business and technology promotion for companies, investors and science institutes in Berlin. With carefully tailored services and excellent links to research, our experts provide an outstanding range of offerings to help companies launch, innovate, expand and secure their economic future in Berlin. We support and advice companies and research institutions, which aim to establish business in Berlin or to further grow at the site, by providing comprehensive services and information within the fields of photonics and microsystems technology. The management of the Berlin Brandenburg Photonics Cluster lies with Berlin Partner for Business and Technology, as well as OpTec-Berlin-Brandenburg and ZAB Brandenburg Economic Development Board. The Photonics Cluster in Berlin and Brandenburg is especially distinguished by the strong scientific basis and the high amount of specialized small and medium-sized companies with widely ranged know-how – a perfect basis for a mutual transfer between science and industry, and innovation driver for other branches. www.berlin-partner.de

BESI (BE Semiconductor Industries N.V.) is a leading supplier of semiconductor assembly equipment for the global semiconductor and electronics industries offering high levels of accuracy, productivity and reliability at a low cost of ownership. Besi develops leading edge assembly processes and equipment for leadframe, substrate and wafer level packaging applications in a wide range of end-user markets including electronics, mobile internet, cloud server, computing, automotive, industrial, LED and solar energy. Customers are primarily leading semiconductor manufacturers, assembly subcontractors and electronics and industrial companies. www.besi.com

Bevenic Oplatek is the leading North-European solution provider in the field of photonics with over 30 years of experience. We are specialized in manufacturing specialty optical fibers and capillaries, molded glass components, thin film coatings, precision mechanics, and optical assemblies for various industries. By combining our fields of expertise, we can offer our customers a full chain of service from design to serial production. We can solve your photonics challenges! www.oplatek.com

bialoom is a deep-tech startup founded in 2018 in Nicosia, Cyprus that develops the missing tools for better diagnosis and therapy of acute infections. The company was born after years of research at the Aristotle University of Thessaloniki with a mission to leverage proprietary plasmonic-augmented silicon photonic biosensors to address unmet clinical needs in the market of medical diagnostics. bialoom develops the smallest, powerful and fully flexible photonic biosensors that can uniquely address the need for faster and more informative diagnosis of complications related to infections. Through its founders bialoom consolidates remarkable experience in innovative photonic and diagnostic technologies through their participation and coordination in more than 10 EC Research & Innovation projects. www.bialoom.com

Bifrost Communications is a Danish start-up established as a spinoff from the Technical University of Denmark, located north of Copenhagen. We provide is a unique Quasi-Coherent Receiver Optical Sub-Assembly (QC-ROSA) that can be applied to any endpoint of a fiber optics network (receiver), significantly increasing its sensitivity. Our QC-ROSA fits in to an SFP28 transceiver module and is the only coherent solution available for Access Networks. This is made possible by the fact that our analog chip has much lower power

consumption and size than conventional coherent utilizing DSP. www.bifrostcommunications.com

Bioherent

Bioherent is an innovative startup, founded in mid-2021, that emerged from research groups at the University of Málaga (Spain). Bioherent's mission is to develop a cutting-edge in-vitro diagnostic system that employs integrated photonic biosensors, providing clinicians with a highly reliable tool to identify drug allergy affected patients with exceptional sensitivity and specificity in a clinical setting. This solution aims to surpass the insufficient performance provided by reference solutions that are typically used in routine clinical practice. These conventional methods for detecting antibiotic allergies are often fraught with clinical insufficiencies in terms of sensitivity/specificity for in vitro solutions or expensive and inefficient in the case of traditional clinical tests. The provided technology is not only highly reliable, but also immensely versatile, capable of being applied in a wide range of diagnostic and medical applications. Bioherent's team of experts is comprised of accomplished professionals in biochemistry, biotechnology, photonics, and microelectronics. Bioherent is headquartered in Malaga, Spain, and is steadfastly dedicated to driving innovation in the field of diagnostic technology. The overall goal is to develop a comprehensive portfolio of diagnostic solutions that will address unmet needs in the healthcare industry, with a keen focus on improving patient treatment and enhancing the effectiveness of healthcare systems. www.bioherent.com

Keywords: Biosensors, Photonics, Drug Allergy Detection, In-Vitro Diagnostics Application: In-Vitro Medical Diagnostics.

Biomimetic.

Biomimetic provides bioinspired laser nanotexturing solutions aiming to transform common materials such as glass and metals to present optimal combinations of anti-reflective, anti-glare, anti-fogging, water-repellent, antibacterial and antimicrobial properties. Biomimetic is a spin off startup from the Institute of Electronic Structure and Laser (IESL) of the Foundation of Research and Technology Hellas (FORTH). Following many years of research at the Ultrafast Laser Micro and Nano Processing Laboratory of IESL-FORTH we have gathered expertise to exploit technologies that mimic the structures and functionalities found on various species in Nature. Unlike other nanotexture technologies, Biomimetic's solution relies on a push-button, green process, eliminating the need of chemicals and consumables. www.biomimetic.gr

BioVolt

BioVolt is a startup established in 2013 intent on refreshing the diagnostics and management of Metabolic Syndrome through use of new Bioassay and Data Analytic technology. Based in Enschede, The Netherlands, BioVolt is known for developing advanced photonic In Vitro Diagnostic Devices based on its licensed and multi-patented Ring Resonator technology combined with the latest techniques in molecular analytics. BioVolt's

mission is to deliver complete solutions for specific clinical applications as defined by prospective customers. Assays for these applications are developed in partnership with leading laboratories. www.biovolt.nl

BKtel photonics is the leading manufacturer of fiber amplifiers and fiber lasers for LIDAR, telecommunication, cable TV, FTTH, military, medical, aerospace and laboratory applications. With over 20 years of activity, BKtel products include a wide range of platforms in the 1µm, 1.5µm and 2µm bands. The BKtel Photonics team background consists of experience in engineering high end active devices for performing light generation and amplification in optical fibers. We seek to develop innovative products that focus on fiber optics and are controlled by intelligence (embedded electronics and software). The Company products are divided into three families: Fiber amplifier modules, Fiber laser modules, Turnkey solutions for lasers or amplifiers. www.bktel-photonics.com

Black Semiconductor is a Tech-Start-Up based in Aachen, Germany. Our goal is to manufacture and market extremely powerful microchips with integrated electronic-photonic circuits. Based on over 20 years of experience in CMOS, photonic chip development, and pioneering work on graphene technology since 2006, we are in the process of initiating a paradigm shift in chip technology. www.blacksemiconductor.de

Bluebox Optics are a new start-up addressing the LED Microscopy illumination market. The first product is the 7 colour “niji”, it’s a low cost, modular, reconfigurable LED light source. The niji is unique with flexibility and its compatibility with world leading microscope platforms. www.blueboxoptics.com

bmbg consult is an International Management Consultant with a long experience in semiconductor industry R&D, mask making, EUV ecosystems and infrastructure, product management, product strategy, business development with 25 years of management in different industries from group to division level, management of national and international funding projects, organization of workshops and conferences, writing and reviewing of scientific articles, implementation and assessment of excellence systems. The owner is an excellence assessor for the European Excellence Award, EFQM Ambassador and has an

MBA in International Management, International Marketing and Business Communication. Funding Experience: MEDEA+ EXTUMASK – Extreme UV Lithography Mask. www.bmbg-consult.de

BOLTIC®

TELECOM | DATACOM TESTING LABORATORY

Boltic is a European optical sub-assembly testing laboratory dedicated to telecom and datacom applications. At Boltic, we aim to help businesses grow and expand their knowledge of optical components by conducting analysis and extensive measurements on key components that constitute a network. Our services include Interoperability testing, RMA, NPI, Test System Service Solution, Additive manufacturing and Quality control services. Our laboratory is ISO class 5 certified and equipped with the latest technologies available on the market by partnering with well known OEM test vendors to ensure the heterogeneity of our measurements. www.boltic.be

BOSCH

The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). The company generated sales of 78.5 billion euros in 2018. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The basis for the company's future growth is its innovative strength. At nearly 130 locations across the globe, Bosch employs some 68,700 associates in research and development. www.bosch.com

BOM

Catalyzing Change

Brabant Development Agency (BOM) believes that entrepreneurship is the driver of innovation – from sustainable food sources to a healthy future, climate-neutral energy, and developing promising key technologies. BOM ensures that startups playing a role in these fields receive the right support and funding to get off to a flying start and grow into scaleups, and that companies that aspire to go global can actually do so. Every year BOM works with dozens of companies to create this impact. BOM is an executive body of the Province of Brabant and the Ministry of Economic Affairs and Climate Policy. www.bom.nl

Boston Electronics

Boston Electronics provides a wide range of ultraviolet, visible, infrared and terahertz detectors, sources, lasers, signal/image processing electronics and microscopy solutions. This makes us a unique resource for your electro-optical needs. We are known throughout industry as having strong application support, best-of-breed products and deep experience in electro-optics technologies and markets; thus, making us a perfect partner for your product and research needs. We are agents for leading European electro-optical suppliers, bringing their products into the North American and international markets. www.boselec.com

BIAS - Bremer Institut für angewandte Strahltechnik is a research company based out of Klagenfurter Str. 5 in Bremen, Germany. It was founded 1977. Their mission is transferring material processing and optical measurement technology from research into industrial application. Departments: Laser Processing, DED, Materials and Process Technology, Joining and Powder Bed Processes, Geometrical and Coherent Optics, Nanophotonic and Laser-based solutions for the hydrogen economy. www.bias.de/impressum

BRIGHT Photonics is an independent design house for photonic integrated circuits (PICs), founded in 2010 and the first commercial PIC design house to provide access to generic PIC foundry technology. Our office is located in the photonics heart of the Netherlands, Eindhoven. Bright makes PIC technology accessible to businesses, research institutes and universities. BRIGHT provides photonic engineering support, concept studies, product development support, prototyping and brokering, and design support on component and/or mask level. We work with technologies as SoI, InP, SiN, glass/PLC and polymers for custom, commercial and research foundries. Bright Photonics also shares the open source design platform “Nazca Design” with the photonics community to stimulate open innovation, standardization and education in photonics. www.brightphotonics.eu

€ Funded Research Projects Experience

- EUROPIC: EUROpean manufacturing platform for Photonic Integrated Circuits
- PARADIGM: Photonic Advanced Research and Development for Integrated Generic Manufacturing
- PhoxTrot: Photonics for High-Performance, Low-Cost & Low-Energy Data Centers, High Performance Computing Systems: Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board, Rack-to-Rack Data Links

Bright Solutions develops and manufactures state-of-the-art ns, sub-ns DPSS lasers and high brightness diode laser modules. Our DPSS standard portfolio includes efficient, compact and reliable sources at 1064nm, 532nm, 355nm, 266nm, 1.5um, 3um suitable for industrial and medical applications. Our custom products represent the state of the art of laser sources for airborne LIDAR instruments used worldwide, for example, in high precision topography, bathimetry and 3D submarine vision. Our product range has been recently completed by a full line of DPSS Q-switched microchip lasers emitting in the UV, blue, green and IR wavelengths. www.brightsolutions.it

BRILLIANCE
The future is visible

Brilliance delivers the ultimate light engines for Augmented Reality projection applications. We integrate red, green and blue laser lights into the smallest, most efficient and easiest to integrate light engine module. Our light engines enable our customers to overcome the challenges of miniaturization, integration, energy efficiency and overall comfort for all AR projection applications. Our patented silicon-nitride based platform and laser integration are based on >20 years of integrated photonics experience, offer technical superiority and allow high quality low cost volume production.www.brilliancergb.com

BROLIS
SEMICONDUCTORS

Brolis Semiconductors develops advanced infrared optoelectronic devices and electro-optic systems for defense, medical and research application. Company specializes in custom R&D with a special focus on unique applications at long infrared wavelengths beyond telecom window (> 1.5 micron) such as SWIR, DIRCM, tunable spectroscopy and medical sensing. www.brolis-semicon.com

BT

BT is one of the world's leading communications services companies, serving the needs of customers in the UK and in more than 170 countries worldwide. BT's main activities are the provision of fixed-line services, broadband, mobile and TV products and services as well as networked IT services. In the UK, BT are a leading communications services provider, selling products and services to consumers, small and medium sized enterprises and the public sector. BT also sell wholesale products and services to communications providers in the UK and around the world. Globally, BT supply managed networked IT services to multinational corporations, domestic businesses and national and local government organisations. www.bt.com

BÜHLER

Bühler Leybold Optics is a leading provider of innovative thin film deposition technologies and solutions for a wide range of industries, including photonics, precision optics, and semiconductors. With a focus on research and development, Leybold Optics has developed

a reputation for delivering cutting-edge technology and unmatched expertise to customers around the world. The company's expertise in the design, development, and production of advanced thin film deposition equipment. Using a range of advanced deposition techniques, including magnetron sputtering, ion beam sputtering, and electron beam evaporation, Bühler Leybold Optics is able to offer customers a wide range of high-quality deposition solutions for photonics and semiconductor applications such as hyperspectral imaging, 3D imaging, or RF connectivity. By leveraging advanced deposition technologies and techniques, Bühler Leybold Optics thin film coating equipment is able to produce thin films with exceptional precision, uniformity, and reproducibility, resulting in coatings with superior optical properties. With a global presence and a team of highly skilled professionals, Bühler Leybold Optics is uniquely positioned to provide customers with the expertise, support, and resources they need to achieve their goals. www.buhlergroup.com

BWT Laser GmbH is a subsidiary of the Beijing located laser manufacturer BWT, founded 2003 and since being a reliable and worldwide established partner with top technology in the diode laser business. The German site is run by a team of experts and diode laser pioneers to support OEM and end users of diode lasers in Europe competently and efficiently. The BWT Laser Europe team has a large experience with the technology and applications of diode lasers. We help to find the right product and we support you with after sales services, until your idea becomes reality. The product development is also done in Mainz to meet the local market requirements for medical utilization, pumps for solid-state and fiber lasers. We serve all kind of large or niche markets as diode lasers drive many new applications drawn from our large product portfolio covering 405nm to 1940nm in various power and brightness levels. www.bwtlaser.eu

Caeleste is a full turn-key supplier of high-end, beyond state-of-the-art CMOS image sensors. Our activities include custom image sensor design, manufacture, assembly and characterization. Caeleste is the originator of many novel concepts as high-speed, low-noise image sensors, indirect X-ray detectors with photon counting, color X-ray sensors, and sub-0.5 noise electron read noise CMOS pixels.The Caeleste team has an accumulated experience in image sensor design and development of over 250 years. www.caeleste.be

Cailabs was established in 2013 in Rennes and is a French deep-tech company which designs, manufactures and sells photonic solutions. By combining our state-of-the-art beam shaping technology (Multi-Plan Light Conversion or MPLC) with optimal engineering, we create innovative products that help solve some of today's major industrial and technological challenges for multiple applications, including: laser machining processes, aerospace, ground-based telecommunications, defense. www.cailabs.com

Cambridge Raman Imaging (CRI) designs and develops high speed, label-free Raman imaging instruments for medical imaging and scientific research. CRI's mission is to provide clinically actionable knowledge of disease processes, diagnosis, prognosis and therapeutic response from cell and tissue samples. Our target is an AI supported Chemometric Pathology System – for location of cells in patient samples using quantitative and spatially resolved spectroscopic analysis of fresh tissue, replacing subjective diagnosis of samples by Histopathologists. This technology will identify and characterise tumours with high sensitivity, specificity and staging. www.cambridgeramanimaging.com

CamGraPhIC's mission is to improve optical communications in data center and 5G infrastructures. The company develops the "Graphene Integrated Photonics" (GIP), a technology platform that will enable next generation optoelectronic devices to support the exponential growth in global data traffic. CamGraPhIC operates in the development, industrialization, and commercialization of optoelectronic components based on its innovative graphene technology. In particular, CamGraPhIC is active on the integration of high-performance, low-cost, and low-power consumption modulators and photodetectors to enable next-generation optical transceivers for the datacom and 5G industries. CamGraPhIC manages the Inphotec facility, a high-tech R&D and prototyping center located in Pisa – Italy. The infrastructure includes a 550sqm clean-room and makes available several technology platforms such as Silicon Photonics, Graphene Photonics, Glass and SiN Photonics, LNOI, and Advanced Photonic Packaging (www.inphotec.it). CamGraPhIC's team has a solid track record in the telecommunication industry and background in Photonic Integrated Circuits (PIC) fabrication, devices prototyping, product development, and commercialization. www.camgraphic-technology.com

Careglance srl is an italian technological startup which aims to bring disruptive innovation in the field of Sweep Source OCT through innovative laser sources and image extraction algorithms. The first CareGlance product will be an innovative OCT module enabling ultrafast and portable sensors for industry 4.0 applications. As a second steps, CareGlance will produce sweep lasers and OCT modules for ophthalmology also allowing SS-OCT application to eye surgery. The developed laser technology is based on a micro-optics based tunable external cavity laser approach enabling narrow linewidth and wide sweep range within the size of few tens of mm. In the field of industrial OCT sensors, also a new image synthesis algorithm will be introduced, optimized for this application. In a second step,

CareGlance will also exploit optical monolithic integration to reach a more compact and lower cost OCT module.www.careglance-srl.webnode.it

The Catalan Institute of Nanoscience and Nanotechnology (ICN2) is a research organisation focusing in the science and technology of nano devices for energy, life sciences and information technology. The Institute promotes collaboration among different disciplines to carry out basic and applied research, working within the Barcelona Nanocluster and with local and global industry. In the context of EPIC, research and development activities include biophotonics and biosensors, lab-on-a-chip, organic solar energy cells, thermal transport in the micro- and nano-scale and opto-mechanics. Its Flexible Nanofabrication Platform develops solutions for cost-efficient and scalable processes suitable for photonics devices. The institute participates in active in several national and international research initiatives, such as the graphene flagship (graphene-based biosensors) and nanophononics. www.icn2.cat

CD6 is a technological innovation centre specialized in Photonics Engineering in the Barcelona area. Our team of 40 people with complementary expertises (Optics, Photonics, Electronics, Mechanics and Software) allows the development of ready-to-use prototypes in highly specialized applications (non-contact surface profilometry, medical imaging, etc.) or consumer products (digital cameras, public lighting, etc.). The goal of CD6 applied research is to create new knowledge which hits the market as new products or processes. This has enabled the creation of a number of technology-based companies (over 10 in 2013), which integrate a true entrepreneurial environment. Main specialization areas include Design of Optomechanical Systems, Optical Metrology, Visual Optics, Biomedical Instrumentation, Optical sensors for Smart Cities, Energy-efficient illumination systems, Colour and Spectral Technologies, and Non-Destructive testing. www.cd6.upc.edu

€ Funded Research Projects Experience

- CRAFT: Development of compact tools for the photometric testing of light sources used in terrestrial transportation
- COST Action TD1201: Colour and space in cultural heritage (COSCH)
- COST Action BM1205: Skin cancer detection using laser imaging

CDA

CDA is a mid-size German contract manufacturing company specializing in customized micro-optics design and production, as well as navigation data duplication on flash memory. Over 25 years of experience in polymer wafer-level manufacturing, CDA has achieved a reputation for flexible and scalable production. Global customers are mainly from consumer electronics, automotive and industrial automation. Our mission is our passion - We inspire & manufacture value! www.cda.de

CEA-Leti is an applied-research Institute located in Grenoble-France and specialized in micro and nano technologies. The 'Optic and Photonic Department' develops technologies in the field of lighting, display, sensing, imaging and communications. The department is integrated over the whole development cycle (Design, Fabrication and Tests), from the material (Si, Ge, III-V) to devices and circuit fabrication (200mm/8'' CMOS fab, 100mm/4'' III-V fab), packaging and test. In addition to Leti's 1,700 employees, there are more than 250 students involved in research activities, which makes Leti a mainspring of innovation expertise. Leti's portfolio of 1,880 families of patents helps strengthen the competitiveness of its industrial partners. www.leti.fr

€ Funded Research Projects Experience

- PLAT4M: Photonic Libraries And Technology for Manufacturing
- PLACYD: Directed Self Assembly (DSA) Lithography

MEMBER OF
BASQUE RESEARCH
& TECHNOLOGY ALLIANCE

Ceit Centro Tecnológico, a non-profit technology center whose main task is to carry out industrial research projects in close collaboration with the R&D departments of companies. Ceit promotes excellence in applied research through the publication of non-confidential results and participation in scientific and technical dissemination forums and doctoral training within the framework of industrial research projects. Ceit works with companies in a range of sectors (railway, aeronautical, automotive, health, manufacturing, energy, and environment) and strives to understand all aspects of their client's business to develop high value-added solutions through applied investigation projects. In addition to offering innovative solutions to their clients, Ceit trains young researchers who are preparing to join the labor market and add value to the production system. www.ceit.es

UNIVERSITY OF
EASTERN FINLAND

Center for Photonics Sciences (Formerly Institute of Photonics) combines all research and education in optics and photonics at the University of Eastern Finland UEF. Our multidiscipline center is a unique collection of professionals in biology, chemistry, information technology, physics and applied physics, with the roots of photonics being the major research field in physics starting over 50 years ago, when the University of Joensuu was founded. Today Center for Photonics Sciences forms a world's top-notch research environment. www.uef.fi/photonics

CENTER FOR PHYSICAL SCIENCES AND TECHNOLOGY

The Center for Physical Sciences and Technology (FTMC) is the largest state research institute in Lithuania with approximately 700 employees, including 330 PhD and 120 PhD students, and 16 departments, working in different fields of physics, chemistry and technology. The Department of Laser Technologies covers nano-photonics, laser science and applications, including modelling of nano-photonic structures, new design of fiber and solid-state based lasers, their application in the precise material processing and optical classical and quantum communications. The Department of Optoelectronics is world-known on its activities in terahertz generation and imaging. Its facilities include equipment for MBE growth of dilute bismide layers for infrared light emitters and photo-detectors. Various ultrafast spectroscopy methods are widely used in the Department of Molecular Compounds Physics for studies of excitation dynamics in molecular compounds seeking the control operational abilities of molecular optoelectronic devices. www.ftmc.lt

€ Funded Research Projects Experience

- APPOLO: Hub of Application Laboratories for Equipment Assessment in Laser Based Manufacturing
- BIANCHO: Bismide And Nitride Based Components For High-Temperature Operation
- MITEPHO: MIcrowave and TErahertz PHOtonics
- POCAONTAS: Polymer-Carbor Nanotubes Active Systems For Photovoltaics
- POLALAS: Novel Photonic Nanostructures For Polariton Lasers

certi

Centers of Reference in Innovative Technologies (certi) is a research, development and specialized technological services organization that provides innovative solutions for the private, government and third sector. It is an independent, non-profit institution. With its accumulated experience since 1984 in the Science, Technology and Innovation environment of Brazil, it provides services and develops products, systems and processes, combining its competences in focus areas structured through its Reference Centers in Innovative Technologies (CRITs) working in synergy and cooperation with national and foreign partner entities. www.certi.org.br

Wrocław University of Technology
Centre for Advanced Materials and Nanotechnology

Centre for Advanced Materials and Nanotechnology (CAMAN) is an interdisciplinary research university network established at the Wroclaw University of Technology (WRUT) in 1998. WRUT is one of the best universities in Poland. It is composed of 12 faculties at which work about 2.000 professors/ lecturers and are studying 32.000 students. CAMAN is a self-organised entity consisting of research groups active at various faculties of WRUT. The main goals include promoting integration of research community, supporting interdisciplinary studies in various fields related to advanced materials, photonics and nanotechnology. The integration of activities of several research groups allows them to initiate new scientific programs and to enhance collaboration at the international scale. www.cmzin.pwr.wroc.pl

The Centre for Advanced Photonics & Process Analysis (CAPPA) is a research group of Munster Technological University. CAPPA's activities focuses on bringing the benefits of photonics technology to a diverse range of industry and research partners. CAPPA is at the forefront of photonics research in Ireland, conducting both applied and fundamental research on photonics for applications in areas as diverse as telecommunications, medical devices, food and pharmaceutical manufacturing. CAPPA conducts internationally recognised academic research on topics such as the non – linear dynamics of lasers and ultrafast laser physics, and the understanding of the dynamics of novel semiconductor materials and devices. The collaboration with industry is driven through the Enterprise Ireland Technology Gateway. CAPPA have a strong track record of engagement with industry. Early collaborations centred on our core background strengths in photonic materials and devices, and consequently were primarily in the photonics sector. CAPPA's work with industry focuses on a wide variety of sectors including medical devices, pharmaceuticals, electronics and food technology, while consolidating our interaction with the photonics sector. www.cappa.ie

The Centre for Research in Photonics (CRPuO) of the University of Ottawa is at the forefront of photonics research in Canada and one of the top research centres of its kind in the world. Building on the University's strengths in science, engineering and medicine, this multidisciplinary centre is developing the next generation of applications in photonics and leveraging the strong regional concentration of photonics and technology companies, the embedded base of intellectual capital, and partnerships with universities and federal research labs. Cutting-edge research, from fundamentals to applications, is at the heart of the CRPuO, with research areas including: Optical Physics, Nanoscience, Biomedicine, Solar Energy, Broadband for All, Sensors and Sensor networks. In addition to individual research labs, the CRPuO includes two core facilities: the NanoFab and the SUNLab, both open for business. www.photonics.uottawa.ca

The Centre Tecnologic de Telecomunications de Catalunya (CTTC) is a non-profit research institution based in Castelldefels (Barcelona), resulting from a public initiative of the Regional Government of Catalonia (Generalitat de Catalunya). Research activities, both fundamental and applied, are organized onto four research divisions: Communication Networks, Communication Systems, Communication Technologies and Geomatics. Since its creation in 2001, CTTC has participated in more than 150 projects funded by European, Spanish or Catalan administrations or by direct contracts with industry, in the fields of, among others, 5G broadband communication systems, next-generation optical transport networks, embedded systems, software defined networking, satellite communications, positioning

systems, M2M communications, smart grids. CTTC also develops strategic internal research projects for proof of concept and experimental prototypes. Within the Communication Networks Division, the Optical Networks and Systems (ONS) department of CTTC has broad experience in research programs due to its participation in several Spanish and European public-funded R&D projects, closely collaborating with leading research institutions in Europe or Japan. The ONS department has produced over 500 publications in peer-reviewed journals and international conferences, result of its studies on the most advanced optical subsystems and networking technologies, and cutting–edge laboratory infrastructure/equipment. Additionally, ONS department has participated in several industrial contracts with different relevant companies. www.cttc.es

CERES

CERES Technology Advisors provides merger and acquisition advisory services. Our unique value is the breadth and depth of our network and knowledge of markets enabled by photonics. Our clients are companies employing photonics technologies to serve a wide range of markets – from life sciences to consumer electronics to lasers and optics. We focus there because we know well where the value is in these markets. CERES understands the strengths and challenges of its clients' photonics technologies, operations and end-user markets. The result is a uniquely optimized growth and exit strategy that is executed efficiently and effectively to create and capture value. www.cerescom.net

CHALMERS

Chalmers University of Technology conducts leading research in photonics through its Photonics Laboratory. Optical communication is a major area of research, with efforts on system and device technologies for applications spanning from long haul transmission to short reach interconnects. The research in fibre optical communication is coordinated within the research centre FORCE www.chalmers.se/mc2/force-en. Efforts are also invested in the development of new photonic materials and device structures for emission and detection at wavelengths spanning from the ultra-violet to the mid-infrared. The Photonics Laboratory teaches basic and advanced photonics courses in the master program Wireless, Photonics and Space Engineering. www.chalmers.se/mc2/EN/laboratories/photonics-laboratory

€ Funded Research Projects Experience

- FAST ACCESS: Low Cost 1.3 µm Sources for Fast Access Technologies
- NATAL: Nanophotonic Materials and Technologies for Multicolor High Power Sources
- NEMIS: New Mid-Infrared Sources for Photonic Sensors
- SUBTUNE: Widely Tunable VCSELs using Sub-Wavelength Gratings
- VISIT: Vertically Integrated Systems for Information Transfer
- MERLIN: Multi-Gigabit Scalable & Energy Efficient On-Board Digital Processors Employing Multicore Vertical Embedded Optoelectronic Engines
- EUROFOS: Europe's Research Network on Photonics Systems
- PHASORS: Phase-sensitive amplifier systems and optical regenerators and their applications

chilas

Chilas B.V. develops and commercializes ultra-narrow linewidth tunable external cavity lasers. The lasers are used in a wide range of applications, such as coherent optical communication, fiber sensing, Lidar and microwave photonics. The concept uses state-of-the-art Photonic Integrated Circuit (PIC) technology and has distinctive advantages of which the most important are:

-Ultra narrow linewidth
-Very wide tuning range
-Small footprint/size
www.chilasbv.com

CITC
Chip Integration
Technology Center

Chip Integration Technology Center (CITC) is a non-profit joint innovation center that specializes in heterogeneous integration and advanced semiconductor packaging technology. It is a place where companies, research and educational institutes work together on bridging the gap from academics to industry and create new and better solutions. We offer access to:

- Innovation – Organizing and executing innovation programs in the field of packaging and integration technology for chips. CITC's current program lines are: 1) Thermal High-Performance Packaging 2) RF Chip Packaging 3) Digital Package Manufacturing 4) Integrated Photonics Packaging
- Infrastructure – CITC maintains lab facilities that support the innovation programs but also support the education programs through internships and MSc/PhD programs. CITC has a Smart Industry Field Lab status, indicating a place where industry and research organizations jointly develop, test, and implement smart industry solutions.
- Education – CITC collaborates with universities, applied universities, and companies to support and provide packaging and chip integration technology-related education. This includes internships, MSc/PhD programs, and a specific CITC- HAN Packaging course.

www.citc.org

CS Consult

Christian Stickl CS Consult is a start-up founded by Christian Stickl, a business developer, a seasoned and experienced CEO and entrepreneur in the optical sensor, photonics and machine vision industry with experience in turn-around, strategic positioning, scaling and growth positioning for SMEs. Recently focusing on Hyperspectral and Chemical Sensing, Food, Beverage and Smart Farming Industries. Services offered: Senior Board Advisor, Board Member, Technical Due Diligence and TRL Analysis for Private Equity, Investment Appraisal, Application Development "From Technical Functions to Scaling Business Case", Interim-Management.

Chromacity

Chromacity Ltd designs and manufactures ultrafast pulsed lasers spanning both the infrared and visible spectrum. Their products service customers in scientific, commercial and

industrial sectors. With headquarters in the heart of Scotland, Chromacity has built a reputation of technical excellence and welcomes conversations from OEMs to provide bespoke solutions to service their requirements. Successful partnerships and collaborations with leading researchers produce groundbreaking results in areas as diverse as quantum communications and multi-species gas analysis. www.chromacitylasers.com

Chroma Technology is an employee-owned company that specializes in the design and manufacture of precision optical filters and coatings. The most advanced coating techniques have been developed that provide the greatest accuracy in color separation, optical quality and signal purity economically for OEM applications. We provide application engineering support, short cycle times and are as comfortable designing and manufacturing custom filters. The engineering team from Chroma's instrumentation subsidiary 89North is focused on production of light sources and other opto-mechanical products for OEM and end-users. Founded in 1991 with the focus on optical filters for fluorescence microscopy, Chroma became a global player in the optical world, serving bio-medical research and diagnostic, machine vision and medical instrumentation. www.chroma.com

CIOE (China International Optoelectronic Exposition) was established in 1999 and is now the flagship event of INFORMA group and known to the optoelectronic industry as the most influential event of its kind in the world. Featuring more than 2,000+ exhibitors, CIOE is annually held at early September in Shenzhen, China, focusing on Optical Communications, Lasers, Infrared Applications, Precision Optics, Lens and Camera Module, Data Center, Optoelectronic Sensors and Photonics Innovations. This event is also regarded as an annual industry gathering where you could meet clients, suppliers, distributors, and partners under one roof, serving as the gateway to China's optoelectronic industry. www.cioe.cn

CIP/Fiberopticshop.rs, a manufacturer of fiber optic connectivity products with a constant focus on investing in knowledge and technology. As a vertically integrated manufacturing company, CIP/Fiberopticshop.rs can assure their partners that they have access to 100% European products that also comply with all applicable European regulations. With the main focus on the assembling and equipping of fiber optic connectivity products by making use of the in house produced parts, a quality level according all the applicable international product standards can be guaranteed. By closely following all developments in the field of photonics, optoelectronics and certainly also the environment, CIP/Fiberopticshop.rs proved also to be a suitable partner for more complex issues. www.cip-networks.rs

CIPOSA has experience in assembling very small watchmaking components which has given us the tools to offer tailor-made solutions for the world of photonics. The ability to handle extremely small components, down to 0.2 mm, is an additional asset in assisting market players. At Ciposa, we are passionate about driving progress in the photonics industry. For example, our products enable photonic integrated circuit (PIC) manufacturers to find assembly solutions with unrivalled reliability and efficiency. By combining passive or active alignment, controlled dispensing (1NL) and vision inspection, our technology provides the perfect solution for the changing requirements of the photonics industry. Ciposa knows that it has the skills to play a role in this new photonics market, don't hesitate to challenge us. www.ciposa.com

CI Systems has been a worldwide trusted supplier of a wide range of electro-optical test and measurement equipment for four decades (founded 1977). CI has a very broad portfolio of standard products including blackbodies, integration spheres, reflective and refractive collimators with a very large range of focal lengths. CI is also the world's leading spectroradiometer manufacturer, based on its proprietary circular variable filter (CVF) technology. On top of these catalog items, CI supplies the world's leading manufacturers with custom-made electro-optical (EO) testers and setups. With a strong global presence and a dedicated team of engineers, CI can address any optical testing challenge. www.ci-systems.com

Civan Lasers - Next-generation Laser Technology for Industrial Manufacturing. Civan's Dynamic Beam Laser allows manufacturers to quickly tailor the welding process to the application. With the ability to control beam shape, beam sequence, shape frequency, and focal depth at MHz speeds without any moving parts. Civan's disruptive DBL technology facilitates rapid process optimization, eliminating unwanted joining defects such as pores, cracks, and humping. Civan's lasers not only improve joint quality but also offer increased power, increased feed rates, and more efficient production of new, complex, products made of dissimilar materials. Civan's Dynamic Beam Lasers are based on Coherent Beam Combining technology. www.civanlasers.com

Class 5 Photonics offers the most powerful femtosecond lasers on the market. Accelerate your research and ultrafast applications. Discover new frontiers in liecbenefiting from

unmatched resolution. Our flagship product family "*Supernova OPCPA*", covers pulse durations down to 15 fs, wavelength regimes from 0.4 – 3.0 µm, and industry-leading average power beyond 100 W. Based on modular optical parametric chirped-pulse amplifier (OPCPA) design we reduce footprint and complexity while achieving maximum long-term stability at an affordable price. www.class5photonics.com

CMC Microsystems works with researchers and industry across Canada's National Design Network®, providing access to world-class tools, technologies, expertise and industrial capabilities for designing, prototyping and manufacturing innovations in microsystems and nanotechnologies. Photonic manufacturing includes SOI-based silicon photonic technologies, III-V epitaxy and processing on GaAs and InP substrates, and value-added packaging and assembly services to integrate multiple technologies. CMC reduces barriers to technology adoption by creating and sharing platform technologies. www.cmc.ca

CogniFiber was founded in 2018 by Dr. Eyal Cohen and Prof. Zeev Zalevsky with the aim to reinvent computation, revolutionize the data processing industry, and create a new, AI-driven reality. By creating an in-fiber, pure-photonic computing system that biomimicks the brain's computational efficiency with the bandwidth of optical communication, the CogniFiber solution was shown to outperform the most advanced processors in every way, while reducing power consumption and heat dissipation dramatically. Following the completion of its A-Series funding, CogniFiber accelerates toward its first products of Photonic Auto-Encoder, expected (Q1 2023) which will generate a giant leap forward in AI deployment within Cybersecurity and Industrial IoT. www.cognifiber.com

Coherent empowers market innovators to define the future through breakthrough technologies, from materials to systems. We deliver innovations that resonate with our customers in diversified applications for the industrial, communications, electronics, and instrumentation markets. Headquartered in Saxonburg, Pennsylvania, Coherent has research and development, manufacturing, sales, service, and distribution facilities worldwide. www.coherent.com

Compound Semiconductor Applications Catapult is a Not for Profit organisation headquartered in South Wales. It is focused on accelerating the adoption of compound

semiconductors and on bringing applications to life in three technology areas: Power Electronics, RF & Microwave and Photonics. The next wave of emerging applications will have an enormous impact on our lives. Compound semiconductors will enable a host of new and exciting applications in the electrification of transport, clean energy, defence and security, digital communications. Increasing demand for clean energy will require new electricity networks, while advanced sensing will open-up new opportunities for health diagnostics and security. These developments will be underpinned by compound semiconductor (CS) technologies. The Compound Semiconductor Applications Catapult exists to help the UK compound semiconductor industry grow and works across the UK within a range of industry sectors from automotive to medical, and from digital communications to aerospace. As well as the three technology areas, CSA Catapult is also working in the area of Advanced Packaging for these high-power innovations. www.csa.catapult.org.uk

CompoundTek provides enhanced foundry services for Silicon Photonics. CompoundTek converts customer design into end products through proprietary Silicon Photonics manufacturing processes in a commercial 8" CMOS foundry Partner (<90nm-180nm). Our fab supports fast turn-around full reticle field or MPWs (2 to 3 months) and high-volume mass production requirements of full photonics integrated circuits with active and passive components. Our technology offerings include: Si waveguides, SiN waveguides, Si photonic crystals with ultra-shallow grating, TiN heater and ion implantation doped heater, 8 Ion implantation layers, Ge photodetector, both Cu and Al BEOL metal layers with option Al for top metal routing, V grooves for fiber self-alignment, suspended edge coupler spot size converter and deep trench dry etching. www.compoundtek.com

Comptek Solutions is a forerunner in III-V compound semiconductor quantum surface engineering. Our innovative passivation technology – Kontrox ™ - delivers up to 98 % reduction of interface defect state density compared to existing methods, which results in an unprecedented boost of efficiency and significant increase in manufacturing yield of III-V based devices such as LED and microLEDs, lasers and photodetectors. www.comptek-solutions.com

CONNECT is the world leading Science Foundation Ireland Research Centre for Future Networks and Communications. CONNECT brings together world-class expertise from ten Irish academic institutes to create a one-stop-shop for telecommunications research, development and innovation to address the communications challenges facing society today. The Centre engages with over 40 companies including large multinationals, SMEs and start-ups to explore areas such as 5G/6G networks, novel and integrated photonics circuits, Internet of Things, network architectures and function control, and future high-speed network

applications. A key element of the Centre's activity is the use of advanced testbeds to experiment and trial creative solutions. www.connectcentre.ie

CONVERGENT PHOTONICS has been in the high power laser technology business since 1961 and now has more than 6000 laser sources installed worldwide, having expanded its laser offering to all potential customers in the metalworking/fabrication industry. CONVERGENT PHOTONICS FIBER lasers have a compact design for easy integration in different machine configurations, delivering the best performances in material processing. CONVERGENT PHOTONICS high power CO2 and high peak power pulsed Nd:YAG lasers are available for the market for laser cutting, welding, and drilling applications of metallic and non-metallic materials. CO2 laser product offered ranges in output from 2500W to 5000W with excellent beam mode. Pulsed Nd:YAG laser produce 50kW peak power and is the standard laser for aerospace drilling. www.convergent-photonics.com

CoolLED designs and manufactures cutting edge LED Illumination Systems for life science, materials science and clinical applications using the latest LED technology. Since introducing the first commercially available LED Illumination System in 2006, we have led the way in transforming fluorescence microscopy and transmitted illumination. Now we are a fast-growing company with a vast product range and technical expertise to support diverse applications requiring bright, stable and homogenous illumination. We collaborate with many organisations across Europe, support the European Light Microscopy Initiative, and are members of Euro-BioImaging. www.coolled.com www.oemillumination.com

CorActive is a manufacturer of advanced Specialty Optical Fibers (SOF) and OEM modules and components for customers serving the industrial, telecommunications, sensing, defense, and medical markets. CorActive uniquely offers a full line of standard and custom products, including rare-earth doped active and passive single clad and double clad fibers for fiber laser and amplifier applications, Mid-IR transmission fibers, UV sensitive and attenuating optical fibers, plus OEM modules and components for high power CW lasers. www.coractive.com

CORIAL, a Plasma-Therm company, is an innovative designer and manufacturer of systems used in the fabrication of advanced technology devices. CORIAL's systems generate highly

energized atoms and molecules (plasma) to perform precise etching and deposition of various semiconductors and related materials. These systems are the most versatile, compact, and reliable in the industry, providing the latest technology with the lowest cost of ownership. The Corial 200 and 300 Series portfolio is designed specifically for the requirements of R&D and the pilot to low volume production lines and the Corial 500 Series provides very-large-area plasma-enhanced chemical vapor deposition. Founded more than 30 years ago and based in the European high-technology hub of Grenoble, France, CORIAL delivers its systems throughout the world to producers of specialty semiconductor devices, who serve a wide variety of niche markets. CORIAL employees are highly skilled scientists, engineers and technicians, who develop new equipment and processes, and provide after-sale service and technical support, backed by Plasma-Therm's global sales and service network. www.corial.com

CORNERSTONE is an open source, license free silicon photonics prototyping foundry. We offer a range of different platforms to support a wide variety of applications ranging from telecoms to sensing, LiDAR, AI, quantum and more. We will gladly experiment and try new things for the benefit of our users. This flexible approach helps us to support early-stage R&D projects and successfully fabricate proof of concept prototypes. www.cornerstone.sotonfab.co.uk

Corning is one of the world's leading innovators in materials science, with a 167-year track record of life-changing inventions. Corning applies its unparalleled expertise in glass science, ceramics science, and optical physics, along with its deep manufacturing and engineering capabilities, to develop category-defining products that transform industries and enhance people's lives. Corning succeeds through sustained investment in RD&E, a unique combination of material and process innovation, and deep, trust-based relationships with customers who are global leaders in their industries. Corning transforms the way the world connects: Since ushering in the telecommunications revolution with the invention of low-loss optical fiber in 1970, Corning has been continually innovating to increase the speed and capacity of optical networks, while reducing installation costs. Today, we are delivering solutions for growing segments like fiber to the home, wireless technology, and hyperscale data centers. Innovating the next generations of thin, tough glass for mobile devices: By pioneering glass that is thin, lightweight, damage resistant, and responsive to touch, Corning helped transform the way people use their smartphones. Today, Corning(r) Gorilla(r) Glass is featured on billions of mobile devices worldwide. We continue innovating to enhance performance, deliver new features, enable new designs, and support new capabilities such as augmented reality. Creating richer entertainment experiences through display glass

innovation: Corning helped create the LCD industry by inventing a process for making thin, flat glass with exceptional stability and unparalleled surface quality. Today, we are leveraging our expertise and assets to drive the next round of display innovations - better images, ubiquitous touch, flexible displays, and new form factors. Delivering solutions that enable life-changing, life-saving medicine: Corning has been a trusted supplier to the healthcare and pharmaceutical industries since we introduced PYREX(r) glass in 1915<x-apple-data-detectors://3>. Today, we are a leader in lab products, cell culture solutions, bioprocess vessels, and specialty surfaces. We are also helping to provide more reliable access to medicine with our revolutionary new glass packaging for drug storage and delivery. www.corning.com

CORNING
Laser Technologies

Corning Laser Technologies (CLT) combines more than 25-years' experience in designing laser-based machine tools with more than 150 years of Corning Incorporated's deep understanding of material science. CLT offers laser glass processing systems with the ability to cut Corning® Gorilla® Glass, Lotus™ NXT, and Eagle XG® glass, as well as other chemically strengthened and non-strengthened glass types including soda-lime and other brittle materials. These machine platforms serve a wide range of emerging applications that require precise and flexible glass processing technologies. They are constructed for 24/7 operation in an industrial environment. Respectively designed for substrate sizes from less than 10mm x 10mm up to 2.5m edge length and combining superior beam delivery technology from fixed optics via scanner systems to freeform and 3D cutting, CLT enables flexible adaption to individual customer design requirements. CLT also offers in-house process development and tailored solutions for full automation – leveraging knowledge and experience for a one-stop-shop for laser processing requirements. www.corning.com

CSIR
Touching lives through innovation

The Council for Scientific and Industrial Research, commonly known as the CSIR, is a world-class African research and development organization. The CSIR undertakes directed, multidisciplinary research and technological innovation that contributes to the improved quality of life of South Africans through science, engineering and technology competences. Key issues that the CSIR seeks to address through various interventions include: creating a vibrant economy and employment opportunities; building a capable state that is able to consistently deliver high-quality services for all South Africans; contributing to the development of economic and social infrastructure like transport, energy, water resources and ICT networks. www.csir.co.za

cpi

CPI is a leading independent technology innovation centre and a founding member of the UK Government's High Value Manufacturing Catapult. Established in 2004, we have more than 450 staff at sites in the North East of England and in Scotland. We work with our partners across diverse markets in the UK and around the world, driving their innovations forward and helping them to reduce the risk and cost associated with product development. Our photonics activity is based at NETPark in Sedgefield and is focussed on the application of photonics technologies to Healthcare. Our custom-built laboratories are fully equipped for the development, pilot manufacture and test of photonic components, systems or instrumentation and we are certified to ISO 13485 for medical device development. Our in-house facilities include biochemical labs for human tissue and Class 2 biomaterials test and validation. We also provide test beds for imaging system development, including optical coherence tomography, confocal microscopy, fluorescence lifetime imaging and spectral imaging. Our projects frequently involve multi-disciplinary teams, drawn from CPI staff expert in hybrid and flexible electronics, formulations science, pharmaceuticals manufacturing or biotechnology. We are active participants in international collaborative research and innovation programmes, including EU projects. www.uk-cpi.com

CrayoNano

CrayoNano is a next generation semiconductor company with a patented and groundbreaking technology merging different nano-materials to create new functional hyper-materials. Combining graphene with AlGaN nanowires – CrayoNano designed and manufactures an extremely efficient UVC LED semiconductor component. It is a breakthrough technology enabling new applications with high quality, reliable and powerful nano-hybrid UVC LEDs that will revolutionize the disinfection market of water, surfaces and air. www.crayonano.com

Cristal Laser

Cristal Laser Cristal Laser is a French-based company specialized in the manufacture of high quality nonlinear optical crystals such as LBO, RTP Q-switches, KTP and KTA. Those are used either for frequency conversions (SHG, THG, OPO) or for electro-optic applications (Q-switching or pulsepicking). With more than 30 years of expertise, Cristal laser boasts a 2400m² manufacturing facility with top level crystal growth stations and cutting and polishing machines as well as high-end testing equipment (Zygo interferometers, AFM, spectrophotometer, laser test setups...). Cristal laser currently supplies the main world players in the laser industry and is also involved several European research and space projects (ELI programs, Curiosity rover, Aeolus…). www.cristal-laser.com

Crypta Labs

Crypta Labs is a London based quantum security start-up. Developing next generation encryption solutions. Crypta labs has developed a Quantum Random Number Generator, which uses the inherent randomness of photons at a quantum level. Due to our proprietary design, our QRNG is robust against environmental interference and is therefore suitable for a range of applications including transport, industry 4.0 and space. www.cryptalabs.com

CSEM: Swiss Center for Electronics and Microtechnology, founded in 1984, is a private applied R&D center. Our 550-strong workforce specializes in micro- and nanotechnologies, systems and surface engineering, low-power information and communications technologies, and photonics. The main focus of CSEM's photonics program is the development of optoelectronics components and their optimal integration into innovative products. Our technologies are able to address the needs of a very wide range of fields, from healthcare, watch-making, aerospace, security and medical, to consumer electronics and cleantech. www.csem.ch

€ Funded Research Projects Experience .

- MACQSIMAL: design, development, miniaturisation and integration of advanced quantum-enabled sensors with outstanding sensitivity, to measure physical observables in five key areas: magnetic fields, time, rotation, electro-magnetic radiation and gas concentration
- FLAIR: development of an airborne, compact and cost-effective air quality sampling sensor for sensitive and selective detection of molecular fingerprints in the 2-5 µm and 8-12 µm infrared atmospheric windows.
- MOLOKO: manufacturing, implementation and validation of a self-managing and automatic miniaturized integrated photonic sensor to be used as process analytical instrumentation for fast-response on-site monitoring of interest analytes for security and quality within milk supply chain.
- LASSIE-FP7: development of an innovative LED-based module for professional and architectural lighting.
- MEDILIGHT: develop of a miniaturized smart system for light stimulation and monitoring of wound healing.
- SMARTNANO: development of an innovative, cost-effective technology platform that provides total solution "from sample-to-result" for the detection, identification, and measurement of engineered nanoparticles in a wide range of matrices.
- TeraTOP: development of a new high performance, low cost, THz Imager for passive imaging systems based on CMOS batch manufacturing processes.
- RADAR: development of a modular platform for monitoring toxins in water and food production facilities using biosensors derived from aquatic organisms: Rationally Designed Aquatic Receptors.
- VIAMOS: demonstration of an hand-held, low-cost, fully parallel spectral domain miniature OCT devices: 10x cheaper, 150x smaller, adapted for early diagnosis of cutaneous pathologies
- PROVISCOUT: demonstration of the combination of vision-based autonomous sample identification & sample selection with terrain hazard analysis for a long range scouting/exploration mission on a terrestrial planet.

HUBER+SUHNER

Cube Optics HUBER+SUHNER manufactures and markets miniaturized fiber-optic components, modules and systems for use in data and telecommunications (Metro Core,

Access, Enterprise, CATV, 3G-Telephony, Datacomm). Furthermore, CUBO's components are applied in wavelength selective sensing applications in the oil & gas market, medical applications, military, security & safety equipment. Our products range from Wavelength Division Multiplexers, to Switches, highly integrated optical devices like a 4 channel ROSA to rack-mountable, carrier-grade metro transport systems. Thanks to the broad range of our products and solutions we are supplying OEM manufacturers as well as Network Operators. www.cubeoptics.com

Cycle

Cycle is a young high-tech company that manufactures world-leading femtosecond precision systems based on ultra-short pulse lasers. The DESY spin-off company was founded in 2015 by renowned researcher Prof. Franz X. Kärtner. For customers in science and industry, Cycle manufactures unique products that enable new applications in biology, material analysis and precision metrology. Its femtosecond precision timing and frequency systems are used in research facilities around the world such as X-ray free electron lasers, high intensity laser facilities and ultrafast laser laboratories. As an official contractor of ESA, Cycle supplies the next generation of time and frequency distribution systems for DeepSpace ground stations. In addition, Cycle is in the process of rolling out its next product platform, which is a multi-wavelength femtosecond laser system for multi-modal multi-photon microscopy. www.cyclelasers.com

DNP
Dai Nippon Printing

Dai Nippon Printing (DNP) is one of the largest comprehensive printing companies in the world. DNP's main strengths are the printing and information technologies that it has cultivated since its founding in 1876. DNP will provide new value by taking advantage of the cutting-edge technologies that we have cultivated through our printing business as we respond to global advances in the Internet of things (IoT) and evolution in smartphones and other information devices. We will further refine technologies such as photolithography and nanoimprinting for forming micropatterns, and coating techniques for applying thin and uniform layers of functional materials, so that we can deliver to the consumers of the future the type of high-added value products that we have been developing for over half a century. www.dnp.co.jp

DAS Photonics

DAS Photonics is a spin-off company from the Valencia Nanophotonics Technology Center at the Universidad Politécnica de Valencia in Spain. DAS develops innovative products using proprietary photonics technology for several high-performance industries (Defence and security, Avionics/Aeronautics, Space, Telecom. DAS Photonics leads product development using a double approach: designing photonics integrated circuits (PICs - chips that process optical signals); as well as integrating COTS devices and devices built by DAS for specific uses (microwave photonic systems, optical interconnects, etc.). Nearly two decades of

university research experience -combined with the ability to handle highly specialised product development- has enabled DAS Photonics to establish a leading role in Europe. www.dasphotonics.com

Deeplight advances existing and emerging applications of laser radiation by offering compact light sources with outstanding coherence properties and frequency agility – throughout the visible (VIS) and near-infrared (NIR) spectrum. Their products build upon a proprietary integration platform, comprising low-loss silicon nitride photonic integrated circuits, advanced piezoelectric actuators, and gain elements made from direct-bandgap III-V compounds. Deeplight's technology addresses a wide range of applications of laser light, comprising LiDAR and optical metrology, spectroscopy and environmental sensing, life sciences, optical communications, microwave photonics, and quantum technologies. www.deeplight.ai

DELO is a leading manufacturer of high-tech adhesives and other multifunctional materials as well as the corresponding dispensing and curing equipment. The company's products are mainly used in the automotive, consumer, and industrial electronics industries. They can be found in almost every mobile phone and every second car worldwide, for example in cameras, loudspeakers, electric motors, or sensors. Customers include Bosch, Daimler, Huawei, Osram, Siemens, and Sony. DELO's headquarters are in Windach near Munich, with subsidiaries in China, Japan, Malaysia, Singapore, and the USA as well as representative offices and distributors in numerous other countries. The company has 820 employees and achieved a turnover of 167 million euros in last the financial year. www.delo.de

Delta Optical Thin Film A/S is a world-leading manufacturer of optical thin film filters with more than fifty years of experience. Through continuous development of new design and production technology, Delta Optical Thin Film helps the world's leading manufacturers of diagnostic and analytical instruments in setting new standards. With its unique and advanced optimisation software to match customers' particular optical specifications, Delta Optical Thin Film ensures a fast and efficient design process. Delta Optical Thin Film fluorescence filters and Continuously Variable Filters are used in demanding applications such as hyperspectral imaging, fluorescence microscopy, spectroscopy, flow cytometry, wavelength selectors, high-performance monochromators, biomedical laser systems, Point of Care (PoC) instruments, image transferring systems, colour separation systems and optical coherence tomography. www.deltaopticalthinfilm.com

€ Funded Research Projects Experience

- OPTITUNE: Development of Linear Variable Filters for faster diagnostics of life-threatening diseases

- CATACURE: Prototype instruments that provide the appropriate laser illumination for diagnostics and therapy of cataract

DEMCON is specialized in design, engineering and assembly of bespoke opto-mechatronic systems, for high technological markets like semicon, medical devices, bio-medical, life science, analytical, laser, space, astronomy and others.Demcon possesses unique optical systems and precision inspection knowledge and with mechatronics and vision expertise this enables the design, realization and integration of high-grade opto-mechatronic systems. Optical principles knowhow and thorough knowledge of opto-electronics, signal analysis and opto-mechanics, results in perfectly working opto-mechatronic modules and systems. Semiconductor industry examples include alignment and level sensors, lenses/optics for laser-based manufacturing and complete lithography systems. In satellite communications, the applications include optical communication and instrumentation. Regarding laser-based systems for measuring instruments and processing machinery, 'beam-delivery' demands precise positioning down to nanometer levels. Dedicated lasers, advanced 2D & 3D measurement techniques (e.g. OCT/Optical Coherence Tomography) and adaptive optics frequent topics, including optimizing signal-to-noise ratio for the maximum processing result.Besides hardware Demcon has an in-house software capabilities, from advanced vision algorithms and artificial intelligence modules to highly dynamic control systems.DEMCON is an autonomous organization, with its headquarters in The Netherlands and further subsidiaries in The Netherlands, Germany and Singapore. www.demcon.com/focal

Dendrite Precision is a global high-tech medical device company focusing on thedevelopment and manufacturing of ultra-precision optical equipment since 2013. DendritePrecision provides advanced and innovative optical devices to meet unmet medical needs.The flagship technology, MEW-M, is a miniaturized microscopic system with a lens diameterof only 2 millimeters, yet it can achieve optical performance comparable to a regularhigh-power optical microscope objective. The first commercially available device, theEndoScell scanner, along with its accompanying consumables, enables real-time, in vivovisualization at the cellular level, assisting surgeons in achieving higher precision duringtumor resection.

DenseLight, founded in 2000, designs, manufactures, and markets Optoelectronics Devices, which include DFBs, FPs, SLEDs, Narrow Linewidth Lasers & ELEDs. We also exploit our proprietary hybrid integration platform to deliver customized Photonic Integrated Solutions, for both the sensing & datacom market. Our products serve the communications, medical, instrumentation, industrial, defence, security, and datacom industries. We have a fully equipped cleanroom for vertically integrated volume manufacturing from wafer fabrication to testing and packaging, with both Indium Phosphide (InP) & Gallium Arsenide (GaAs) capability DenseLight was acquired by POET Technologies in May 2016, a Toronto-listed

developer of optoelectronics and photonic fabrication processes and products. www.denselight.com

Deutsche Messe events and services have been bringing together exhibitors and visitors since 1947. This has helped numerous small enterprises to become world market leaders, while at the same time supporting large-scale enterprises on their road to further expansion. Our expertise is as diverse as our portfolio: Trade fairs for capital goods, human resource management as well as consumer goods. Helping your business is our passion. www.messe.de

Organizer of the LASERFAIR SHENZHEN: 02.-05.06.2019, Shenzhen World

DF PHOTONICS CONSULTING

DF Photonics Consulting is a photonics consultancy company specialising in the field of engineering and technical studies.

Diafir, created in June 2011, has designed an innovative diagnostic system as an alternative to biopsy. Ensued from the results of the Glass and Ceramic Lab of the Rennes 1 University and INSERM, the diagnostic system is based on a patented IR sensor which enables identifying a sound or pathological environment by a simple contact. It aims at an early detection of chronic or infectious diseases, as well as cancerous tumors. www.diafir.com

Diamond is a Swiss company with a long tradition of specialists in the design, development and manufacturing of connectors for precision optical fibers. With more than thirty years of experience in the field, Diamond SA is a recognized expert and market leader in fiber optic connectivity, offering specific and targeted products for each type of market. As a vertically integrated company, Diamond SA is one of the few manufacturers that has full control over its manufacturing process. High-quality ceramic, metal and plastic components, from the raw material to the end product, are all processed in-house. This system allows Diamond to guarantee that every single component meets all the quality, reliability and performance standards found in Diamond products around the world. www.diamond-fo.com

DiaMonTech is a Berlin-based company that aims to help millions of people suffering from diabetes worldwide. Professor Mäntele and his team developed Photothermal detection over 10-15 years and the company adapted it to create medical devices. Our technology is based on well-established physical methods in the field of spectroscopy. We expanded on these methods to be able to detect glucose in the human body. Our newly developed medical devices check your blood glucose level more conveniently with the help of invisible infrared light beam. www.diamontech.de

DIEHL
Defence

Diehl Defence delivers high-tech equipment for defence. The company is one of the global technology leaders in the development and production of guided missiles and ammunition for armies, air forces and navies. Moreover, Diehl Defence also offers advanced system solutions for ground-based air defence. Innovative solutions in the fields of reconnaissance, monitoring, training and protection round off the product range. www.diehl-defence.com

DMC Direct Machining Control

Direct Machining Control creates software “DMC” that controls laser machines. Applications range from laser micromachining like laser etching, drilling, engraving to laser additive manufacturing (SLS, SLM, SLA, 2PP) and even 5-axis machining. DMC is a fusion between CAD/CAM and machine control software focused specifically on laser applications. It combines motion trajectory generation based on 2D or 3D CAD models and controlling a wide range of hardware (positioning stages, galvo scanners, lasers, cameras, various sensors) to perform laser machining with user defined parameters. Direct Machining Control works together with variety of motion control companies, big and small system integrators and laser micromachining R&D centers to provide laser system users an intuitive and efficient way to control their laser machines. www.directmachining.com

dispelix

Dispelix is a waveguide designer and manufacturer that delivers visionary augmented and mixed reality see-through displays for consumer and enterprise solutions. Its patented DPX waveguides unlock new freedoms in AR product design with unmatched image quality, performance, and efficiency. Led by the world's most sought-after experts in optics, photonics, and manufacturing, Dispelix powers AR experiences that push boundaries. Dispelix is headquartered in Finland, with offices in US, China, and Taiwan. www.dispelix.com

DODD-WALLS CENTRE
for Photonic and Quantum Technologies

The Dodd-Walls Centre for Photonic and Quantum Technologies is a New Zealand national Centre of Research Excellence. We generate new photonic technologies and devices in sensing, imaging, measurement, and the sources and components used in many industrial processing systems. We work on R&D projects and provide technical assistance for industry,

prototype development, and commercialization of new technology. Our centre also has expertise at the cutting-edge of technological achievement in precision measurement and manipulation of materials at the atomic scale, which are proving transformational in instrumentation, new devices and information. www.doddwalls.ac.nz

€ Funded Research Projects Experience

- Raman4Clinics, H2020 COST Action
- Advances in Optofluidics: Integration of Optical Control and Photonics with Microfluidics
- CrystalVis: A process analytical technology for characterising the physical properties of crystals
- Opti-Clean: Effective and reliable optical system for cleaning validation in pharmaceuticals manufacture

Danmarks Tekniske Universitet DTU

DTU Fotonik researches into understanding the nature of light and all the ways in which we can control and use light. Photonics Engineering has become a key enabling technology for our society and is used, for example, both for our communication infrastructure, in the healthcare sector for the treatment of diseases and for secure communication on the Internet. At DTU Fotonik, we aim to offer education, research and innovation of the highest standard, and our focus on application-oriented research enables us to work across many engineering disciplines and research areas, such as IT and the medical and health sciences. We have a close collaboration with researchers from all over the world, just as we collaborate with industry and public authorities about the dissemination of solutions based on photonics engineering as their key enabling technology. www.fotonik.dtu.dk

DUMA OPTRONICS LTD.
Innovative optronics Instrumentation

Duma Optronics offers products covering a wide range of industrial, defense, security and research applications. The family of products that were developed in Duma Optronics meet the market needs for sophisticated instrumentation. Recently Duma is involved through its innovative technology in development of Mass Production machines including MTF Testing for optical elements, actively looking for partners in these fields. Current products include:

- High Power laser beam profiling
- Beam analysis systems (Beam Profilers, M2 meter, Divergence meter)
- Optical beam positioning
- Alignment measurement systems
- Electronic Autocollimators

www.dumaoptronics.com

e·on

E.ON Group is one of Europe's largest operators of energy networks and energy infrastructure and a provider of innovative customer solutions for 50 million customers. E.ON is decisively driving forward the energy transition in Europe and is committed to sustainability, climate protection, and the future of our planet. www.eon.com

TOPTICA eagleyard specializes in the development, production and sale of innovative high-power laser diodes based on GaAs (Gallium Arsenide). Its portfolio contains laser diodes with wavelengths ranging from 630 nm to 1120 nm sorted in five product families: Single Mode Laser Diodes, Single Frequency Laser Diodes, Multimode Laser Diodes, Tapered Amplifiers and Gain Chips. These laser diodes are addressing a variety of applications such as space, aerospace and defense, metrology, spectroscopy, medical instrumentation, test & measurement and material analysis. The company started as a rapidly growing spin-off from the Ferdinand-Braun Institut in 2002 and is part of the Munich-based TOPTICA Group since 2013. www.toptica-eagleyard.com

€ Funded Research Projects Experience

- HiFly: Short Pulse Laser Source

Eblana Photonics was founded in 2001 as a spin-off from Tyndall Institute and Trinity College Dublin. Eblana specialises in the design and manufacture of “Discrete-Mode” DFB-type Laser Diodes from 650nm - 2400nm, for use in optical sensing, metrology and LIDAR and optical communications markets. Eblana’s “Discrete-Mode” lasers are idea for both niche and mass market applications, utilising standardised FP processing and surface lithography in order to manufacture single mode laser diodes – a consistent and highly customisable process. Ultra narrow linewidth devices are produced for use in metrology, LIDAR and atomic clock applications. Custom processes as well as specialised photonic devices including MMIs, SOAs, SLEDs and lasers arrays are also part of the portfolio. www.eblanaphotonics.com

Eclipse Optics is Scandinavia’s leading developing partner when it comes to optics and photonics. We combine a deep knowledge and expertise in optics with an understanding for product development. Our consultants have experience from a wide range of applications and our customers can be found in many different areas, e.g. Life Science, Automotive, Safety/Surveillance, Green energy and Consumer electronics. We can assist our customers with everything from conceptual studies to complete turnkey solutions. Read more about us and our projects on www.eclipseoptics.com

ECOC Exhibition is the largest optical communications exhibition in Europe, held each September in a different European city, the event is the key meeting place for decision makers from across the fibre optic communications technology industry. Now in its 23rd year, the exhibition now attracts over 5,000 decision makers from all around the world - bringing together manufacturers, suppliers and service providers to networking, gain insights on the latest developments, new products and trends in the industry. Alongside over 300 international exhibitors, the exhibition is full with interactive features and seminars. Live demonstrations are provided in the FTTx Village and free training sessions covering fusion splicing and fibre preparation tools. The extremely popular Market Focus theatre includes thought provoking presentations from some of the most innovative and forward thinking companies working in optics today discussing the key issues facing the market. www.ecocexhibition.com

EdgeWave is the pioneer and leader of InnoSlab lasers and InnoSlab amplifiers. The range of products provided by EdgeWave includes short pulse lasers and ultra-short pulse lasers of high beam quality, with pulse length from 10ns down to 500fs and average power up to 600W. The beam profile can be circular Gaussian, line shaped top-hat and square top-hat. www.edge-wave.com
The major applications are:

- Glass industry, e.g. micro drilling and high through put subsurface engraving
- Display, e.g. structuring of thin film, sequential lateral crystallization of Si
- Photovoltaic: e. g. scribing, drilling and cutting of Si-wafer, ablation of conduction or dielectric layers of thin film solar and crystalline Si solar cells
- Electronics industry, e.g. drilling and cutting of ceramic foils and printed circuit boards
- Automobile industry, e.g. the manufacture of fuel injection valves
- Tool making and mechanical engineering, e.g. 3D rapid prototyping via ablation
- Scientific, e.g. pumping of dye laser, pumping of OPO, OPG or Ti:Saphire laser, particle imaging velocimetry

Edmund optics | worldwide

Edmund Optics (EO) is a leading, global provider of optical technology solutions that has been serving a variety of markets since 1942. The company employs 1,250+ employees across 18 global locations and continues to expand. The company services its customers through three distinct offerings: Marketplace - Edmund Optics' One-stop shop for the best brands and products in optics and photonics; Optical Manufacturing - Custom and volume manufacturing of high-quality optical and imaging components and systems; as well as Engineering Services - Optical consulting, design, and prototyping services as part of the company's manufacturing offerings. www.edmundoptics.com

EFFECT PHOTONICS

EFFECT Photonics develops highly integrated optical communications products based on its DWDM optical System-on-Chip technology. The key enabling technology for cost effective DWDM systems is full monolithic integration of all photonic components within a single chip,

also known as Photonic Integrated Circuits (PICs). This technology combined with EFFECT Photonics' low cost packaging capability, addresses the soaring demand for low cost DWDM solutions in high bandwidth connections between Datacenters (Inter-Datacenter), mobile cell towers for Fronthaul, Backhaul, and Passive Optical Networking (PON) applications such as NGPON2. www.effectphotonics.com

EKSMA Optics is a manufacturer and supplier of precision optical components used in high-power lasers, laser systems, and other photonic instruments. The product range includes laser optics for high power laser applications, optical systems, Pockels cells and their High Voltage drivers, ultrafast pulse picking systems, laser media & nonlinear crystals, laser diode drivers. EKSMA Optics owns cleanroom facilities for optical and electro-optical systems assembling, department of dielectric coatings deposition using IBS technology and department for spherical and aspherical lens manufacturing with CNC machines. The Company is active in industrial, scientific, medical and defense markets. www.eksmaoptics.com

EKSPLA - Innovative manufacturer of solid state and fiber lasers from custom system to OEM series. In-house R&D team and more than 30 years' experience ensures operative design, manufacturing and customization of the new products. For OEM customers who need reliable lasers equipment delivered on time EKSPLA provide optimized/tailored solutions for specific requirements that enables to make customers' product unique. Unlike of the shelf manufacturers, EKSPLA provide close partnership, collaboration and our commitment that helps to create value to your customers. www.ekspla.com

Elbit Systems is an Israeli based multi-domestic defense company, among the top 30 largest defense companies in the world. The company has 12,000 employees, including over 2,600 employees outside Israel. The company vision is to be a world leading source of innovative, technology-based systems for diverse defense and commercial applications. The company is divided to several divisions such as Land, Aerospace, ISTAR, and CYBERBIT. The Aerospace division business areas include Commercial Aviation, Training & Simulations, Helicopter Solutions, Helicopter & Fixed-Wing HMD, Airborne Command & Control and ISTAR Solutions. www.elbitsystems.com

Electrolux is a global manufacturing leader in kitchen appliances including food preparation, storage and dish washing. Nowadays, sustainability is one of the key drivers of company

transformation with Electrolux being committed to reduce CO2 emissions in products use and to achieve climate neutral operations by 2030. The Global R&D organization for Major Appliances is a multi-cultural team with approximately 3,000 R&D employees distributed in 15 R&D centers around the world. www.electroluxgroup.com

ELEMENT 3—5 [Element three to five] - based in Baesweiler, Germany – is a technology source for the semiconductor industry. The product spectrum ranges from production systems based on the novel low-temperature epitaxy to powerful ion and plasma sources for wafer cleaning and surface activation. Our innovative high-performance system - ACCELERATOR 3500K - enables production of monocrystalline aluminum nitride templates at 10-fold higher capacity, increased layer homogeneity and with significantly lower production costs. Producers of power electronics or LED devices appreciate the significant productivity increases and capacity expansions offered by the ACCELERATOR 3500K. Nothing less than a semiconductor revolution! www.element3-5.com

ELEMENT 3-5 is a technology source for the semiconductor industry. The product spectrum ranges from production systems based on the novel low-temperature epitaxy to powerful ion and plasma sources for wafer cleaning and surface activation. Their innovative high-performance system - ACCELERATOR 3500K - enables the production of monocrystalline aluminum nitride templates at 10-fold higher capacity, increased layer homogeneity and with significantly lower production costs. www.element3-5.com

ELFORLIGHT

Elforlight manufactures a range of diode pumped solid state lasers with cutting edge specifications and offers the following: Wavelengths from infrared through visible to ultraviolet; Powers from 30mW up to 10W; Single frequency and broadband; and CW, Q-Switched and pulsed systems. Elforlight also offers the facility to design and manufacture a range of optical systems, including packages of laser diodes, drivers and thermal management and pride themselves in their flexibility to tailor the product to meet the user's needs, offering subsystems and value addition. Elforlight has a philosophy that will appeal to those seeking solutions to a problem, not just an off the shelf product. www.elforlight.com

ELFYS

ElFys is a Finnish company, and we are specialized in photodetector technology. ElFys provides light and radiation photodiodes with photosensitivity better than any other commercial available products. ElFys offers true board band photodiode for high demanding applications of light detection from deep UV, visible to NIR wavelength range. ElFys supplies the technology and photodiode products to various applications ranging from health monitoring, safety & security, analytical instruments to medical CT applications, etc. ElFys offers standard photodiode products as well as customized photodetectors to the customers and market. ElFys has the capability of designing, development and manufacturing photodiode products in Finland and Europe.Keywords: photodiode, photodetector, UV detector, x-ray imaging, photodiode array, PIN diodeApplications: health monitoring, analytical instruments, spectroscopy, safety and security x-ray imaging, medical CT, radiation detection, quality/process control, industrial automation, automotive, space and satellite EU project: ESA contracted project. www.elfys.fi

EMBERION

Emberion designs and produces high-performance optoelectronic devices based on graphene, other nanomaterials and in-house designed CMOS integrated circuits. Our primary products are infrared detectors for VIS-SWIR and thermal imaging. Emberion's products combine high performance with competitive cost level and thus enable new application areas for infrared imaging. Emberion is an independent SME spin-out from Nokia's R&D based on venture capital funding from Verso Ventures and co-founded with Emberion employees. Emberion is co-located in Cambridge, UK, and Espoo, Finland and we are a member of the European Graphene Flagship program. www.emberion.com

EMS

EMS - Electro Medical Systems is a leading manufacturer of precision medical devices for dental prophylaxis, orthopaedics and urology. EMS sets new standards in the design, manufacturing and sale of devices used for medical and dental treatments. EMS products benefit from a tradition of flawless Swiss precision and craftsmanship. www.ems-company.com

Enablence

Enablence is a leading vendor of innovative integrated optical products for the telecommunications, aerospace, and bio-chemical sensing industries. Enablence products are marketed globally and are critical to just about every fiber-optic network in the world. Enablence products perform critical functions in long-haul, metro and local access topologies. Our product line has expanded to include advanced 100G transceiver products for 40-80km reach. These transceiver products complement our traditional Dense Wavelength Division Multiplexer (DWDM) filtering and routing devices. Enablence has a planar lightwave circuit (PLC) foundry in its Fremont, CA facility, which produces both silica-on-Si PLC chips based on its proprietary low-loss CVD technology and polymer PLC chips, and an advanced technology center located in Ottawa, Ontario, specializing in hybrid integration of active optical devices and electrical components on silica PLCs. In addition, Enablence has a joint venture subsidiary in China, Sunblence Technologies, for mass production of PLC splitter chips for Fiber-to-the-Home (FTTH) markets. www.enablence.com

Endofotonics has successfully developed the SPECTRA IMDx™ system, the world's first real-time in-vivo Raman spectroscopy platform, that improves early stomach cancer detection rate.Based on GLOBOCAN 2018 data, stomach cancer is the 3rd leading cause of cancer-related death with an estimated 800,000 deaths in 2018 worldwide 1. Patients have high survival rate if diagnosed at early stage. However, around 80% of stomach cancer patients are diagnosed at stage 4, the most advanced stage, where survival rate is less than 5%2. Endofotonics aim to improve detection of stomach cancer at early stage hence drastically increasing the survival rate. Combining Raman spectroscopy and machine learning, SPECTRA IMDx™ provides an objective assessment of the stomach tissue and detects cancerous lesions in real-time. This helps doctors identify early stomach cancer lesions that are usually difficult to identify, hence enabling timely medical intervention. SPECTRA IMDx™ system consists of the IMDx™ Cart with touchscreen graphic user interface and the IMDx™ Probe. This patented miniaturized probe is compatible with all endoscopes with standard 2.8mm instrument channel, enabling in-vivo applications.Endofotonics is a medtech organisation dedicated to using its proprietary Raman spectroscopy platform technology to improve early cancer detection helping to reduce cancer burden in patients. Founded in 2013, the company is headquartered in Singapore and has a subsidiary in Shanghai, China. Endofotonics is ISO 13485:2016 certified. In the near future, Endofotonics' platform technology will be expanding indications for use in other organs as well. www.endofotonics.com

Enlightra develops multi-color lasers to transmit data. They are 100x faster and are up to 10x more energy-efficient than today's solutions. Enlightra provides the core technology (know as optical frequency combs) for multiple DARPA and EU-funded research projects, and is led by PhDs from Univ of Colorado at Boulder and EPFL, Switzerland with 30 years of cumulative research experience. Enlightra is backed by Ycombinator (W22). www.enlightra.com

Enplas company slogan is “Challenge to find a better way “ in order to achieve our companies mission of “ Delivering value for a sustainable future through world class technology." Enplas world class high precision lens technology plays a key role in optical transceivers that support communications in large-scale data centers. We assist customers from start to finish, in every process from design and development, to mass production. We are now developing High Gain Lens Antenna with novel anti reflection technology for the TeraHertz wavelength spectrum to be used in the future 6G Network. www.enplas.com

Photonics
Crystallized

ENSEMBLE3 will be a "Centre for ExcelleNce of nanophotonicS, advancEd Materials and novel crystal growth-Based technoLogiEs" located in Warsaw, Poland. It will build on a long tradition of **world-leading expertise in crystal growth** following developments by Prof. Czochralski. It will be created jointly by the following renowned institutions: the Institute of Electronic Materials Technology, the University of Warsaw (Poland), Karlsruhe Institute of Technology (Germany), the Sapienza University of Rome (Italy), and the Nanoscience Research Center nanoGUNE (Spain). ENSEMBLE^3 will be a place **fostering innovation** in terms of providing infrastructure and know-how for both young and advanced researchers with pioneering ideas. ENSEMBLE^3 gathers the expertise, know-how and facilities in the field of crystal growth of **single crystals of oxides, fluorides, III-V semiconducting compounds, SiC, organic materials**, as well as highly novel materials as **topological insulators, micro/nano structured eutectic crystalline materials,** composites made of dielectric matrices (glass, crystal) with embedded various species as **metallic/plasmonic nanoparticles**, **quantum dots**, rare earths and others. The available growth methods include **Czochralski, Liquid Encapsulated Czochralski, Bridgman, floating zone, micro-pulling down** and others. ENSEMBLE^{3}develops novel technologies and materials including basic research, applied research and research on-demand as well as offers crystal boules, wafers, fibres, elements. Examples of our novel materials and technology solutions include high yield plasmon-enhanced up-conversion materials for PV cells, non-invasive cancer detectors based on gallery mode resonators, novel topological insulators heterostructures for spintronics, plasmonics and quantum dots based new materials for laser diodes, light emitting devices, optical amplifiers, detectors of high energy radiation especially for high-tech medical imaging instruments, laser materials (active media, nonlinear absorbers) and others. www.ensemble3.eu

Results through people

EO, founded in 2000, is an international service company deivering Interim Management and Executive Search to a broad range of clients in a wide range of industies and disciplines. Eo is a respected trusted advisor to ist clients, with a track record of successful projects that have developed in long term relationsships. With Senior industry experts from the photonics and adjacen High-Tech industries EO has a strong setup to contribute to, support and partner with EPIC members. www.executivesonline.de

EOLITE SYSTEMS

EOLITE Systems is part of the MKS group and focuses on developing innovative laser sources for the Equipment&Solutions division. The company has strong capabilities in laser R&D and engineering of laser products. The product portfolio includes UV lasers in the

nanosecond regime and Green lasers in the picosecond and femtosecond regime. EOLITE is already involved in several collaborative projects and is open to start new collaborations with other EPIC members. www.eolite.com

€ Funded Research Projects Experience
LIFT: Leadership In Fiber Technology

EPIGAP OSA

EPIGAP Optronic is a market leader in LED technology based on many years of continuously evolving know-how. Their innovative optoelectronic components and assemblies play a key role in many industries and stand out in terms of performance, quality and reliability and can be found in applications such as industrial sensors, automation, safety engineering, diagnostics as well as in the bio-medical field. At their premises in Berlin the team develops and manufactures a broad selection of standard and customized components for smart, sustainable and efficient chips, LEDs and photodiodes. www.epigap-osa.de

epiphany
PHOTONIC
DESIGN HOUSE

Epiphany is a dynamic and forward-thinking fabless photonic design house headquartered in the vibrant city of Enschede, the Netherlands. Our pioneering journey has just begun, fueled by a passionate commitment to revolutionizing the field of integrated photonics. We specialize in offering comprehensive design services tailored to the unique needs of our valued customers and foundries. Our expert team collaborates closely with clients to bring their visionary ideas to life. We provide top-notch design solutions and invaluable guidance to help our customers select the optimal approach for their specific requirements. At Epiphany, we are not just a service provider; we are your innovation partner, dedicated to lighting up a brighter future through photonics. www.epiphany-design.com

EPSRC Engineering and Physical Sciences Research Council | National Centre for III-V Technologies

EPSRC National Centre for III-V Technologies, the University of Sheffield, has a primary role in enabling world class III-V semiconductor research in UK universities. The Centre provides collaborative access which enables research in the physical, engineering and biomedical sciences. This is achieved by the provision of state-of-the-art epitaxial materials: MBE and MOVPE and characterization, advanced technologies for device fabrication, and the provision of custom opto-electronic and electronic devices. There are four partners making up the Centre, the main one is based at Sheffield, with others at Cambridge: GaN, Glasgow: nanoscale device fabrication and Nottingham: ferromagnetic semiconductors. www.epsrciii-vcentre.com

EssentOptics manufacture state-of-the-art spectral measurement instruments for inspection of thin films on flats and lenses. Our metrology-grade spectrophotometers are tailored for UV-VIS-MWIR transmittance and reflectance measurement at variable angles and polarizations. During the last years we have gradually expanded our wavelength range and became now the only company on the world market offering unsurpassed 185-5200 nm measurement capability in a single spectrophotometer. EssentOptics will further expand its product range into LWIR in 2023 adding new instruments for 7,5-12,0 um and serving the most demanding thin film optical metrology needs. Our technologies empower customers around the world and motivate them to design and manufacture better optical coatings with cutting-edge performance, enabling them to conduct research in space exploration, lasers, biology, night vision, augmented and virtual reality, and wherever optical coatings play a vital role. Currently, we are regarded as one the most competent providers of thin film spectral measurement solutions on the market. www.essentoptics.com

ETEL manufactures a wide range of linear and torque motors, position and motion controllers, and high-end motion system products to meet nearly all customers' needs and provide them with the process improvement they have been looking for. ETEL's approach has focused on leading-edge and breakthrough technologies, the success of which is only evident in the long term. This philosophy is what continues to allow ETEL and its customers to be successful now and in the future. www.etel.ch

ETH Zurich is a one of top leading university in Europe and in the world since its foundation in 1855 in Zürich, Switzerland. Over the decades, multiple connections have been developed and fostered with universities and companies all over the world, leading to more than 400 approved projects within the Seventh Framework Programme for Research and Innovation (FP7). The Department of Physics (D-PHYS, www.phys.ethz.ch) and the Department of Information Technology and Electrical Engineering (D-ITET, www.ee.ethz.ch) have in particular a long experience working in the field of photonics. With several national centers of competence in research (NCCR), state-of-the-art facilities and laboratories (FIRST, FastLab, etc.), ETH Zurich is pushing the frontiers in the fields of quantum optics, quantum cascade laser, ultrafast lasers, THz, optical communications, nanophotonics and several other areas. www.ethz.ch

ETSC Technologies Europe is an industry-leading company headquartered in Louvain-la-Neuve, Belgium since 2014. Our mission is to build an intelligent world by bringing the most advanced optical testing and sensing technologies to the market. We develop and manufacture next-generation high-precision opto-electrical products for industrial applications as well as cutting-edge research in telecommunication, civil engineering,

medical and energy sectors.We particularly specialize in manufacturing highly accurate and stable automatic assembly equipment for on-chip/wafer scale optical components characterization, and optical frequency domain reflectometry for structural health monitoring. www.etsc-tech.be

Etteplan is a rapidly growing Technology Service company specializing in software and embedded solutions, engineering solutions, and technical communication solutions. We are a forerunner in the engineering industry and we differentiate ourselves by the wide-ranging competence of our experts. Our customers include world's leading companies in the manufacturing industry. We help them to create a better world through engineering, innovation, and digitalization. Etteplan has lead the way in the engineering field already since 1983. In 2022, we had a turnover of EUR 350.2 million. The company currently has over 4,000 professionals in eight countries across three different continents. Etteplan's shares are listed on Nasdaq Helsinki Ltd under the ETTE ticker. www.etteplan.com

Eulitha has developed a breakthrough photolithography technique that is reinventing the low-cost mass production of the periodic photonics nanostructures for AR/VR, telecommunications, lasers, sensors and biotechnology industries to name a few. The PHABLE™ platform covers R&D, pilot and mass production product range based on IP protected displacement talbot lithography method. This technology allows full-field exposure of the 4" to 8" wafer substrates in a single step, demonstrating a sub-100 nm resolution in 1D and 2D periodic patterns with pitch accuracy on sub-Å scale. This remarkable performance is achieved using standard processes and common photoresists in a non-contact proximity photolithography process utilized by a growing number of industrial and academic partners. www.eulitha.com

The EurA Group is comprised of the two innovation consultancies EurA AG, which is the parent company, and EurA Innovation GmbH, together with the equity investment company EurA Venture GmbH. The EurA Group employs approximately eighty staff at its offices in Aachen, Berlin, Dresden, Ellwangen, Hamburg, Zella-Mehlis and Porto (Portugal). Innovative strength is a decisive competitive factor in an increasingly globalised world. It is what determines the success and value of a company. Companies can only achieve profits and growth by constantly bringing out new products with added value and new processes and services. Our experts can initiate processes of change and provide proactive advice and support for projects through to goal attainment. We are the people to speak to when it comes to designing the success of your company. www.eura-ag.de

Eureka Robotics is revolutionizing the field of industrial robotics, in particular through its applications to optics manufacturing. Empowered by cutting-edge Robotics and AI research from MIT and NTU Singapore, Eureka Robotics masters tasks with High Accuracy and High Agility (#HAHA) requirements. Eureka Robotics prides itself on helping clients achieve vastly improved productivity, quality, safety, and agility. Our mission is to liberate humans from routine, tedious and labor-intensive tasks by bringing advanced and intelligent robotics to the shop floor. We take on the most rewarding automation challenges, across a range of high-precision industries, such as handling optical lenses with tens of microns accuracy. Our customers and partners include world-leading optics manufacturing companies. www.eurekarobotics.com

The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. The European Space Agency has sites in several European countries, but the European Space Research and Technology Centre (ESTEC) in Noordwijk, the Netherlands, is the largest. ESTEC is our technical heart - the incubator of the European space effort - where most ESA projects are born and where they are guided through the various phases of development. www.esa.int

Evatec specializes in the development, production, and sale of high-tech thin film deposition equipment for the semiconductor, optical, and optoelectronics markets. From the high-brightness LEDs in our cars to the sensors and filters in our mobile phones our know-how enables the world's leading manufacturers to deliver solutions for autonomous driving, smart wearables and handhelds, and high-performance 5G mobile networks. www.evatecnet.com

EV Group (EVG) is a leading supplier of high-volume production equipment and process solutions for the manufacture of semiconductors, MEMS, compound semiconductors, power devices and nanotechnology devices. A recognized market and technology leader in wafer-level bonding and lithography for advanced packaging and nanotechnology, EVG's key products include wafer bonding, thin-wafer processing and lithography/nanoimprint lithography (NIL) equipment, photoresist coaters, as well as cleaning and inspection/metrology systems. With state-of-the-art application labs and cleanrooms at its

headquarters in Austria, as well as in the U.S. and Japan, EVG is focused on delivering superior process expertise to its global R&D and production customer and partner base – from the initial development through to the final integration at the customer's site. Founded in 1980, EVG services and supports an elaborate network of global customers and partners all over the world, with more than 1000 employees worldwide and fully-owned subsidiaries in the U.S., Japan, South Korea, China and Taiwan. www.EVGroup.com

Exail Photonics, from design to manufacturing, masters the complete production chain of specialty fibers, Bragg gratings, high speed modulation solutions and micro-optic assemblies. We provide turn-key laser systems delivering continuous and sub-ns pulsed signal wave, as well as instruments. Our solutions supports a very wide variety of applications including high speed communications, fibers-based sensing, space, science, medical, and quantum technologies. www.exail.com

EXALOS**,** founded in 2003, is a privately held company that focuses on the design, development, manufacturing and sales of advanced light source solutions based on Superluminescent Light Emitting Diodes: SLEDs and External Cavity Tunable Lasers: Swept Sources. In addition, the EXALOS product portfolio includes Driver Electronics, OCT Engines and Balanced Receivers which are complementary to our light source offerings. EXALOS has shipped more than 200,000 SLEDs since 2003 and our products are used extensively in Medical and Industrial Imaging, Navigation, Optical Sensing, Metrology, and Scientific applications. EXALOS is ISO 9001:2008. www.exalos.com

Excelitas Technologies® Corp. is a photonics technology leader focused on delivering innovative, high-performance, market-driven solutions to meet the lighting, optronics, detection and optical technology needs of our OEM customers. Serving a vast array of applications across biomedical, scientific, safety, security, consumer products, semiconductor, industrial manufacturing, defense and aerospace sectors, Excelitas stands committed to enabling our customers' success in their end-markets. Our photonics team consists of 6,700 professionals working across North America, Europe and Asia, to serve customers worldwide. Connect with Excelitas on Facebook, LinkedIn and Twitter. www.excelitas.com and www.qioptiq.com

EXFO develops smarter test, monitoring and analytics solutions for fixed and mobile network operators, webscale companies and equipment manufacturers in the global communications industry. Our customers count on our unique blend of equipment, software and services to

accelerate digital transformations related to fiber, 4G/LTE and 5G deployments. We've spent over 30 years earning this trust, and today more than 1,900 EXFO employees in over 25 countries work side by side with our customers in the lab, field, data center and beyond. www.exfo.com

Expocentre is a world-known Russian exhibition company, which has always retained its status of a leading organiser of largest international exhibitions in Russia, the CIS and Eastern Europe, and of Russia's national expositions at EXPO exhibitions. www.expocentr.ru

FBGS, founded in 2005, is a Germany and Belgium based developer and manufacturer of tailored fiber optic sensing components and solutions combining both fiber optic sensors and interrogation technology. Their unique manufacturing technologies enable products suitable for both standard and bespoke applications in temperature, shape, strain, force and pressure sensing. Key players in industries such as process industry, energy, civil engineering or medical rely on FBGS to enable advanced monitoring in harsh or demanding environments where no other sensing methods can be implemented. Their strong application know-how has led FBGS to become an innovation driver, empowering their customers especially in medical catheter applications and steel casting monitoring. FBGS lookS toward a bright future based on steady and healthy growth. www.fbgs.com

Femtika is a spin off company from the Laser Research Center (Vilnius University). A team of precision micro processing experts founded the company in 2013. FEMTIKA is a microfabrication company that specializes in hybrid femtosecond laser microfabrication. We offer research, small scale manufacturing services and we build advanced Laser Nanofactory workstations. Hybrid micro-fabrication allows manufacturing using additive and subtractive approach. Our workstations are equipped with amplified femtosecond lasers and are applicable for various process: multiphoton polymerization, selective ablation, selective glass etching, welding, hidden marking, refractive index modification, surface reshaping or modifications of its properties (color, wettability, wearing, roughness). FEMTIKA is targeting the growing worldwide demand for custom design components in micro- and sub-micro scale. Microstructures provided by FEMTIKA are used in development of future products in semiconductors, photonics, medical, automotive and space industries. www.femtika.lt

Femto Easy is a specialized company that focuses on ultrafast metrology. Our company possesses a wealth of knowledge and experience in producing and evaluating high energy ultrashort pulses. We offer reliable and robust measurement devices for ultrafast lasers, which are already in use in many cutting-edge laboratories and industrial companies. Our comprehensive product-line includes all the necessary instruments to evaluate and manage ultrafast lasers. We provide state-of-the-art devices for temporal measurement (ROC and FROG), spectral measurement (MISS spectrometer), and spatial measurement (BeamPro). These devices can operate over a broad wavelength range (from UV to mid-IR) and a wide pulse duration range, from 5 fs to 80 ps. Our products are renowned for their outstanding technical performance, ease of use, portability, and versatility, making them ideal tools for customer services. The products are accompanied by high-quality, user-friendly software that contributes to making them easy and enjoyable to use. In addition, we provide customized products based on customer specifications and offer our expertise in ultrafast metrology. www.femtoeasy.eu

FEMTOPRINT®
3D PRINTING FOR GLASS MICRODEVICES

FEMTOprint, founded in 2013 in Muzzano (Switzerland), is a pioneer and market leader in high-precision, 3D printing of custom-designed glass microdevices. The business activities focus on the Contract Manufacturing and Development of microsystems, from rapid prototyping to industrial series manufacturing at wafer-level. The FEMTOPRINT® microfabrication platform enables truly free-form surface/volume definition, welding, polishing, and ablative solutions in glass, creating a large variety of 3D microdevices in many different applications, such as in micro-optics, photonics, microfluidics, micromechanics, and microelectronics. With a monolithic approach to avoid challenging assembly and alignment steps, it enables the integration of optical, mechanical and microfluidic functionalities with a process resolution down to one-micron, high aspect-ratios, geometrical accuracy and surface quality. The company employs 30+ highly skilled professionals and is certified ISO13485, having its manufactured products being used in over 25 countries by leading international entities and fast-paving tech companies in biotechnology, life sciences, medical, watchmaking, automotive, aerospace, semiconductors, and other domains. www.femtoprint.ch

FEMTUM
MID-INFRARED FIBER LASERS

Femtum is a Canadian spin-off from the Center of optics, photonics and laser (COPL) in Quebec City. Femtum was born in 2017 from a strong desire to unleash the potential of mid-infrared fiber lasers all over the world. Our mission is to help industrial manufacturers and scientific teams to solve their most demanding requirements, from selective laser microprocessing to state-of-the-art mid-IR spectroscopy. Femtum offers a range of fiber laser products including ultrafast lasers, tunable lasers and optical fiber amplifiers operating at wavelengths above 2800 nm. www.femtum.com

FerroTec

Ferrotec provides customers with advanced technology solutions that make their products work better, more precisely, and more reliably. Founded in 1980 on a technology core of

FerroFluid magnetic liquid and Ferrofluidic® sealing products, our company and our product portfolio have grown to meet the evolving needs of our customers. Ferrotec is a world leading manufacturer, marketer, and distributor of advanced material, component, and assembly solutions used in a broad array of end products, manufacturing systems, and industries. www.ferrotec.com

FIBERBRIDGE PHOTONICS

FiberBridge Photonics provides high-performance optical fiber components for the laser, life sciences and aerospace industries. Key products in the portfolio include high power fiber components for lasers and amplifiers, such as pump combiners, fiber end caps, fiber end lenses, high-power capable fiber arrays and spliceless LMA fiber amplifier modules. All fiber components and photonic production lines are developed and manufactured in Germany according to ISO 9001. This level of production control enables us to offer our customers tailored solutions for fiber optic components and assemblies, from design to volume production – including harsh environment applications, for example in the aerospace industry. www.fiberbridge-photonics.com

fibercryst

Fibercryst pioneered Crystal Fiber technology in the field of high power ultrafast lasers and amplifiers. Taranis amplifiers based on crystal fibers have been used to amplify most of the commercially available short pulse lasers and demonstrated a total hands-off operation for the past three years. Fibercryst supplies PICO and FEMTO two high power ultrashort lasers series designed for industrial applications as well as laser amplifiers. FEMTO by Fibercryst is a powerful industrial femtosecond laser offering output power up to 25 W and high pulse energies up to 150 µJ of typically 800 fs pulse width at repetition rates selectable between 100 kHz and 2 MHz. The FEMTO series is the only ultra-fast lasers using Taranis Single Crystal Fiber (SCF) amplifier construction which enables higher energy per pulse, widely variable repetition rates and excellent beam quality. PICO by Fibercryst is a series of powerful industrial lasers. It emits picosecond pulses with excellent beam quality, in a compact package. The PICO series can be operated at user selected repetition rate ranging from 200 kHz to 2 MHz depending on the process needs. By selecting the repetition rate, the user can favor pulse peak power above 10 MW or average power up to 60W, while keeping high and constant beam quality. www.fibercryst.com

ficonTEC
photonics assembly & testing

ficonTEC provides automated micro-assembly and testing solutions for the photonics industry. These solutions are realized as cutting-edge, semi- or fully-automated production systems, regardless of the device material and of the specific application the device is targeting. Our modular system architecture is additionally scalable, so that exploratory, proof-of-process assembly as well as high-volume assembly and test requirements are addressable – and anything in between. www.ficontec.com

finetech

Finetech, since its foundation in 1992, has evolved into a leading global supplier of micro assembly and SMD rework equipment for customers involved in microelectronics. Finetech's sub-micron bonding equipment supports the most precise and complex applications. Facilitating innovation and boosting new product developments have always been driving forces at Finetech. In order to support customers at the development stage, and help them transition their processes into production, Finetech has been focusing on efforts to expand its portfolio of automated bonders. Along with its development machines, the company offers semi- and fully automated production systems combining process flexibility, high precision and speed. Finetech works in close partnership with customers - many have grown in parallel with us, forming countless productive relationships over the years. The company serves a broad range of industries, including Datacom & Telecom, Industrial Semiconductor, Consumer Electronics, Medical Technologies & Life Sciences, Aerospace & Avionics, Automotive, Defense & Security, Energy, as well as universities and research facilities. With subsidiaries on three continents and an extensive global network of representatives, Finetech ensures quick response times, fast on-site service and personal consultation at all times. www.finetech.de

FIRST LIGHT
ADVANCED IMAGERY

First Light Imaging designs and manufactures state-of-the-art scientific cameras that combine extreme sensitivity and very high speed for both visible and infrared spectra (SWIR), around cutting-edge sensors (EMCCD, e-APD and InGaAs). Coming from French academic research laboratories, multiple award-winning, First Light Imaging works with world leading institutes and manufacturers. Initially created by astronomers for astronomers, FLI's cameras are already at the heart of the Adaptive Optics systems for the world's biggest telescopes, looking at the universe, searching for planets. First Light Imaging is now entering life sciences, defense and industry imaging markets with new developments, allowing new fields of applications to the world's scientific and industrial communities. www.first-light-imaging.com

First Sensor

First Sensor is one of the world's leading suppliers in the field of sensors and sensor systems. In the growth market of sensor systems, First Sensor develops and produces customer-specific solutions for the ever-increasing number of applications in the industrial, medical, mobility and aerospace and defence target markets. Our goal here is to identify, meet and solve the challenges of the future with our innovative sensor solutions early on. www.first-sensor.com

FISBA

Innovators
in Photonics

FISBA, founded in 1957, is a worldwide leading supplier of customized optical components, systems and microsystems for high-performance applications. Our highly qualified lens designers and engineers are always on the lookout for perfectly tailored solutions for customers in life sciences, diode laser integration, machine vision, optical communications and defense & security. From micro-optics for FAC and SAC laser diodes to raw lenses for fully assembled optical systems and prototypes for complex optics in large-scale production, we offer everything from a single source. Full service from initial feasibility studies and design, as well as serial production and assembly, has enabled FISBA to become one of the most trusted optical manufacturers in the industry today. FISBA operates from facilities across Europe (St. Gallen, Switzerland and Berlin, Germany), in China (Shanghai) and in the USA (Tucson, Arizona). www.fisba.com

FLASH PATHOLOGY

Flash Pathology brings value to the healthcare system by offering non-linear, label-free instant histology at subcellular resolution in seconds, using Higher Harmonic Generation Microscopy without needing (generative) AI. This reduces Time-To-Diagnosis for the patient and health care provider and saves up to 80% of redundant labwork and its associated supplies. www.flashpathology.com

Flawless Photonics is pioneering the manufacturing and supply chain for next generation materials to be made in microgravity. Our enabling technology, optimized for the unique requirements and rigors of space, allows the formation of heavy metal fluoride glasses and optical fibers, without generating light scattering defects that limit lasing power and transmission over long fiber lengths. Flawless Photonics' premier product, SpaceFiber, will have performance characteristics far superior to the absolute best fibers made on Earth today and will have the potential to revolutionize the photonics industry, beginning with high-powered lasers and sensors from shorter fiber lengths and extending to long haul classical and quantum communications. www.flawlessphotonics.com

Keywords: optical fiber; space manufacturing; fiber optics; fiber optic cables; ZBLAN; lasers; photonics; sensors; microgravity.

Fluence is laser manufacturer based in Warsaw (Poland) that is focused on environmentally stable femtosecond fiber laser technology. The mission of the company is to deliver maintenance-free femtosecond lasers with an exceptionally long lifetime. Long years of research have led Fluence to create shock and temperature immune femtosecond lasers which can be used in various fields: from science to industrial micromachining. Fluence expertise and products extend to optical parametric amplifiers and laser pulse diagnostics equipment with a revision to the standard approach. www.fluence.pl

Focuslight Technologies, founded in 2007 and headquartered in Xi'an, China, is a fast-growing public company (SSE Star Market: 688167) that develops and manufactures high-power diode laser components and materials (photon generation), laser optics (photon control), and photonics modules and systems (application solutions) with a focus on automotive, pan-semiconductor, and medical & health application solutions. In 2017, Focuslight successfully acquired LIMO GmbH, and completed the brand unification in January 2022. In January 2024, Focuslight acquired SUSS MicroOptics (now as Focuslight Switzerland). Focuslight owns over 400 patents worldwide and is ISO 14001, ISO 45001, ISO 9001, and IATF 16949 certified. www.focuslight.com

Fondazione LINKS aims to be the Italian reference point to give value to the intellectual property developed by academic research, accelerate the technology transfer, and support the companies to boost their business. Their mission is to promote the interaction between the ecosystem made by research, start-ups, enterprises, Public Administrations and citizens. They enhance the innovation process by providing professional and financial support. They are the ones to call if you need to protect, exploit and bring your intellectual property into the market. www.linksfoundation.com

Food Robotics Solutions integrates photonics to create advanced automated solutions for the food industry. We plan to do photonics-based systems provide precise control of production processes and improve food quality. We develop and apply photonics technologies that improve product safety, optimize production operations and reduce energy consumption. Food Robotics Solutions offers personalized solutions that take advantage of the benefits of photonics, specifically tailored to the requirements of customers in the food industry. Our company strives to be a leader in the development of innovative automated systems utilizing photonics to provide customers with state-of-the-art and competitive solutions to improve production efficiency. www.foodroboticssolutions.com

FORC-Photonics was founded in Moscow in 2005 to develop and manufacture fiber Bragg gratings, high temperature optical sensors ans monitoring systems, broadband ligh sources and high power amplifiers. Various type FBG's and high temperature sensors are highly customizable and produced with unique parameters for different application. www.forc-photonics.ru

Forth Dimension Displays: A world leader in designing and manufacturing high-resolution Ferroelectric Liquid Crystal on Silicon (FLCoS) devices used as Spatial Light Modulators (SLM) for premium near-to-eye microdisplays for military, medical and virtual reality imagers, as well as for structured light projection. We provide a range of SLM solutions optimised for the best performance in demanding applications. As full-service solution provider, we do not just sell products, we also offer our customers full access to Forth Dimension Displays' extensive technical expertise and experience. www.forthdd.com

Fraunhofer UK

Fraunhofer Centre for Applied Photonics, Glasgow, UK undertakes direct contract R&D for industry and does collaborative research projects with H2020 or InnovateUK type support. The main activities of Fraunhofer CAP include applied research, development, prototyping and small-scale pre-production of photonic and sensor-based technologies. Core competencies are in laser sources and systems (solid-state, semiconductor disk, fibre, OPOs, ultrafast) and sensor and imaging systems. Fraunhofer CAP works in all sectors including energy, lifescience, defence, space and quantum technology. www.cap.fraunhofer.co.uk

Fraunhofer Heinrich Hertz Institute

Fraunhofer Heinrich Hertz Institute does research on communications since more than 90 years. Nowadays, about every second bit transported in the internet touches HHI InP technology on its way to the receiver. With a strong focus on InP, we also develop polymer waveguide based hybrid integration and SiNx photonics. While our expertise is strongest in high performance (100 GBit/sec and above) data- and telecom, we have strongly increasing activities in communication and sensor systems, e.g. based on Terahertz and LiFi technology. We regularly offer multi-project wafers in InP. Our partners have the choice to do the design themselves and just use us as a foundry or to get both design and chips from a single source. www.hhi.fraunhofer.de

€ Funded Research Projects Experience

- TERANOVA: Terabit/s Wireless Connectivity by TeraHertz innovative technologies to deliver Optical Network Quality of Experience in Systems beyond 5G
- ELIOT: Enhance Lighting for the Internet of Things - LiFi for Industry 4.0
- VERTIGO: VERy high Throughput Satellite-Ground Optical Link
- METRO-HAUL: METRO High bandwidth, 5G Application-aware optical network, with edge storage, compUte and low Latency
- UNIQORN: Affordable quantum communication for everyone: Revolutionizing the quantum ecosystem from fabrication to application - within the Quantum Flagship initiative (Horizon 2020)
- TERIPHIC: Fabrication and assembly automation of terabit optical transceivers based on InP EML arrays and a polymer host platform for optical interconnects up to 2 km and beyond
- POETICS: Co-packaging of terabit direct-detection and coherent optical engines and switching circuits in multi-chip modules for datacenter networks and the 5G optical front haul
- QAMeLeon: Sliceable multi-QAM format SDN-powered transponders and ROADMs enabling elastic optical networks
- www.hhi.fraunhofer.de/fields-of-competence/photonic-networks-and-systems/projects.html

Fraunhofer IOF

Fraunhofer Institute for Applied Optics and Precision Engineering develops innovative solutions with light for the future fields of energy, environment, information, communication, health, production, security, and mobility. Applied research and development are linked with excellent fundamental research for the control of light - from creation and manipulation to application. We cover the entire process chain, from system design to manufacturing of prototypes within our five research units: optical components and systems, precision engineering components and systems, functional surfaces and coatings, photonic sensors and measuring systems, and laser technology. Due to the close interaction of these research units, we provide customized and optimized solutions for our partners.www.iof.fraunhofer.de

€ Funded Research Projects Experience

- 3D-Forensics: Mobile high-resolution 3D-Scanner for forensic evidence recovery at crime scenes
- SUPCAM: New cost effective and minimally invasive endoscopic device able to investigate the colonic mucosa, ensuring a high level of navigation accuracy and enhanced diagnostic capabilitie
- ICAN: International Coherent Amplification Network
- HYPOLED: High-performance OLED-microdisplays for mobile multimedia HMD and micro-projection applications

Fraunhofer IAF

Fraunhofer Institute for Applied Solid State Physics IAF is one of a small number of world-leading research institutes with expertise encompassing the entire value chain in the field of III/V compound semiconductors and synthetic diamonds. Based on these semiconductors, IAF develops electronic and optoelectronic devices as well as integrated circuits and systems. In a clean room of 1000 m² and additional laboratory space covering 3000 m2,

epitaxy and processing equipment along with measurement technologies are available to realize high frequency circuits for communication technology, voltage converter modules for electrical engineering, infrared and UV detectors for safety and security applications, infrared laser systems for spectroscopy applications, and diamond devices for innovative applications in the field of quantum sensor systems. www.iaf.fraunhofer.de EU projects:

- MirifiSens – Mid InfraRed Innovative Lasers for Improved SENSor of hazardous substances
- MIRPHAB – MidInfraRed PHotonics devices fABrication for chemical sensing and spectroscopic applications
- AQUARIUS – Broadband Tunable QCL based Sensor for Online and Inline Detection of Contaminants in Water
- Hyperion – Developing a forensic analysis system for areas where explosions have occurred
- EMPHASIS – Effective Management of Pests and Harmful Alien Species – Integrated Solutions
- Chequers – Compact High-performance Quantum cascade laser sensors

Fraunhofer ILT

Fraunhofer Institute for Laser Technology develops new laser processes, tailor-made laser beam sources and special laser systems. We can provide you with customer-specific solutions for contract research and development in the field of solid state lasers, diode lasers, laser optics, laser cutting, laser welding, surface treatment, micro technology, laser measurement and testing technology, plasma technology, modeling and simulation as well as system technology for your innovations. www.ilt.fraunhofer.de

Fraunhofer IWS

Fraunhofer Institute for Material and Beam Technology (Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden) stands for innovations in laser and surface technology. As an institute of the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., IWS offers one stop solutions ranging from the development of new processes to implementation into production up to application-oriented support. The fields of systems technology and process simulation complement the core competencies. The business fields of Fraunhofer IWS include PVD and nanotechnology, chemical surface and reaction technology, thermal surface technology, generation and printing, joining, laser ablation and separation as well as microtechnology. www.iws.fraunhofer.de

€ Funded Research Projects Experience

- LIFT: Leadership In Fiber Technology

Fraunhofer IOSB

The Fraunhofer Institute for Optronics, System Technologies and Image Exploitation is Europe's largest research institute in the field of image acquisition, processing and analysis. We turn state-of-the-art scientific insights into technological innovations. What makes us

special is that we combine core knowledge in optronics, system technologies, and image exploitation with application know-how gained through an extensive dialogue with our partners. We ensure the success of our clients and the progress of applied research in general by offering services, components and complete systems based upon our broad spectrum of technologies, methods and expertise. www.iosb.fraunhofer.de

Fraunhofer IPMS

The Fraunhofer Institute for Photonic Microsystems IPMS is one of the leading research institutions for the development and testing of electronic, mechanical and optical components and their integration into intelligent systems. The aim of our research is to expand the functionality of our customers' products through the use of our technologies, components and systems and to open up new applications through improved properties, ever smaller dimensions and additional functions.With an annual R&D volume of almost 50 million euros, more than 390 scientists, together with industry and the public sector, are developing market-ready solutions for the areas of Smart Industry, Medical & Health and Quality of Life. Miniaturized sensors, new types of actuators, high-performance MEMS micromirrors or wireless microsystems - this is just a selection of competenices with which Fraunhofer IPMS is driving research and development of innovative semiconductor technologies. Our range of services range from feasibility studies to the development of wafer-based processes and technologies on 200 and 300 millimeters to qualified small series production in our own clean rooms according to industrial standards - from components to the complete system. In order to meet the high demands of our customers, the Fraunhofer IPMS is certified according to the DIN EN 9001: 2000 standard. www.ipms.fraunhofer.de

Fraunhofer IPT

Fraunhofer Institute for Production Technology IPT in Aachen was founded in 1980 with the mission of conducting application-oriented research and development. Fraunhofer IPT has a strong background on optical technologies starting from optics manufacturing, over optical metrology until the assembly of optical systems. The structure of the Fraunhofer IPT offers solutions to highly specific problems as well as problems that require integrated system-wide solutions. This is done by combining interdisciplinary contributions from the fields of process technology, machine and control components, metrology, quality management, technology planning and organisation. www.ipt.fraunhofer.de

Fraunhofer IZM

Fraunhofer Institute for Reliability and Micro-integration specializes in applied and industrial contract research on packaging technology and the integration of multifunctional photonics and electronics into systems. The institute covers all the competencies needed for advanced photonic packaging, such as, process development and qualification, and reliability and failure analysis with specific links to 3D wafer level packaging, silicon and glass interposer and 3D heterogeneous integration. Optical interconnection technologies, such as, photonic design, fiber optics, PIC integration, electrical-optical printed circuit boards and laser module

assembly, system test are fields of excellence. The institute has a staff of more than 300 and earns 90% of the turnover through contract research. www.izm.fraunhofer.de

€ Funded Research Projects Experience

- PhoxTrot: Photonics for High-Performance, Low-Cost and Low-Energy Data Centers and High Performance Computing Systems: Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board and Rack-to-Rack data links
- PLATON: Merging Plasmonic and Silicon Photonics Technology towards Tb/s routing in optical interconnects
- EnLight: LED packaging for energy efficient and intelligent lighting systems
- PARADIGM: through silicon vias technology and self-alignment for photonic integrated circuits
- SEPIANet: System embedded Photonics in Access Networks
- CycLED: Material Flow Analysis and Environmental Impact of Optoelectronics

Fraunhofer ISC

The Fraunhofer Institute for Silicate Research ISC, directed by Prof. Dr. Gerhard Sextl, is one of the most important centers for material-based research and development in Germany. According to the motto "materials meet ...", around 400 employees work on innovative materials and technologies for sustainable products and make essential contributions to solving the major global issues and challenges of the future. Research focuses on energy, biomedicine, climate and environment, digitalization and adaptive systems. At the parent institute and in the Translational Center for Regenerative Therapies TLC-RT in Würzburg and in its Center for High-temperature Materials and Design HTL in Bayreuth, the Fraunhofer ISC combines extensive expertise in material science with many years of experience in material processing, industrial application and in the upscaling of manufacturing and process technologies up to the pilot scale as well as in analysis and characterization. Keywords/Applications: 3D-printed optics, optical interconnects, polymer optics, biophotonics, sensors, display technologies, lab-on-chip, microoptics, hybrid polymers. www.isc.fraunhofer.de

FREEDOM PHOTONICS

Freedom Photonics is a manufacturer of unique and innovative photonic components, modules and subsystems. Our advanced photonic integration platforms and world record semiconductor laser and photodetector technologies are enabling our products in the high-performance fiber and free-space optical communication applications as well as in a variety of optical sensing solutions. At the same time, we are expanding our technology core and application space to the areas of high-power laser pumps, atomic and quantum sensing, artificial intelligence and deep learning, as well as for quantum and cryogenic communication applications. If one of our standard products do not work for you, and you have a need that can be met through customizing our core photonic technology in Indium Phosphide, Gallium Arsenide or Silicon, we will be happy to provide a private label solution to support your needs. www.freedomphotonics.com

Freeptyc brings analytical optics solutions to clients. Freeptyc has developed a number of in-house tools that revolutionize the development of multilens optics solutions, including freeform and holographic lenses. www.freeptyc.com

Fusion Bionic GmbH, located in Dresden, Germany, is a solution provider for laser-based surface functionalization. Born as a spin-off from the Fraunhofer Institute for Material and Beam Technology IWS, Fusion Bionic's commercial laser interference texturing solutions are suitable for several application areas such as enhanced biocompatibility, reduced friction, optimized surface wettability, anti-icing and anti-sticking properties, decoration and product protection. The services of Fusion Bionic specifically include:

- Consulting for laser-based surface functionalization
- Process development for surface functions based on laser texturing as well as pre/post treatments
- Solution provider for interference-based hardware (compact modules and machines)
- Engineering service for laser machines (e.g. prototyping)
- Integration, service & support
- Training

www.fusionbionic.com

The team of engineers, researchers and experts has a solid experience in EU-funded research project, as:

- **LASER4FUN**: European ESRs Network On Short Pulsed Laser Micro/Nanostructuring Of Surfaces.
  https://www.laser4fun.eu
- **SHARK:** Industrializing Laser Surface Texturing.
  http://www.sharkproject.eu
- **PROMETHEUS:** The next generation in high power ultra-short pulse laser surface processing.
  https://www.prometheus-laser.eu
- **ALBATROSS:** Create advanced battery pack designs and systems for electromobility.
  https://albatross-h2020.eu

G&H was founded as G&H in Ilminster, Somerset in 1948. G&H's advanced optical engineering and manufacturing enables effective OEM system supply and development. The expertise of G&H in optical systems, subsystems and components extends from research through the development of prototypes to volume manufacturing and is a catalyst for innovation and effective manufacturing in the aerospace and defense, industrial and telecom, and life sciences and biophotonics sectors. From eleven sites across the UK, USA

and Asia, the capabilities of G&H span a uniquely broad range of photonic technologies: crystal growth, optical materials processing, acousto-optics and electro-optics, active and passive fiber optic components, precision optics, opto-mechanical and medical systems. www.gandh.com

GAVISH
Sapphire Products

Gavish Industrial Technologies & Materials (Gavish Sapphire Products) is a world leader as a sapphire optics manufacturer by providing quality sapphire components. Gavish is focused on the quick response and total control from crystal production through fabrication, certification, and packaging. Gavish has the experience and expertise to support sapphire customers ranging from University researchers through the major semiconductor and medical equipment OEM's. www.gavish.com

gentec-eo

Gentec-EO is a leader in the laser beam measurement field with 50 years of experience. We design and manufacture a complete range of instruments to characterize your laser's performance: laser power meters, laser energy meters, high speed joulemeters, THz sensors, beam profilers and custom measurement solutions. We strive to offer the best accuracy on the market, and our calibration laboratories are accredited ISO/IEC 17025:2017. We are also the first worldwide supplier of large aperture calorimeters to measure the highest pulse energies. Our products are sold around the world, with distributors and representatives in over 35 countries and offices in Canada, USA and Japan. We also have calibration centers on 3 continents for fast turn-around times, just what you need to keep pace with today's rapid market. www.gentec-eo.com

Glassomer

Glassomer produces high-precision fused silica glass parts on the nano- , micro- and macroscopic scale. The worldwide unique Glassomer process ensures part production with maximum precision at minimum energy requirements. The patented technology relies on Glassomer solid or liquid nanocomposites that are shaped like polymers, e.g. by injection molding, CNC machining, casting or 3D printing. After shaping, the parts are sintered to high-purity fused silica glass. Glassomer provides never-before seen glass designs for the future of optics, photonics, biochips, solartec and healthcare. Glassomer has won numerous awards and was awarded the EIC Accelerator Grant from the European Union's Horizon 2020 research and innovation programme. www.glassomer.com

Eu Grants

- EIC Accelerator Grant
- Attract Phase 1 – OptoGlass3D – High performance optical glass via high-resolution direct laser writing for next generation sensing and imaging

Glenair began operations in 1956 as the first company specifically founded to produce electrical connector accessories. Building on that foundation, we now offer numerous full-spectrum product lines designed to meet every interconnect requirement including a broad range of military qualified and harsh environment connectors, cable assemblies, wiring harnesses, conduit, braid and accessories. Our products are used in diverse markets including space, defence, avionics, sub-sea, nuclear power, mass transportation, oil & gas, big science installations and more. Glenair's photonic and fibre optic solutions include optoelectronic connector contacts, digital transceivers and optical media converters addressing data rates from a few Mb/s to ribbon fibre based solutions to 100Gb/s with single wavelength, CWDM and DWDM wavelength plans. Glenair also offers RF-over-Fibre solutions up to 35GHz, high power optical amplifiers and very high-power handling optical connectors. www.glenair.co.uk www.glenair.com

GLOphotonics is a spin- off of a research group, led by Professor Fetah BENABID, which develops, manufactures and markets gas phased photonic components using proprietary Hollow Core Photonic Crystal Fibers (HC-PCF) technology. The unique features of this innovative fiber technology provide a flexible and cost effective way to shape and transport Ultra Short laser Pulses (USP) with extremely low attenuation and nearly-free temporal and spectral distortion. GLOphotonics product offer include: The Photonic Microcell (PMC), a stand- alone component that consist of a HC-PCF filled with gas and fiber terminations which can be tailored to customer needs. The Beam Delivery System (BDS), a ruggedized and pre-aligned module for high power beam delivery, available for Yb , Nd:Yag lasers and also now for 500 – 700 nm spectral range**.** www.glophotonics.fr

Hamamatsu Photonics, driven by Japanese excellence and market-leading optoelectronic technology, helps our customers visualize, measure, and analyze crucial information. Our mission is to establish photonics as a fundamental source of innovation for all customers. On the forefront of the development of new and existing applications, our advanced and highly sophisticated product range includes sources, detectors and imaging products designed to cover the entire optical spectrum. Present since 1953 across a vast array of industries, such as scientific research, medical, and industrial processes, we leverage added-value services and custom-made photonics solutions to meet our customer's ambitions without compromise. With headquarters in Hamamatsu, Japan, where our manufacturing and research facilities are located, we enjoy a global presence with business offices and associated companies throughout Asia, Europe and North America, and over 5,000 staff worldwide. www.hamamatsu.com

HaphiT offers High Power and Pulse Power passive fiber components, especially with PM fiber and LMA fiber at wavelength 460~2100nm. Include WDM, WDM/Isolator/Tap Hybrid, WDM/Partial Fiber Mirror (PFM) Hybrid, Bandpass Filter, BP/Isolator/Tap Hybrid, BP/PFM Hybrid, Isolator, Circulator, PBC/PBS, Polarizer, Tap Coupler/Splitter, Pump Combiner, Pump&Signal Combiner, MFA, CPS, Pump Laser Protector, Faraday Mirror (RM), Faraday Rotator (FR), RM/FR with phase delay, Fiber Mirror (FM), FBG, Collimator, Attenuator, Pigtailed PD, Patchcord, etc. Customize on different fiber type, optical power, configuration and function integrations are available. www.haphit.com

haute école arc ingénierie
neuchâtel berne jura www.he-arc.ch

The Haute Ecole Arc Ingénierie supports a globally unique industrial environment, developing directly applicable and applied research that closely reflects the region's economic and industrial fabric. The results of this research are constantly incorporated into the teaching programmes delivered at HE-Arc Ingénierie. Through its teaching programmes and research activities, it offers its partners a genuine technological intelligence platform designed to support their innovations and developments. HE-Arc Ingénierie's strategic positioning is defined around four fields of activity corresponding to the principal design and production specializations encountered in the Swiss Jura Arc region: Smart & micro-manufacturing, Smart-sensing and digitalization, Watchmaking and Industrial luxury, Health & Medical technologies. The metrology and industrial vision group is a leading entity within the university that has a long experience in advanced optical sensing. The activities can be related to the development of advanced optical sensors and measurement systems, such as fiber optic sensors, interferometric systems and three-dimensional vision systems. www.he-arc.ch

€ Funded Research Projects Experience

- NEXPRESSO: Network for EXchange and PRototype Evaluation of photonicS componentS and Optical systems
- MULTIPOL: Multifunctional Polymer Materials and Systems with Tailored Mechanical, Electrical and Optical Properties
- PARYLENS: Parylene based artificial smart lenses fabricated using a novel solid-on-liquid deposition process
- NANOCI: NANOCI worked on the development of a neuroprosthesis with a gapless interface to auditory nerve fibres.

The research institutes have also an intensive activity funded by Swiss national programs as for example: New Techniques for Enhancement of distributed Brillouin sensing.

HBK FIBERSENSING

HBK FiberSensing is a business subsidiary of HBK – Hottinger Brüel & Kjær and a world leader in the development and production of advanced monitoring systems based on optical Fiber Bragg Grating (FBG) technology.The company offers the most complete portfolio of FBG sensors to measure strain, temperature, tilt, acceleration, and displacement, as well as measurement units and software packages for interconnection to external systems.HBK FiberSensing also provides technologically advanced solutions for monitoring, including custom development of OEM systems and monitoring projects.The main markets are structural health monitoring in Civil and Geotechnical Engineering, Energy, Industry and

R&D.The company is supported by competences in fiber optic technology, optoelectronics, digital electronics and instrumentation, and is certified in accordance with ISO NP EN 9001:2015 standards.HBK FiberSensing is proud of having addressed hundreds of different monitoring projects and delivered thousands of sensors and measurement units around the world, while ensuring innovation & excellence of its products and services. www.hbkworld.com

HEIDELBERG INSTRUMENTS

Heidelberg Instruments designs, develops, and manufactures maskless laser lithography systems for the fabrication of micro-structures, serving the global photolithography community in both the direct writing field and in photomask production. Application areas include MEMS, micro-optics, advanced packaging (3DIC), IC, flat panel displays (FPD), micro-fluidics, sensors, and other analog and digital electronic components. Our systems are used in more than 50 countries in Research and Development, rapid prototyping, and industrial production. In 2018, Heidelberg Instruments was joined by SwissLitho, a young and innovative high-tech company with an expertise in Scanning Thermal Probe Lithography (STPL), a technology realized with their NanoFrazor systems. Together, Heidelberg Instruments and SwissLitho are now able to provide customers with an additional choice of tools and options in the Nano- and Microlithography field. In the NanoFrazor, heatable silicon tips are used for direct patterning of arbitrary 2D and 3D nanostructures and for simultaneous imaging of the tiny resulting nanostructures. www.heidelberg-instruments.com/en

HELIA PHOTONICS

Helia Photonics was founded in 2002 to provide vital processing capabilities to the optics and optoelectronic market. Helia is a world leader in the design and manufacture of high-performance optical coatings, developing custom thin films augmenting performance and lifetime of optics and diode lasers from UV to IR, with direct applications in telecommunications subsystems, defence, advanced manufacturing, automotive, medicine and leisure industries. Helia holds world record results for catastrophic optical damage threshold on AlGaAs lasers and has developed unique capabilities with 16 deposition tools and a 110+ material base. www.helia-photonics.com

h e p i a
Haute école du paysage, d'ingénierie et d'architecture de Genève

HEPIA brings together the axes of sustainable development and optimal management of resources as a center of excellence in engineering and architecture. Through their applied research institutes, the Universities of Applied Sciences is an academic partner of choice for industry and services. The latter respond to various requests via research projects or applied services ("Market Pull") and also participate in the transfer of knowledge and skills to third parties ("Technology Push"). Among several HEPIA institutes, the research activities of the institute of industrial sciences and technologies (inSTI) are developed in the fields of mechanical engineering and micro-technology. The institute promotes its R&D activities through technology transfers to the economy (CTI projects, EU projects, mandates, etc.) on

the one hand, and through scientific publications and participation in conferences on the other. In addition, it attaches value to establishing strong collaborations with certain partners, whether industrial, state, semi-state, or academic. www.hesge.ch/hepia

HETEROMERGE employs longstanding research and patented technology to offer innovative system solutions for multi-material processing. Today, micro-nano-scale 3D structures with high resolution can be printed using two-photon laser polymerization (2PP) systems. Especially for optical applications, efficient multi-material printing is missing. We bridge this technology gap and offer innovative system solutions for multi-material processing. We enable fast and convenient multi-material 3D printing on 2PP systems – substrate independent, up to wafer level, and without any size restrictions. With our add-on solutions, our customers can transform their systems into a new generation of 3D printers to reach multi-material additive fabrication with material exchange 10x faster than today, at the highest resolution (10 nm placement accuracy), without design limitations and directly on active devices. www.heteromerge.com

HiLASE Centre, established in 2011, a part of the Institute of Physics of the Czech Academy of Sciences, is a new technological infrastructure in the field of application-oriented laser research and development, commissioned in 2016. The main mission of HiLASE is to serve as a bridge between the academic world and hi-tech industry. Under one roof at HiLASE we develop the next generation of high-power Diode Pumped Solid State Lasers, while at the same time, exploit these unique light sources for a wide range of hi-tech industrial applications such as Laser Shock Peening, Laser Induced Damage Threshold testing, and Laser Micro-Machining. Our most important facilities include the world record-breaking superlaser “Bivoj”, delivering over 1 kW of average power, and the compact picosecond thin-disk lasers delivering high power laser beams at wavelengths from mid-infrared to deep ultraviolet. It makes HiLASE facility the perfect partner for hi-tech companies, bringing an unmatched opportunity for research excellence, technological innovation and industrial exploitation. www.hilase.cz

HiSilicon Technologies was established in October 2004. The former ASIC Design Center of Huawei Technologies was founded in 1991. With the headquarter in Shenzhen, China, Hisilicon has set up design divisions in Beijing, Shanghai, Silicon Valley: USA and Sweden. HiSilicon provides ASICs and solutions for communication network and digital media. These ASICs are widely used in over 100 countries and regions around the world. In the digital

media field, Hisilicon has already released the SoC and solution for network surveillance, videophone, DVB and IPTV. www.hisilicon.com

HITACHI
Inspire the Next

Hitachi High-Tech, an opto-communication solutions provider, has, for more than 25 years, served the fiber optic industry with long term,reliable, strategic material partners. Going forward, Hitachi High-Tech will not only offer a more complete one-stop service,but also provide engineering and test services to support our customers and the challenges that come with higher speeds, increased bandwidth,power consumption management and manufacturing scalability. Hitachi High-Tech is committed to creating high value-added services forour global customer base by leveraging our personal connections, business relationships and expertise cultivated as a specialist trading company. www.hitachi-hightech.com

HOLO/OR

Holo/Or Ltd. (Est. 1989) develops, designs and manufactures diffractive optical elements (DOEs) and micro-optical elements. Our DOEs are being used for various applications, mainly involving high precision and high-powered lasers. Our main customers are laser system integrators in industries such as medical/aesthetical, material processing, metrology and many more. During the last three decades, HOLO/OR has gained considerable expertise in the design, simulation and manufacture of DOEs, using its in-house IP, software and tools. www.holoor.co.il

HOLOEYE

HOLOEYE Photonics is a German company founded in 1999 with roots in Berlin´s universities. We are providing products and services in the fields of diffractive optics (DOE), spatial light modulators (SLM) and LCOS microdisplay components. The Diffractive Optical Elements (DOE) group focuses on custom developments of diffractive optical elements for industrial customers, including design and prototyping activities towards a volume production of components. A broad range of off-the-shelf standard DOE´s with various patterns supports engineering activities of R&D and industrial customers. The broad portfolio of LCOS-based SLM-Products for phase modulation covers needs in academic and industrial research with main applications in telecommunications (WSS), holography (AR/VR), laser-based material processing, microscopy (light-sheet, STED), laser beam shaping, laser beam splitting and beam steering, adaptive optics and wavefront modulation, pattern projection and ophthalmology. Integration of our SLM-products in industrial products led to customized solution for LCOS-SLM´s and drive electronics, including qualification activities for medical and telecommunication products. Finally, we do also support industrial projection applications in medical, metrology and special imaging implementations with our range of LCOS projection displays. www.holoeye.com

Holst Centre is an independent R&D center that develops technologies for wireless autonomous sensors and flexible electronics as well as opto-electronics, in an open innovation setting and in dedicated research trajectories. A key feature of Holst Centre is its partnership model with industry and academia around shared roadmaps and programs. It is this kind of cross-fertilization that enables Holst Centre to tune its scientific strategy to industrial needs. Holst Centre was set up in 2005 by imec (Flanders, Belgium) and TNO (The Netherlands) with support from the Dutch Ministry of Economic Affairs and the Government of Flanders. It is named after Gilles Holst, a Dutch pioneer in Research and Development and first director of Philips Research. Located on High Tech Campus Eindhoven, Holst Centre benefits from the state-of-the-art on-site facilities. Holst Centre has over 180 employees from 28 nations, cooperates with 56 committed industrial partners and has 45 ongoing funded projects in portfolio. www.holstcentre.com

HORIBA is a worldwide group of companies that provides for an extensive array of instruments and systems for applications ranging from automotive R&D, process and environmental monitoring, in-vitro medical diagnostics, semiconductor manufacturing and metrology, to a broad range of scientific R&D and QC measurements. HORIBA manufactures and sells automotive emission measurement systems, environmental measuring instruments, wide range of scientific analyzers, and medical diagnostic analyzers, and measuring equipment used in the semi-conductor industry. HORIBA also manufactures and markets peripheral measuring and analysis devices. Moreover, the Company equips such facilities as laboratories with measuring and analytical equipment for R&D, production, and other applications. Proven quality and trustworthy performance have established widespread confidence in the HORIBA Brand. www.horiba.com

HOYA CORPORATION OPTICS SECTION is an innovator in the growing fields of photonics and optics and extends HOYA Group's leading heritage in color glass filter/optical filter making and technology. HOYA OPTICS' development, creation and distribution of color glass filter/optical filter are comprehensive and our products and services in Japan and throughout the world are incomparably speedy, efficient and effective. HOYA OPTICS provides colored glass filters/optical filters for wide range of industries such as cameras, optical instruments, physics and chemistry, educational materials, industrial-use and medical-use with spectral characteristics and product size according to your requirements; and manufactures and sells special glass used in various fields including electronic glasses which are often used in the electric and electronics industries. With extensive experience and achievements cultivated worldwide, all aspects of the supply chain from raw material procurement to delivery is integrated within HOYA OPTICS and we will respond to your diverse needs on a one-stop basis.www.hoyacandeo.de

Huawei, founded in 1987, is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We have nearly 195,000 employees, and we operate in more than 170 countries and regions, serving more than three billion people around the world. Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward. www.huawei.com

HÜBNER Photonics

HÜBNER Photonics is an international organization with offices in Stockholm, Sweden (Cobolt AB), Kassel, Germany, Hannover, Germany (VALO Innovations GmbH) and San Jose, CA, USA. HÜBNER Photonics is a corporate division of the HÜBNER Group, which is a privately held company with headquarters in Kassel and more than 3 500 employees worldwide. HÜBNER Photonics develops, manufactures and supplies innovative high-performance lasers and photonics systems for use in a broad range of applications. With a recognition for exceptional quality and reliability, HÜBNER Photonics supply lasers to leading manufacturers of analytical instrumentation equipment, to ground-breaking innovative start-ups, as well as to some of the most renowned universities and research labs in the world. The Stockholm office of HÜBNER Photonics is Cobolt AB, which since 2015 is a subsidiary of HÜBNER Group. www.hubner-photonics.com

HySpex by neo

HySpex are high-performance and versatile hyperspectral cameras for applications - ranging from UAV/airborne to field, lab and industrial use of imaging spectroscopy. HySpex operate in the 0.4–2.5µm wavelength range with industry-leading performance, providing scientific-grade quality to our industry, academic, government and defense partners. HySpex is part of Norsk Elektro Optikk AS (NEO), a privately-owned Norwegian company focused on high-end research within the field of electro-optics. www.hyspex.com

I-Photonics designs and manufactures original coating equipment for precision optics, space, communication, security and defense, AR/VR, display, medical, life science, PV and automotive. With a focus on the development of thin film coatings by running own test and job coating equipment solutions I-Photonics has a reputation for delivering taylor made coating systems covering the most common coating technologies as; Ion beam assisted

electron beam evaporation, Ion beam sputtering, PECVD and Plasma assisted reactive magnetron sputtering. The company's expertise in the design, the development, and the production of benchmarking coating solutions benefits from decades of experiences in supplying test and job coating solutions in quickest possible time by using the best coating technique available to fulfill the specific tasks. I-Photonics knowledge in developing and producing its own Optical Monitoring Solutions enables to produce thin films with exceptional precision, uniformity, and reproducibility. All of those are key factors to supply the more and more complex demands on design and productivity of the present and future precision optics market with attractive turn key solutions and fast and straight forward process support also after sales. www.i-photonics.lt

IBM is the artificial intelligence and hybrid cloud company headquartered in Armonk, New York. Utilizing its business consulting, technology and R&D expertise, IBM helps clients become smarter as the planet becomes more digitally interconnected. IBM invests more than $5 billion each year in R&D and, for 28 consecutive years, has earned more U.S. patents than any other organization. With the industry's most robust hybrid cloud platform, built specifically for the needs of the enterprise, IBM helps companies transform their businesses and industries, professionals to reinvent their roles, and organizations to solve the major societal challenges of our time.

IBM Research, for more than seven decades, has defined the future of information technology with more than 3,000 researchers across six continents. Scientists from IBM Research have produced six Nobel Laureates, 10 U.S. National Medals of Technology, five U.S. National Medals of Science, six Turing Awards, 19 inductees in the National Academy of Sciences and 20 inductees into the U.S. National Inventors Hall of Fame. www.ibm.com www.ibm.com/research

Ibsen photonics

Ibsen Photonics is a global provider of transmission gratings and customised grating-based spectrometer modules for OEM applications. Our transmission gratings cover the UV, VIS and NIR ranges and are used in diverse industries such as telecom, sensing, lasers and spectroscopy. Our high performance, compact spectrometer modules are used by international customers in sensor systems and spectroscopy applications such as absorption and flourescence spectroscopy, Optical Coherence Tomography, Raman Spectroscopy and Laser Induced Breakdown Spectroscopy. Ibsen Photonics is a privately held company, majority owned by Foss A/S, with headquarters in Farum, Denmark. www.ibsen.com

ICFO

ICFO, the Institute of Photonic Sciences, hosts over 350 researchers organized in 25 research groups working in 60 state-of-the-art research laboratories, equipped with the latest experimental facilities and supported by a range of cutting-edge facilities for nanofabrication, characterization, imaging and engineering. It is located in a specially designed, 14.000m2-

building situated in the Mediterranean Technology Park in the metropolitan area of Barcelona, Spain. The institute hosts an active Corporate Liaison Program that aims at creating collaborations between all types of national and international industries and ICFO researchers. It is also proactive in fostering entrepreneurial activities and spin-off creation among ICFOnians. www.icfo.eu

€ Funded Research Projects Experience

ICFO's portfolio of coordinated projects funded by the European Union has included SPEDOC, SOLPROCEL, GOPHOTON!, NANOVISTA, NANO-MATCELL, GRASP, RAIS, and LUCA. The institute has collaborated in many others and is currently participating in H2020 projects such as ACTPHAST 4.0, ACTPHAST 4R, QUIC, CORBEL, MERLIN, STARSTEM, in addition to FET-Open program projects Q-MIC (coordinator), Cellviewer, Mesobrain and PETACom. ICFO currently hosts 18 active ERC projects.

The institute belongs to some of the key networks and research consortia in Europe, including the QUANTUM TECHNOLOGIES FLAGSHIP in which it is leads two projects (CiViQ and SD·SIPC) and partners in an additional five projects (FLAG, QRANGE, QIA, MACQSIMAL and SQUARE), the GRAPHENE FLAGSHIP (leader of the Optoelectronics work package and vice-chair of Executive Board) and LASER-LAB EUROPE (serving on the Management Board). ICFO is a first generation Euro-BioImaging node in the distributed infrastructure EuroBioImaging (EuBI). It has also participated in projects supported by funding agencies such as the European Space Agency, DFG, NATO, NIH, FQXi, the AXA Research Fund and the Gordon and Betty Moore Foundation.

icon PHOTONICS

ICON Photonics company, France, has developed a wafer-level integration platform combining a Silicon Optical bench and a unique on wafer polymer microoptics technology. This platform is ideal to create custom and reliable optical micro-benches integrating fiber coupling and attaching solutions as well as high-speed electrical interconnects, enabling the next generation connectivity addressing the optical transceiver market and the Quantum photonics markets. www.icon-photonics.com

OPTICAL TECHNOLOGIES
an IDEX Corporation platform

IDEX Optical Technologies, a platform of IDEX Corporation, fuels the discovery of possibilities by generating unparalleled technology that helps inspire breakthrough thinking, drive innovation that touches our communities, and improves lives. As trailblazers of optics, we are Focused on the Future of Controlled Light™ to identify, execute, and deliver a full spectrum of targeted end-to-end solutions. We connect deep industry knowledge and cutting-edge techniques to drive smarter decisions and unlock your business' defining moments. IDEX Optical Technologies is more than optics; We are partners who help make brilliant things happen. www.idexot.com

IDIL
FIBRES OPTIQUES

IDIL Fibres Optiques, founded in 1995, is a leading company in the French optical fiber and laser technologies market, and is also involved in many international far-reaching projects. IDIL is at the forefront of innovation through the development of wide-ranging and innovative systems and solutions for science, industry and defence. IDIL, whose head office and research, development laboratories and production are located in 1000 m² facilities in Lannion, in the core of the French optical industry, has regularly hired new engineers and technicians in order to retain its dynamism and the 10% average annual growth in turnover. Currently, IDIL is composed of a talented 32-person team led by its Chief Executive Officer, Patrice Le Boudec. www.idil-fibres-optiques.com

imec
IDLab

IDLab is a core research group of imec, which focuses on *internet technologies* and *data science*. IDLab develops technologies outperforming current solutions for communication subsystems, high speed and low power networking, distributed computing and multimedia processing, machine learning, artificial intelligence and web semantics. Inside IDLab, the Design group is specialized in the design and development of electronic and photonic integrated circuits and sub-systems for high-speed optical transceivers for next generation transport, metro, access, datacenter and radio-over-fiber networks. www.ugent.be/ea/idlab

IHB Consulting & Trading e.K.

Magnetic & Ceramic Power Solutions

IHB is a Technical Component and Solution Provider within Laser and Optical Applications. IHB delivers advanced technical solutions as well as a broad range of special products used in the bespoken fields. IHB specializes in Hermetic Package Solutions for Laser Diode Modules, Optical Tx/Rx Applications, High Power and RF-Frequency Die Products as well as Optical Products (Lenses, Windows etc.). In addition, hereto IHB supplies a broad range of passive electronic components (Inductors, Resistors, Varistors, NTCs, PTCs, OVP and OCP Sensors). From its base in Munich Germany IHB operates with its suppliers across Europe (west, south and east) including the UK and the Nordic Region and offers the services and products (standard and custom specified) to applications addressed by the Photonics and Optical markets. www.ihbpassiveceramics.com

ihp

IHP performs R&D in the fields of silicon-based systems, highest-frequency integrated circuits, and technologies for wireless and broadband communication. The focus of research

at the institute is oriented towards issues relevant for business, resulting in applications for telecommunications, semiconductor and automotive industries, aerospace, telemedicine, and automation technologies. The institute has developed into a competence center for silicon-germanium technologies. In recent years, IHP is dedicating considerable efforts to photonic frontend integration with its high-performance BiCMOS technology. The objective is to provide high-performing BiCMOS electronics co-integrated with photonics building blocks such as SOI-waveguides, Germanium photo-detectors, and modulators to academic and industrial users. www.ihp-microelectronics.com

III-V Epi

iii-v epi provides a range of compound semiconductor wafer foundry services. They offer wafer design, product development and process optimisation along with a complete range of test, metrology and characterisation services. III-V Epi specialises in the manufacture of low to medium volume, MBE and MOCVD, III-V, epitaxial structures for compound semiconductor device applications. III-V Epi helps its customers to bring new compound semiconductor products to market, as quickly as possible. www.iii-vepi.com

illumiSonics

illumiSonics is transforming histo-pathology by enabling intraoperative cancer diagnostics. For better patient outcomes, enhanced efficiency, reduced healthcare costs. Today, when a surgeon removes cancerous tissue from a patient, it is sent to pathology where it takes 3-14 days to know whether all the cancer was removed. For example, in breast cancer surgeries – unfortunately – up to 32.5% of the time a clear margin is not achieved. And a patient must come back for a re-surgery. With PARS imaging from illumiSonics, a cancer surgeon will know for sure – intraoperatively based on an H&E histo-pathology image - whether they've removed all cancerous tissue. Without incremental time or cost. www.illumisonics.com

Image Engineering

Image Engineering is the world's leading manufacturer of image quality test equipment. Our test charts, analysis software, measurement and illumination devices provide companies with the means to more accurately test and evaluate the image quality of their camera systems. We work with industries including photography, mobile phone, automotive and ADAS systems, security, broadcast, machine vision, medical/endoscopy, and scanner and archiving. Almost any company that relies on high-quality imaging can use and benefit from our wide range of solutions. www.image-engineering.de

imagine optic™

Imagine Optic is a provider of Shack-Hartmann wavefront sensing hardware and software, adaptive optics technologies and professional services in applied optics. The company works with scientists and industrials in domains including pure science, industrial quality control, space and defense, semiconductors and many others. From X-EUV to NIR wavelengths, we develop, manufacture, distribute and support a very large range of wavefront measurement and correction technologies. From augmenting resolution in bioimaging applications to improving beam shape and propagation for ultra-high intensity lasers, we have the hardware and software to meet customer needs. www.imagine-optic.com

imasenic

IMASENIC Advanced Imaging develops and supplies custom CMOS image sensors and systems for the wide image sensor market with customers in Europe, Far East and United States. Its sensors are used for applications ranging from space to photography, from scientific to bio-medical, from industrial equipment to automotive. IMASENIC is customer-oriented and work with them from specifications, through prototyping to volume production at state-of-art CMOS foundries. IMASENIC supplies the CMOS image sensors as well as the related package and camera. IMASENIC can develop sensors with: pixel size down to 1.4µm, sensor size up a full 200 or 300 mm wafer, rolling and global shutter sensors, single photon avalanche pixels for direct time-of-flight applications, low noise (1 e- rms), high dynamic range (true 16 bit and more, linear), ultra-high speed (beyond 1 million frames per second at megapixel resolution), IR-enhanced; UV- enhanced. www.imasenic.com

€ Funded Research Projects Experience

- ACHIEVE: H2020 MSCA Innovative Training Network for the research on Advanced Hardware/Software Components for Integrated/Embedded Vision Systems. www.imasenic.com
- VISIR: 1st phase ATTRACT Novel combined visible – infrared detectors
- XCOL: 1st phase ATTRACT Low-cost, large area X-ray colour image sensors.

Centro Nacional de Microelectrónica IMB

IMB-CNM, the Microelectronics Institute of Barcelona belongs to the Spanish National Research Council: CSIC. The institute has a cleanroom facility: a 1500m2 class 100/10.000 devoted to micro- and nanotechnologies with a high level of process flexibility. Within the area of photonics our centre has established a useful integrated technology based on silicon and silicon based-dielectrics to obtain: optical components, electro-optical devices and hybrid elements. A fabrication process on Silicon Nitride technology has been developed in collaboration between IMB-CNM and VLC Photonics, providing a stable and scalable photonics manufacturing platform with a mature process design kit (PDK) and component libraries in the NIR range of the spectrum and currently IMB-CNM is targeting the development of a PDK in the visible range of the spectrum. www.imb-cnm.csic.es

€ Funded Research Projects Experience

- LIPHOS: Living Photonics: Monitoring light propagation through cells
- HIP-LAB: High-throughput integrated photonic lab-on-a-DVD platforms. ERC Starting Grant

- P. CEZZANE: Development of an implantable bio-sensor for continuous care and monitoring of diabetic patients
- PLACYD: Directed Self Assembly (DSA) Lithography
- ND4ID (H2020-MSCA-ITN-2015-675412): Universiteit Antwerpen (BE). Katholieke Universiteit Leuven (BE). Kungliga Tekniska Hoegskolan (SW). Stockholms Universitet (SW). Instituto de Microelectrónica de Barcelona (IMB-CSIC) (ES). EPFL (CH). Biomerieux SA (FR). Biocartis NV (BE). The scope of the project was to produce the new generation of diagnostic tools for infectious diseases. IMB-CSIC developed a new photonic platform for antibiotic susceptibility testing and the identification of resistant bacteria
- PROTECT (H2020-NMBP-PILOTS-2016-720851): 7 Research institutions, and 12 companies from 8 countries colaborates to create surface functionalization machines for textiles, water filters and catheters for industrial production. The role of IMB-CSIC was to produce bacterial sensing molecules and incorporate them in the previous surfaces by sonochemical coating.
- ConVat (H2020-SC1-PHECORONAVIRUS-2020-101003544): Institut Catala de Nanociencia i Nanotecnologia (ICN2) (ES). Univ. Barcelona (ES). Univ. D'Aix Marseille (F). Istituto Lazzaro Spallanzani (I). The scope of the CoNVat project is to develop a point-of-care biosensor approach for the direct, fast and specific identification of the new coronavirus, directly in the patient's sample. IMB-CNM acts as a Third Party in Kind from the ICN2, working in the design and fabrication of bimodal and multiplexed photonic transducers working in the visible range
- SMARTECOPONICS (ERA-NET Cofund WaterWorks 2015-PCIN-2017-031): IMB-CSIC (ES). Waterologies SL (ES). Inst. Nat. de Recherche Agronomique (FR). Ist. Rilevamento Elettromagnetico dell'Ambiente (IT). The scope of the project is to produce advanced water disinfection systems and new photonics systems for bacterial detection to control aquaculture plants and improve water and products quality. The IMB-CSIC was involved in the production of new photonics integrating bacterial preconcentration and detection systems and able to operate in situ in the water plant

imec

Imec performs world-leading research in nanoelectronics. We leverage our scientific knowledge with the innovative power of our global partnerships in ICT, healthcare and energy. We deliver industry-relevant technology solutions. In a unique high-tech environment, our international top-talent is committed to providing the building blocks for a better life in a sustainable environment. Imec has diverse photonic tracks which carry out world-leading R&D and opportunity for access. www.imec.be
Complete ASIC service: Our team of experts support electronic chip development and production through our full turn-key portfolio. This includes world-class foundry access, design solutions, tape-out support, and above all, our expertise in translating prototypes to production through testing, packaging and assembly.

Integrated Photonics: Imec offers silicon photonics and silicon nitride CMOS platforms for applications in telecom, datacom and medical diagnostics industries.

EU projects: ePIXnet, PhotonFAB, PLAT4M, ESSenTIAL, PIX4LIFE, ACTPHAST, CARDIS, NAVOLCHI
Imaging and Vision systems: Imec develops image sensors for hyperspectral imaging, and visions systems for lens free microscopy with applications in optical sorting, Spectroscopy, Microscopy, Counterfeit detection, Skin health, Agriculture, Pharmaceutical, Endoscopy, Surveillance etc.

EU projects: PHySIS, SEEBETTER, DiCoMo
Solar Cells: Imec develops silicon solar cells with high efficiency and thin-film solar cells (organic cells and alternatives for CIGS). EU projects: EU FP7- X10D, ARTESUN, CHEETAH, Cu-PV, MUJULIMA, SINERGY etc.

IMM Photonics develops and produces optical and optoelectronic products for a multitude of applications. Since our founding in 1992, we have been offering new and innovative com¬ponents and modules to numerous cus¬tomers from various technology sectors. From metrology and analytics, biopho¬tonics and medical engineering to opti¬cal data transmission and security tech¬nology – our products are deployed in several areas of industrial production. Standard products include laser diode modules and collimators, fibre optic components, glass fibre testers and UV light sources for UV curing. Upon request, they can be customised and further developed according to spe¬cific customer requirements. In addition to standard products, we also offer OEM and ODM services. In the development of customised solu¬tions, we adhere at all times to the cus¬tomer's specifications, budget and time schedule. As a reliable and competent partner, we accompany our customers along the entire process – from proto¬typing to series production. Manufacturer, developer and dis¬tributor – with thirty years of experi¬ence in the photonics industry, a team of qualified engineers and developers, production sites in Germany that meet the highest technical standards and a global partner network, we are in a posi¬tion to offer our customers innovative and economically effective solutions, even for complex tasks. www.imm-photonics.de

IMS develops and builds automated high precision production and assembly lines for small sensors, (micro-)optics and actuators. We develop and provide top-class equipment in the global market. We are a successful partner for customers who are at the forefront or who are to be the leader in their sector. With our automated production lines, we enable them to manufacture their innovative products and gain a future-proof competitive edge. www.ims-nl.com

IMT is your partner of excellence for custom microstructures on glass. We provide foundry, development and out-sourcing services for applications in photonics and life sciences. Typical products are Chrome shadow masks, planar waveguides with coupling gratings, diffraction gratings, reticles and resolution targets. Furthermore, we provide flow-cells, microwells and sub-um structures. Coatings are metallic and dielectric. We are a >100 employee company based in Zurich, Switzerland. Our production facility comprises >1'300m2 clean room including an automated 8" wafer processing line. www.imtag.ch

Indigo Diabetes nv. (‘Indigo’) is developing a next generation solution for continuous glucose monitoring (‘CGM’)– called a continuous multi-metabolite monitoring system (‘CMM®’) - designed to give people living with diabetes access to information on their glucose and other metabolite levels at any given time, without requiring them to wear an external device on their body. Indigo’s CMM® platform technology holds the potential to deliver multiple chronic disease applications but the initial focus will be on the diabetes market. www.indigomed.com

INESC TEC (Institute for Systems and Computer Engineering, Technology and Science) is a private non-profit research institution, dedicated to scientific research and technological development, technology transfer, advanced consulting and training, and pre-incubation of new technology-based companies. The institution hosts over hundreds of integrated researchers. INESC TEC aims to achieve advancement in science and technology and to enable science-based innovation through the transfer of new knowledge and technologies to industry, services and public administration. www.inesctec.pt

Infinera is a global supplier of innovative networking solutions that enable enterprises, governments, carriers, and cloud operators to scale network bandwidth, accelerate service innovation, and automate network operations. The Infinera end-to-end packet optical portfolio delivers industry-leading economics and performance in long-haul, submarine, data center interconnect, and metro transport applications. www.infinera.com

INGENERIC develops and manufactures optical components for High-Power-Applications. The company was established in 2001. Headquarter and production is located in Aachen, Germany. For its worldwide customer base INGENERIC offers the complete process chain starting from lens design over prototyping and small-series manufacture up to mass production. With its unique technology profile INGENERIC has thus advanced to one of the leading suppliers of beam shaping optics for semiconductor lasers.

Portfolio:
- Microlens Arrays
- Fast-Axis Collimators
- Slow-Axis Collimators
- C- Modules
- Beam Transformation Optics
- Aspheres and Acylinders
- Laser Systems

www.ingeneric.com

Inkron, a member of Nagase Group, is an expert in nanoimprint lithography (NIL) processes and manufacturer of the critical optical materials and coatings. Targeted applications of Wafer Level Optics (WLO) include Diffractive Optics Elements (DOE) e.g. waveguides for XR devices, optical diffusers and LIDAR components. These industry-leading optical materials cover refractive index range of 1.1-2.0 with state-of-the-art nanoscale processing capabilities. Other material solutions Inkron provides are patent pending high refractive index optical black coatings, adhesion promoters and optical adhesives. Furthermore, Inkron provides development and prototyping services of optical coatings (including inkjet process) and NIL processing to facilitate product demonstrations and fine-tune WLO devices manufacturing processes. www.inkron.com

Inmersia has born with the vision of opening a new computational era, based on more sustainable and human centered technologies. To make it possible, we have started developing the Inmersia Lens, a new pair smart glasses that will entail the next disruptive change and leave the smartphone days far behind. Thanks to technologies like Extended Realities, Artificial Intelligence or 5G connectivity, we are making this dream a reality. We are bringing to life the most advanced and portable smartglasses ever seen on the market! www.inmersia.com

INNOCISE is a German deep tech start-up developing novel handling systems for industrial pick and place processes. Its technology is based on bio-inspired microstructures, that adhere reversibly via van-der-Waals interactions on various surfaces and materials. Without requiring any compressed air or external power supply, its gripping solution is highly sustainable and the key for future energy-efficient handling processes. One of the key competences at INNOCISE is the microhandling technology that closes an important gap in existing handling tasks for miniaturized objects. This innovation enables a precise and reliable transfer of micro devices such as micro lenses, optical fibers, LEDs or optoelectronic chips ranging from a few millimeters to even below 10 microns in size. www.innocise.com

innoFSPEC Potsdam is a BMBF-funded innovation center, jointly operated by the Leibniz Institute for Astrophysics Potsdam (AIP) and the University of Potsdam. innoFSPEC's mission is research in the area of astrophotonics and fiber-based sensing, including technology transfer. The Astrophotonics Group at AIP is closely linked to the development of innovative instrumentation for ground-based and space telescopes. innoFSPEC is cooperating under MoU with a number of international research organizations, such as ESO,

AAO, Calar Alto Observatory, and engaging in a network of scientific and industrial partners. www.innofspec.de

InnoLas Solutions designs and produces highly reliable customized laser machines and processing systems for use in the photovoltaic, electronics, semiconductor, and precision engineering industries. It has well-known, globally active customers in its core markets – Europe, the US, and Asia. InnoLas Solutions is the core company of Photonics Systems Group and over 80 employees work at its headquarters in Krailling, Germany, as well as in the US and at several sites in Asia. www.innolas-solutions.com

Innolite has a core team that has been working in the field of advanced diamond machining and ultra-precision machine tool development for optics manufacturing for the past 15 years. Based on various projects and strong cooperation with our partners we could build up further experience in the field of optics polymer replication covering injection molding tool design and the corresponding process technology. We try to support and serve our customers along the entire process chain for optics and especially polymer optics production to ensure efficient, high quality products and only little losses at transitions between optics design and production or mold making a replication. An early stage involvement in optical product development will ensure optimized efficiency and reduced risk for your optics production. Our current customers consider our experience in data handling, program generation and the realistic estimation of achievable tolerances as highly valuable next to our diamond machining capabilities. www.innolite.de

INNOLUME is the premier manufacturer of GaAs-based laser diodes covering 780nm-1340nm spectral window. Combination of wavelength coverage with Quantum Dots Technology and advanced chip design enables a number of novel industrial, medical, and communications applications. Innolume runs full vertically integrated fab which allows fast turn-arounds in product development and modification of standard items for custom inquiries. Mainly concentrated on the chip production (current throughput exceeds 10M chips/year) Innolume holds highly reliable single mode fiber coupling technology. Innolume serves different Industrial, Medical and Scientific markets with High power laser diodes, broad (>150nm) spectrum ASE sources (SLD), unique high power/broad tuning range gain chips, custom wavelength high power DFB lasers and many other types of products. www.innolume.com

€ Funded Research Projects Experience

- SEQUOIA: Energy efficient Silicon transmittEr using heterogeneous integration of III-V QUantum dOt and quantum dash materIAls

INOPTEC stands for innovation, optics and technology. It is a decentralised European start-up company, run by experienced managers and engineers, primarily offering patented technology (B2B) and wearable consumer electronics (B2C) – both in the field of novel human vision enhancement systems. Perfect vision, day or night, is essential to safely operate vehicles, airplanes, machines, tools, computers, etc. by reducing the risk of mistakes, accidents and injury. Transhumanist technologies enhance our body's capabilities, and INOPTEC's intelligent bionic self-adapting sunglasses, smart goggles and anti-glare systems (AGS) are no exception. Fields of application: outdoor activities, automotive, aviation, industry 4.0, IOT, infotainment (AR, HUD), medicine, emergency rescue and personal safety. www.inoptec.com

InPhocal's patented optical technology eases up many of the limitations caused by focusing light in laser processing applications. It therefore finds use across many areas - such as laser marking on food and beverages, laser cutting or laser welding, as well as in the semiconductor industry. Our unique optical solution holds many advantages, such as allowing for faster production, or providing up to 50x more precision while marking, cutting or welding. Our one-of-a-kind approach allows for sustainable inkless printing on curved surfaces and directly on food. www.inphocal.com

Inseye pushes XR boundaries with our ultra-low power, camera-free, eye-tracking technology. The company is an ideal partner for tech giants to create immersive, efficient, hands-free XR experiences. Their potent hardware and software use deep neural networks and ML for precise real-time gaze tracking. With Inseye, experience the XR future today and help shape the unimaginable. They develop camera-free eye-tracking for XR devices (photosensor-based). The technology stands out for its ultra-low power consumption (5mW), minimal form factor, high sampling rate of 1000Hz and low BOM costs (<$5). The company explores various applications in VR/AR, including predictive foveated rendering, cloud VR streaming, smartglasses gaze input, healthcare use cases and much more. www.inseye.com

Insight Technology Search is a global executive search and recruitment company specialised in advanced electronics, including Photonics, Optoelectronics & Semiconductors. With over 35 years combined technology recruitment experience, we have an extensive global network, finding talented people for our clients across Europe, USA and Asia. By partnering with you, we understand your culture, plans and ambitions and help you to define

the profiles you need. This partnership approach enables us to effectively promote your organisation to potential candidates and find people who relate to your values. Our proactive targeted approach enables us to quickly identify, attract and assess talented individuals whilst providing a cost effective and efficient recruitment solution.
www.intechsearch.com

Insigma Engineering was founded in 2020 to disseminate photonics-based sensor technology in diverse engineering fields. The company is currently focused on distributed fiber optic sensor technology for structural condition monitoring, perimeter intrusion detection, and photonic seismology applications. Insigma Engineering also provides technical consultancy and services to companies in developing their sensing solutions and relevant applications. The company has developed adaptive signal processing techniques for optical time domain reflectometry-based (OTDR) distributed acoustic sensor (DAS) detection systems. The company's new SIMONE™ series interrogators being developed utilize tunable laser technology-based frequency diversity techniques for both fully-distributed and quasi-distributed fiber optic sensing. www.insigma.com.tr

InSpek is a start-up developing integrated photonic sensors for industrial applications. InSpek's first product is a chemical analysis system aimed at real-time monitoring of chemical and biological processes. This system is based on a patented technology for waveguide-enhanced Raman spectroscopy (or "Raman-on-a-chip"), which leverages the advantages of integrated photonics for Raman spectroscopy: higher sensitivity, lower cost, and smaller size. Overall, InSpek's vision is to enable Industry 4.0 with integrated photonic sensors. www.inspek-solutions.com

Institut d'Optique Graduate School, founded in 1917, is a French Grande École in Photonics and Optical Science & Engineering, located on three campuses in Paris-Saclay, Bordeaux and Saint-Etienne. Its international reputation is built on the quality of the education it offers, the major scientific contributions of its research centres, and its close ties with industry. Laboratoire Charles Fabry (Paris-Saclay), LP2N (Bordeaux) and LHC (Saint-Etienne) are state-of-the-art laboratories at Institut d'Optique Graduate School. Renowned the world over, it provides hands-on training in upstream and downstream research in all fields of optics, from the most fundamental: quantum optics to the most applied: specific optical components. www.institutoptique.fr

€ Funded Research Projects Experience

- GoPhoton!, a Pan European outreach project that aims to promote and raise awareness about the ubiquity and industrial and societal importance of the technologies enabled by Photonics.

The Institute of Photonics and Quantum Sciences (IPaQS) at the Heriot-Watt University carries out broad range of world-leading research in photonic physics, engineering photonics and quantum sciences. IPaQS builds on Heriot-Watt's 40+ years of history in world-leading research in photonics and spans a broad range of research – from lasers and optical sensing approaches to future manufacturing methods to the fundamentals of quantum information with a special focus on quantum sciences. IPaQS presents a unified capability to industry and other collaborative partner laboratories and maintains very strong links with industry (SELEX ES, Renishaw, AWE, etc. IPaQS's depth in relevant photonics research has led to the formation of successful spin-out companies including Edinburgh Instruments, Helia Photonics and PowerPhotonic. www.hw.ac.uk

The Institute of Solid State Physics, University of Latvia (ISSP UL) is an internationally recognized leader in materials science and interdisciplinary subjects in the Baltic States. ISSP UL combines classic R&D with RTO functions. It is a major player in the national photonics and smart materials ecosystem. The ISSP UL combines a Center for Excellence in Material Research with a Material Research & Innovation Center. The core competence of the institute lies in materials physics from theoretical modeling to application development. ISSP UL has extensive experience in photonics, from fiber optic materials to polymeric photonics platforms, from advanced spectroscopy methods to nonlinear optics. ISSP UL recently developed a 650m2 nanotechnology center with ISO 4 - 8 class clean rooms with expertise in polymer photonics, OLED, microfluidics, thin film, 1D and 2D material nanodevices. www.cfi.lu.lv/en/

INTEC, the Department of Information Technology of Ghent University, is a large department (approximately 300 people) covering many fields related to photonics: photonic integration, high speed electronics for photonic systems, photonic networks and network protocols. INTEC's Photonics Research Group has a focus on photonic integration and silicon photonics and works closely with imec, Belgium, in developing photonic integrated circuits for telecom, datacom, sensing and biosensing. The Electronics Design group of INTEC has a focus on custom design of high speed electronic circuitry for advanced photonics systems. The Broadband Communication Networks group works closely with iMinds in its research on network architectures and protocols. INTEC is strongly involved in the European Master of

Science in Photonics program, a joint degree offered by Ghent University and Vrije Universiteit Brussel. www.intec.ugent.be

Integrated Optics is a high-tech manufacturer of world's most compact lasers sources and integrated optical devices. Since 2012 Integrated Optics has developed proprietary micro-optics assembly method, based on robotics and unique software solutions, enabling clients to get maximum scalability and fast adaptation to application needs. The best-selling Matchbox2 series consists of direct diode and DPSS lasers covering over 25 wavelengths, featuring superior power stability, fiber coupling options and thermally stabilized optics for spectroscopy, microscopy, quantum and LiDAR. www.integratedoptics.com

The Integrated Photonic Technologies Center is part of the INPHOTEC Foundation of the Scuola Superiore Sant'Anna, a no-profit legal entity created according to the Italian Law 388/2000. Its mission is to provide fabrication facilities and technology platforms for research, prototyping and production of high added-value components and circuits to academics and industrial SME. The major areas where INPHOTEC can provide innovative front-end and back-end processes and technologies are:

- Photonic integrated circuits and optoelectronics
- Bio photonics and medical applications
- Sensors and MEMS, MOEMS

The center started its activity in January 2015 as a part of the TeCIP Institute of Scuola Superiore Sant'Anna, and from February 1, 2018 is a structure of the INPHOTEC Foundation. Since its birth in 2015, it has signed contracts with major industries as well as with European public Institutions and it is currently participating in several European and national projects. INPHOTEC has four different technology platforms:

- "Silicon Photonics" platform
- "Glass on Silicon" platform
- "Hybrid Integration" platform
- "Advanced Packaging" platform

www.inphotec.it

Intel is best known for our processors, but we do so much more. We are makers, catalysts and inventors. We innovate at the boundaries of technology to make amazing experiences possible for business, society, and every person on Earth. With more than 100,000 employees in 63 countries and customers in over 120, Intel's products and services create the foundation for limitless invention. Our innovations are bringing sight, touch, depth-perception and the ability to communicate to devices, objects and spaces to make them smart and connected. We harness the capability of the cloud and the Internet of Things to

disrupt industries while solving global challenges. We lead on important matters of policy, diversity, inclusion, education and sustainability. Intel has transformed to a company which now also powers the majority of the world's data centers, connecting hundreds of millions of mobile and Internet of Things devices, and helping to secure and protect enterprise and government IT systems. Our manufacturing advantage, fueled by our pursuit of Moore's Law, lets us continuously push the limits of performance and create experiences which can be made possible. www.intel.com

INTENGENT
III-V Photonics Company

INTENGENT, INC. is an Ottawa, Ontario, Canada based consultancy and fabless development service provider in the area of III-V photonics, primarily focused on customized photonic integrated circuits (PICs) in InP. With ever increasing demand for PICs at one end and sophistication of PIC technology at another, Intengent is a strong believer in and proponent of a fabless model for PICs in InP. In a Consortium with Global Communication Semiconductors of Torrance, CA, USA and VLC Photonics of Valencia, Spain, Intengent offers a full custom development into manufacturing for such PICs. Based on Intengent's regrowth-free taper-assisted vertical integration (TAVI) technology that enables for decoupling of III-V epitaxial growth and wafer fabrication, Consortium provides turn-key solutions to those in need for customized PICs but without means for their development. By providing a complete set of services, from PIC conceptualization to volume manufacturing, we cover both traditional (e.g. in optical tele- / datacom) and emerging (e.g. on-board optics, optical sensing, or quantum inscription) applications. www.intengent.com

INL
INTERNATIONAL IBERIAN
NANOTECHNOLOGY
LABORATORY

The International Iberian Nanotechnology Laboratory (INL) is the first, and so far the only, fully international research organization in Europe in the field of nanoscience and nanotechnology. INL is an international intergovernmental research organization (IGRO) with the mission to perform cutting-edge research and development in interdisciplinary nanotechnology, applied to the areas of sustainable environment, clean energy, food, healthtech, advanced materials and computing, and smart digital nanosystems, serving as an innovation integrator in multiple application domains. www.inl.int

Instrument Systems
KONICA MINOLTA Group

Instrument Systems Optische Messtechnik stands for light measurement solutions in premium German quality which are known for their speed, spectral precision, reliability and absolute traceability. Our worldwide reference spectroradiometers and innovative 2D display measurement systems are used in inline production testing, quality control and R&D for all sorts of displays, AR/VR devices, µLEDs, and IR emitters like IR LEDs and VCSELs. This makes our solutions indespensable in the entertainment and consumer electronics field, in automotive, traffic and aviation industries as well as in LED manufacturing. www.instrumentsystems.com

iPronics develops general-purpose integrated programmable photonic systems, which are based on a common optical hardware configurable through software to perform multitiple functions required in a wide range of applications spanning from5G/6G communications, switching, data centers, artificial intelligence, iOT, sensing, artificial intelligence and quantum computing. iPronics core product is the Field Programmable Photonic Gate Array (FPPGA). The company is a spin- off fromUniversitat Politècnica de València, Spain. www.ipronics.com

IQE uses advanced crystal growth technology - epitaxy - to manufacture and supply bespoke semiconductor wafers: 'epi-wafers' to the major chip manufacturing companies, who utilise these wafers to make the chips which form the key components of virtually all high technology systems. IQE is unique in supplying wafers using all of the leading crystal growth technology platforms – MOCVD, MBE & CVD. IQE's products are found in consumer, communication, computing and industrial applications, including in mobile handsets and wireless infrastructure: Wi-Fi, WiMAX, base stations, GPS, and satellite communications, optical communications & optical storage: CD, DVD, laser optical mouse, laser printers & photocopiers, thermal imagers, leading-edge medical products, barcode, high efficiency LEDs and a variety of advanced silicon-based systems. www.iqep.com

Iridian Spectral Technologies designs and manufactures custom optical thin film filter solutions from the UV (300nm) into the LWIR (10+um). Our wavelength selective dielectric thin-film filters provide "More Signal and Less Background" to our customers' systems with long term durability and reliability combined with industry leading optical performance at affordable prices. We tailor our optical filter solutions for use in spectroscopic applications, tele/datacom systems, space and satellite (earth observation, satcom, and astronomy), remote sensing including LiDAR, 3D entertainment, and many more applications. Our capabilities include single and multi bandpass/edgepass/notch filters and multi-spectral filter arrays. We support our customers from initial prototype development through to high volume production all from our facility in Ottawa, Canada. www.iridian.ca

IRnova, based in Kista (Sweden), is an independent company serving the OEM high-end infrared detector market and related services. IRnova’s recent breakthrough in both 15µ pitch QWIP and HOT T2SL focal plane arrays spearheads the European research and development of IR sensors. With researchers pioneering the field of infrared, state of the art production facilities that serves challenging military requirements and an excellent track record, IRnova is the obvious choice as a reliable, long term supplier of high-quality detectors. www.irnova.se

ISP System designs and manufactures high precision mechatronics systems for industrial or scientific partners for many markets: aerospace, defence, photonics, science, electronics, medical, automotive, railways and life sciences. The product portfolio is constituted of:

- Optomechanics: deformable mirror for intense lasers and space applications, mirror mounts for industrial or scientific lasers and for space industry, laser beam transport lines
- Micro- and nano-positioning systems from few millimeters up to several meters.
- High precision special machines: micro-assembly machines, optics, electronics and optoelectronics assembly machines.
- Embedded electrical actuators.

ISP launches several R&D projects per year with French or European partners in order to propose innovative and competitive turnkey solutions. ISP is certified ISO 9001 and EN 9100. www.isp-system.fr

Isuzu Glass has, for around 110 years, been developing original techniques and know-how and supplying a variety of optronics products to customers using unique manufacturing methods. The products manufactured by our state-of-the-art technologies are used in various fields requiring high reliability, and our company supplies the products in a variety of markets such as projectors, lasers, medical devices, sensors, semiconductors and energy-related equipment. Isuzu Glass is committed to strive to improve our accumulated skills and strengths with the goal of creation of 'technology for customers' as a top priority. We are determined to provide more and more excellent products and services for you by setting higher hurdles with the spirit of a challenger. We welcome your requests that will set a high hurdle for us to clear. www.isuzuglass.com

iThera Medical GmbH is a MedTech company based in Munich, founded in 2010 as a spin-off from Helmholtz Centre Munich. It develops, produces and markets a novel technology based on multispectral optoacoustic tomography (MSOT) for detection of tumors and chronic inflammatory deseases. In 2014 iThera won the German Innovation Award and 2019 received a CE accredeation. With its unique ability to accurately visualize and quantify tissue molecules in-vivo and in real-time through several centimeters of tissue, the photonic molecular imaging technology is at the forefront of the next era in biomedical imaging. To facilitate the translation of this technology into routine clinical use, iThera closed a 13 M€ financial round in November 2023 with TRUMPF and the EIC Fund as new co-investors. iThera has a very experienced world-wide team of 45 employees from 17 different countries and is strongly growing, the current annual revenue is about 5 M€. In combination with venture capital and own revenues, national and EU funded research projects support the development of the next generation devices. www.ithera-medical.com

IX-CAD was founded in 2001 and offers engineering services and consultancy for high-speed digital design in optical data communication. IX-CAD brings RF and Fiber Optics expertise to small and midsize companies which don't have the competency or the resources. We are specialized on Multi-Gigabit optoelectronic package design and bring the RF performance from the chip through the package to the board. We use Keysight's Advance Design System (ADS) - the world's leading electronic design software for RF, microwave and high-speed digital applications -, Ansoft's HFSS for 3D-EM simulation and Allegro for board design. The latest chip packages and boards are made for PAM-4 100 Gbit Ethernet application. Our expert knowledge in combination with the powerful design tools enable first past success. www.ix-cad.de

Jabil Optics Germany, a subsidiary of Jabil Inc., Florida, is a leading provider of Optical design services for augmented, mixed and virtual reality, advanced camera systems and 3D sensing. We offer in-depth knowledge of optical systems and technologies integrated into a broad optoelectronics ecosystem, allowing for one-stop solutions, from innovative design all the way through precision mass production. In an international team, Jabil Optics Germany develops innovative customized opto-electronic modules for new generation products in Consumer Lifestyle, Automotive and Industrial, supporting the overall Jabil strategic vision to be the most technologically advanced and most trusted manufacturing solutions provider. www.jabil.com/optics

MORE LIGHT

Jenoptik is a globally operating technology group which is present in more than 80 countries. Optical technologies are the very basis of our business. The majority of our range of products and services are provided to the photonics market. Our customers primarily include companies in the semiconductor equipment, automotive and automotive supplier, medical technology, defense and security as well as the aviation industries. In 2018, we generated revenue of 834,6 million euros. The Jenoptik Group headquarters are located in Jena in the state of Thuringia. Next to our major sites in Germany, we maintain production and assembly sites in Europe, the US, and Asia and employ about 4,000 staff worldwide. JENOPTIK AG is listed on the Frankfurt Stock Exchange and included in the SDax and TecDax indices. The Light & Optics division is a globally active OEM supplier of solutions and products based on photonic technologies. Jenoptik provides a broad portfolio, combining outstanding knowledge from more than 25 years of experience in the fields of optics, laser technology, digital imaging, optoelectronics and sensors. Our customers are leading machine and equipment manufacturers working in areas such as semiconductor equipment, laser material processing, healthcare & life science, industrial automation, automotive & mobility and

safety, as well as in research institutes. The Light & Production division is a global specialist in the optimization of manufacturing processes. Our many years of experience and know-how in the field of industrial measurement technology and optical inspection, modern laser-based material processing and highly flexible robot-based automation enable us to develop tailor-made manufacturing solutions for our customers in automotive, aerospace, healthcare and other manufacturing industries. The Light & Safety division provides innovative and industry-leading solutions for road safety and public security. Our customers include local and central government, police and enforcement agencies, as well as public and private organizations. Automatic number plate recognition (ANPR/ALPR) is at the core of our product portfolio, covering a diverse range of applications such as average speed enforcement (section speed control), vehicle monitoring, red light violations and tolling. Our services range from initial consultation, design and manufacture through to installation and on-going maintenance. We also offer a variety of data management solutions and services for automated data processing, reporting and analytics as well as system integration. www.jenoptik.com

JOANNEUM RESEARCH

JOANNEUM RESEARCH is a business-oriented leader of innovation and technology providers. It is linked to a worldwide network and has been providing leading research according to the highest international standard since the 1960s. With focusing on applied research and technology development, the INNOVATION COMPANY plays a key role in transferring technology and know-how in Styria. More than 450 employees carry out research work at 7 research units. www.joanneum.at

JOYA TEAM
Optical Systems Design

JOYA Team is an Optical Technologies house offering optical systems development services.Our goal is to help our customers and partners to design an exclusive tailor-made optical system.We are a Multi-disciplinary team with more than many years of joint experience in AR/VR & Night Vision Systems for Defence, medical and consumers markets.

Our services include:

1. OPTICAL SYSTEMS ENGINEERING
2. OPTICAL DESIGN
3. MICRODISPLAY & DISPLAY TECHNOLOGIES
4. NON-IMAGING SYSTEMS DESIGN
5. DESIGN & INTEGRATION OF OPTICAL TESTING EQUIPMENT

www.joyateam.com

JÜKE
Ideas in Technology

Jüke is an experienced service provider for product development, contract manufacturing and regulatory affairs. We work for companies in the fields of medical technology, analytical, bio and laboratory technology as well as photonics. Our experts have many years of experience with complex mechatronic assemblies and devices, firmware and software programming, system integration and documentation according to current standards and guidelines. Jüke is ISO 13485 certified and is a reliable partner for all phases of the product life cycle. www.jueke.de

Julight designs, develops and manufactures sensors and instruments based on laser light and photonic techniques. The main products are Laser Vibrometers and Triangulation Laser Distance Sensors: contactless vibrations measuring instruments that enable accurate monitoring of objects, ranging from MEMS to large infrastructures and buildings, as well as of industrial products and processes, and product quality that find application in non-contact monitoring of vibrations, modal analysis, and predictive maintenance, in industrial and research fields such as: mechanical, automotive, aerospace, electronics, energy, infrastructures, acoustics, biomedical. Julight holds an unique expertise in laser Self-Mixing interferometry and sensing, derived from world-leading scientific pioneering work, and the long-time experience of marketed products based on this special measurement technique. Julight also offers to third parties state-of-the-art customized services for the design and demonstration of new optical sensors and instruments. Design of custom solutions, realization of prototypes, and small-series production. Recent developments include: laser projector of animated shapes for industrial and entertainment applications; luminous and sensorized tiles for smart-city applications; LIDAR for long and short range; automatic MOEMS characterization system. The Research & Innovation strategy of Julight targets the development of new devices and applications for industries, smart cities (high-efficiency solid-state lighting, Internet of Things), and life-science (new medical diagnosis methods and treatments with applications to cardiovascular system, respiratory monitoring, skin diseases & dermatology). Some Julight projects in this area were funded by EU. www.julight.it

K2 Photonics designs and produces a revolutionary new type of ultrafast laser called the dual-comb laser. Unlike traditional lasers, their dual-comb laser produces two highly precise lasers from nearly the same components as a single laser. This opens up a wide range of new applications beyond the high-end metrology and science deployments of traditional lasers. These lasers are ideal for applications such as precise thickness and distance measurements in semiconductors, optical, and automotive production. www.k2photonics.com

KACENTRIC OPTICS is a Photonics Research Company serving industrial and scientific markets. It uses micro-optic technologies for implementing specialty devices and systems for a wide variety of applications. The focus is on narrow linewidth lasers located in the near infrared part of the spectrum (NIR), i.e. the wavelength range from 780 to 2500 nm. Devices and systems can be fiber-coupled.The privately held company was founded end of 2019 and is located near Lannion in France. www.kacentric.com

Karlsruhe Institute of Technology (KIT) was established in In October 2009 by a merger of Universität Karlsruhe (TH, founded in 1825) and Forschungszentrum Karlsruhe GmbH (founded in 1956). The KIT pursues both the mission of a university with teaching and research tasks and the mission of a national research center of the Helmholtz Association conducting program-oriented provident research. Within these missions, KIT is operating along the three strategic fields of action of research, teaching, and innovation. With about 9400 employees, including 6000 staff members in the science and education sector, and 24,500 students, KIT is one of the biggest research and education institutions in Europe. KIT is involved in various international projects, e. g of the EU and other international partners. www.kit.edu

KDROC, one of the companies under the brand name KDPOF, is a fabless semiconductor company which provides Fiber Optic Transceiver components for high-speed optical networking in harsh environments. KDPOF is proud to design cutting-edge communications systems. Our ability to design-in opto-microelectronic chips rests on all-in-house DSP, analog, digital, package and optics knowledge. KDPOF has an outstanding expertise and capable resources to bring new solutions to the automootive market in the form of reliable and fully qualified products. KDPOF is a recognized member of international standardization forums like ISO and IEEE leading the delivery of robust and affordable optical Ethernet standards to the automotive industry. KDPOF aims to develop highly disruptive optical package concepts meeting the manufacturability, low cost and high reliability required by the automotive industry. www.kdpof.com

KERDRY is a company specializing in the deposition of thin layers under vacuum (electron beam evaporation and sputtering).

- Substrates up to 1.4 m in diameter.
- Metal treatments: soldering, electrical contacts, mirrors.
- Optical treatments: anti-reflections, mirrors, filters, Black Coating from 0.35 to 15 µm.
- Photolithography up to 8'': resolution of a few microns.
- Metal and optical fiber optic processing.
- Combination of optical and metal layers on the same substrate. www.kerdry.com

KLV CO., LTD.

KLV is a distributor of light sources, optical devices and optical systems. We have contributed to the development of optical technology in many fields including medical, biological, semiconductor, agricultural, environmental and food science for the past 40 years in Japan. We are looking for new optical product suppliers! www.klv.co.jp

KO
KNIGHT OPTICAL

Knight Optical, established for almost 30 years, has become recognised as a trusted name in quality precision optical component design, consultancy and manufacturing. Now a global leader in optical solutions, with offices in the United Kingdom and the USA, our goal is to continue building our reputation by delivering the superior optical products our customers demand, and the quality of service and personalised support they deserve.Knight Optical is a worldwide supplier to a variety of industries. These include the scientific, defence, security, aerospace, medical & biotech, pharmaceutical, optoelectronic, engineering & manufacturing, entertainment, education, laser, and oil & gas industries, amongst many others. www.knightoptical.com

KETS™

KETS Quantum Security is passionate about solving real world security problems using the unique advantages of quantum technologies. Founded in 2016, KETS has developed a range of technologies for quantum-secured communications, including quantum key distribution (QKD) and quantum random number generation (QRNG). Their unique chip-based solutions, based on technology developed over a decade at the University of Bristol, provide ultra-low size, weight and power without compromising performance. KETS is currently engaging with a number of blue chip organisations across a range of sectors including telecommunications, governments, defence and finance to help them secure their systems and data with quantum-safe crypto solutions. www.kets-quantum.com

Ladimo transforms your business through Ladimo Smarter Vision. We offer a real time 3D point cloud acquisition solution that transforms industries with its accuracy, affordability and computational efficiency. Realtime, accurate and affordable 3D sensors to allow automated solutions; saving time and resources also in dangerous places where human access is denied. www.ladimo.fi

Lahat Technologies is a leading sales representative/distributor organization in Israel, who represents some of the world's leading manufacturers in the fields of Lasers, Optics, Metrology instrumentation, Motion Control and more. Our aim is to provide our customers top-quality & efficient products, technologies, support and service. Lahat's sales and service people are all Problem Solvers & Solution Providers, experienced in the fields of Physics, Electro-optics, Electronics and Mechanics. All certified, trained and highly-qualified engineers. www.lahat.com

Lambda-X: Optical excellence, designed and built for you, designed and built for the field. Because innovation is at the core of our values, we are the trusted partner in the field of OEM optical systems for the development of pioneering programs, from design and prototyping to production and certification. Through an extended technical experience, Lambda-X provides a toolbox of in-depth knowledge and methodologies to ensure our customers' excellence. We focus on high-tech innovation industries operating in various fields: space and security, bio-medicine and life sciences and quality control of industrial or scientific processes. www.lambda-x.com

Lase Corp is your defense and security-oriented engineering partner specializing in lasers and laser systems for military applications. With over two decades of battlefield-proven experience, we offer cutting-edge engineering design and R&D services, enabling our partners to achieve rapid product development in laser target designators, range finders, illuminators, active imaging and directed energy systems. At the core of our methodology lies a commitment to design for manufacturability, supply chain capability, and reliability. By incorporating these principles from the R&D phase, we ensure a seamless transition into production scale-up, saving time and resources for our clients. Our contract-based services cater specifically to defense and security applications of lasers, including: Engineering Design & Consultancy, System Integration of Lasers, Test & Performance Analysis. www.lasecorp.com

LASEA Group is one of the world leaders for the design and manufacture of precision laser machines using continuous, short and ultrashort pulsed lasers, from UV to far IR. Based in Belgium, in San Diego (USA), in France and in Switzerland, the Group offers all subtractive and additive laser solutions for 4 preferred sectors: Luxury Goods, Medical, Electronics and Academic. LASEA machines, working at focal point or by projecting masks, can be used for cutting, marking, engraving, drilling, thin film ablation and texturing of materials with unequalled quality and precision. With more than 110 employees in 4 countries and with an installed base of more than 1000 laser machines, distributed throughout 5 continents, the new group accumulates more than 50 years of experience in precision laser micromachining. www.lasea.com

Laser 2000 supplies Photonic and Fiber-Optic solutions matching even the most demanding applications. For more than 35 years we see ourselves as a service provider, enabling our partners to apply Photonics in European industry and research. As a combination of value-adding reseller, integrator, and consultant, we cooperate with global technology leaders to supply customer-specific solutions from a single source. Our partners and customers are supported in every aspect from design phase, prototyping, system assembly to procurement. To meet the individual market and customer needs our team of over 60 people is available in offices across Europe (D-A-CH, France, Iberia and Scandinavia). Together with affiliated companies in the UK and BeNeLux we insure international proximity to our customers. www.laser2000.de

Laser Components specializes in the development, manufacture, and sale of components and services in the laser and optoelectronics industry. In a nutshell, we offer anything from the creation to the transmission to the detection of light - at the components level. Our company has been serving customers since 1982 with sales branches in five different countries. We have been producing in house since 1986 with production facilities in Germany, Canada, and the United States. In-house production makes up approximately two thirds of our sales revenue. As a family-run business, we have more than 230 employees worldwide. www.lasercomponents.com

THE POINT OF DIFFERENCE IN PHOTONICS

LaserPoint, founded in 1987, develops and manufactures a complete line of instrumentation for the measure of laser power/energy and customized laser systems that serve manufacturing, medical and research industries. All key technologies are in-house developed. The Company holds several patents (e.g. on techniques to measure Power, Beam Position and Diameter on a single instrument). Well known for the robustness of its

coatings and products, LaserPoint has a long record of innovations in laser measurement: High Speed Laser Sensor ("Blink series" patent pending) able to measure pico/femtosecond pulsed lasers up to 1 MHz repetition rate, world's First Super Hard Coating (SHC) for multi-kW high brightness lasers, world's first Air Cooled detector for 1.2 KW, world's First Power Probes based on the measurement of fast temperature transients in thermal sensors. As a result of the extremely high quality of its products, LaserPoint has been world's first in providing a 3 Years Standard Warranty for Laser Measurement Products. www.laserpoint.eu

LASOS
For worldwide photonics

LASOS designs, develops and manufactures high quality gas, diode and diode-pumped solid-state lasers from the ultraviolet to the near-infrared with special focus on OEM applications in Biophotonics, Microscopy, Raman Spectroscopy and Holography. Besides original equipment manufacturing, LASOS is also a reliable partner and supplier for research and educational institutes. www.lasos.com

LASSE

Laser Systems & Solutions of Europe (LASSE) headquartered near Paris is a subsidiary of SCREEN Semiconductor Solutions (Kyoto, Japan) a leading supplier of manufacturing equipment to the semiconductor industry. LASSE develops and manufactures laser thermal annealing products based on a unique high energy UV excimer laser technology. By providing a precisely controlled, ultra-shallow and ultra-fast thermal processing of semiconductor materials, our Laser Annealer enables the manufacturing of advanced devices such as CMOS imaging sensors, thin wafer power devices and responds to the challenges of advanced CMOS manufacturing at or below 10 nm node. LASSE's expertise covers UV laser technology, optical design, system integration of complex equipment as well as semiconductor process integration. www.screen-lasse.com

laservision

laservision, an integral part of uvex, protects one of the most sensitive human organs - the eye - from laser radiation with commitment, customer orientation and innovative strength. In addition to laser safety goggles, filters and windows, the overall portfolio also includes large-area laser protection. For us, the focus is on people. We have a transnational, highly qualified network of strategic partners and are committed to CO2-neutral growth in the long term. Our demanding goals for the production facilities and products ensure that Made in laservision is a promise of quality with added value for our customers, today and in the future. laservision's target groups comprise manufacturers as well as users of laser technology in fields such as industry, medicine, research and defence. protecting people is the claim and DNA of the uvex group. The philosophy of our brand is to provide optimum laser safety protection for all lasers worldwide in accordance with the standards. This is based on our intensive research, manufacturing in our own plants, close collaboration with high-performance suppliers and the transfer of expertise within the uvex safety group. This ensures laservision's technological excellence on a lasting basis. www.uvex-laservision.de

Laser World of Photonics is the most important marketplace and the most constructive think tank for the global laser and photonics industry. It features more than 1,300 exhibitors from 40 countries and gives you a complete overview of all the latest trends and applications. And above all, new impetus and solutions that can help you to increase your business success thanks to the innovative strength, performance and efficiency of optical technologies – whether you are an expert or a new user. Let's meet again from June 21 to 24, 2021 at LASER World of PHOTONICS in Munich, Germany. www.world-of-photonics.net

LASER ZENTRUM HANNOVER e.V.

Laser Zentrum Hannover, as an independent, non-profit research institute, the Laser Zentrum Hannover e.V. (LZH) stands for innovative research, development and consulting. The LZH is supported by the Niedersachsen Ministry for Economic Affairs, Employment, Transport and Digitalisation and is dedicated to the selfless promotion of applied research in the field of photonics and laser technology. The focus of the LZH lies in the fields of optical coatings, components and systems, optical production technologies, and biomedical photonics. Interdisciplinary cooperations between scientists and engineers make innovative approaches to challenges from the most different areas possible: from the development of components for specific laser systems to process developments for the most diverse laser applications, for example for medical technology or lightweight construction in the automotive sector. Eighteen successful spin off companies have emerged from the LZH up to now. Thus, the LZH has created a strong transfer between fundamental science, application oriented research, and industry. www.lzh.de/de

LaVa-X is a solution provider and supports customers in their joining challenges. In addition to the development, production and sales of product-related machines for laser beam welding in vacuum, LaVa-X also offers complete process development from the feasibility study, through component production as a contract manufacturer, to the implementation of systems in existing production environments.The goal is to improve quality and productivity in laser welding while reducing costs.Well-designed laser and vacuum solutions enable increased efficiency and reliability. User-friendly software and ease of use enable further performance improvements and reduce the likelihood of errors. In addition, customers benefit from many years of expertise in system and process technology.

Keywords: Laser Beam Welding, Vacuum, Welding, Electron Beam Welding.

Experiments in EU projects: LaVa-X was founded with support of EXIST (Business start-up from science) by the German government. Since then, many publicly funded projects have been acquired and successfully processed. www.lava-x.de

LayTec is a major provider of in-situ and in-line optical metrology for thin-film processes. These metrology tools are used in a broad range of thin-film applications such as LED & LASER production, thin-film photovoltaics, oxide and organic deposition as well as other large area deposition processes. LayTec's integrated metrology provides access to all key thin-film parameters in real-time – either in-situ, during the deposition process, or in-line. Recently, also in-situ metrology tools for wet and dry etching have been added expanding LayTec's portfolio along the production chain. Beyond these integrated methods, LayTec also offers mapping solutions which ideally complement in-situ measurements by providing uniformity analysis of the deposited layers. The implementation of LayTec metrology systems in production processes significantly shortens development cycles and enables an efficient quality control that helps to considerably reduce production and development costs. www.laytec.de

LD4B is a Laser Diodes for Business

LD4B develops and manufactures reliable fiber-coupled laser diodes (LD), superluminescent diodes (SLD) and PIN, APD, PIN-TIA, and APD-TIA photodiodes (PD). Their pigtailed modules find applications in microwave photonics, quantum photonics, optical time-domain reflectometry (OTDR), Fiber Optic Perimeter Intrusion Detection Systems (FOPIDS), telecom and datacom, sensorics, biomedical diagnostics, and scientific research. www.ld4b.com

L.E.S.S. ("Light Efficient Systems") offers versatile lighting solutions that are focused on the customer needs to develop safe, bright and innovative products. The unique nano-active fiber technology developed by L.E.S.S. has proven itself as a disrupting alternative to the LED technology setting a new standard of lighting quality. It generates high quality light that exhibits both ultra-uniformity and brightness characteristics, surpassing today's quality standards. The thinness, the flexibility, and the three-dimensional lighting nature of L.E.S.S. laser wire technology allows for the creation of unprecedented low weight and power efficient lighting solutions. L.E.S.S. developed and constantly optimized inspection lighting products for its renown customers in the watch industry, as well as the medical and pharmaceutical industries, that praise the time savings and ease of quality control. L.E.S.S. is now engaged in higher growth with the development of thinner, brighter, low weight, yet environmental conscious, signal and contour lightings for the automotive market. www.less-sa.com

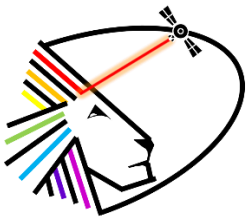
The Leibniz Institute of Photonic Technology: IPHT explores the scientific basics of photonic processes and systems of the highest sensitivity, efficiency, and resolution. In keeping with its “Photonics for Life” motto, IPHT develops custom solutions to problems in the fields of medicine and the life and environmental sciences that are based on this research. Following IPHT’s principle “From Ideas to Instruments,” we implement the insights gained from our research into processes, instrumental concepts, and sometimes even into laboratory prototypes in order to sustainably contribute to the benefit of patients and consumers. With its research profile, IPHT is perfectly integrated into the science and economic hub that is Jena – a city which, since the time of Ernst Haeckel, Carl Zeiss, Otto Schott, and Ernst Abbe, has traditionally been characterized by the fertile interaction between the life sciences, physics, and optics. Through its leading role in national and international networks and consortia, IPHT significantly contributes to the advancement of the research topic of Biophotonics and performs an important deed in safeguarding the future in an area highly relevant to society. www.leibniz-ipht.de

Leica Camera AG is an internationally operating, premium-segment manufacturer of cameras and sport optics products. The legendary reputation of the Leica brand is founded on a long tradition of excellent quality, German craftsmanship and German industrial design, together with a long standing tradition of innovative technologies. Leica Camera AG has its headquarters in Wetzlar, in the state of Hesse in Germany, and a second production site in Vila Nova de Famalicão, Portugal and operates its own worldwide network of regional organizations, Leica Retail Stores, Leica Galleries and Leica Akademies. www.leica-camera.com

LemnaTec is a global specialist for digital phenotyping and digital seed testing. We deliver solutions for non-invasive sensor-based phenotyping and quality assessments of seeds, plants, and other organisms. Sensors are combined with application-specific measurement platforms and a comprehensive software package for data collection, storage, analysis, and access. Core unit is LemnaGrid, a graphical programming surface that allows combinig various image processing tools and thereby establish workflows for various phenotyping applications. Thereby we extract biologically relevant data from the parameters measured with the sensors. We are phenotyping together with academic and industrial users in order to facilitate science, plant breeding, plant nutrition and plant protection. We work on methods that characterise genotype-phenotype linkages and responses to environmental factors. We are always happy to receive your ideas and demand for phenotyping or seed testing. www.lemnatec.com

leopil

Leopil - Leutz Optics and Illumination UG (haftungsbeschränkt) is Ralf's consulting firm. Founded in 2013, the company provides solutions at the intersection of optical design and manufacturing. With renowned partners in the fields of true 3D freeform optical design and advanced production processes, leopil can answer most challenges in geometrical and diffractive optics. Core operating fields of leopil include manufacturing (casting silicone-on-glass (SOG)), (processes/materials (embossing, lamination, tooling, silicones, plastics), lighting (freeform optics, LED), automotive (ToF), solar (CPV, bifacial, IEC standardization), and vision (safety, AR, microscopy). Management keywords are USP/IP, financing, supply chain, team, change, entrepreneurship and start-up. leopil proposes an Industry 4.0 concept for the freeform optics industry. www.leopil.com



LEO Space Photonics R&D (based in Athens, Greece) is a developer of transceiver solutions for satellite optical communications applications. The company has expertise and an established full custom circuit design flow of analog/mixed signal electronic and photonic integrated circuits. Our business and R&D focus is on new generation, photonics-enabled high-speed inter-satellite connectivity and Very High Throughput Satellite payloads. In these areas we lead two EU funded programmes - H2020-SPACE-ORIONAS (www.space-orionas.eu) and H2020-SPACE-SIPHODIAS (www.space-siphodias.eu) - in which we deliver integrated circuits for new generation laser-com terminals and high-speed intra-satellite optical interconnects. www.leo-sprd.eu

LEUKOS
Make a bright future

LEUKOS is a world-leading company, designing and commercializing supercontinuum sources (white lasers). Founded in 2006, the company was a pionneer regarding this innovative technology. Following the technological transfer from Xlim laboratory (University of Limoges), LEUKOS has continuously introduced new products during these last 10 years. In 2013, the company has expanded its activities by acquiring the company HORUS LASER, a manufacturer of compact passive q-switch microchip lasers. www.leukos-laser.com

LE VERRE FLUORÉ
INFRARED SOLUTIONS

Le Verre Fluoré was established in 1977 as a spin-off of the discovery of fluoride glasses by Poulain brothers. Over 40 years of continuous R&D effort lead to outstanding pioneering

achievements, among them are ZBLAN and Fluoroindate glasses, low loss optical fibers, qualified for industrial use. High reliability and low costs outline maturity of fluoride glass technology. www.leverrefluore.com

LiangDao GmbH is a leading technology provider of LIDAR system solutions, with core competencies in LIDAR system and multi-sensor fusion applications. The company is devoted to the field of autonomous driving and intelligent transportation, providing solutions including LIDAR perception algorithm development, testing and validation for AD, function iteration services driven by big data, as well as roadside sensing fusion. LiangDao GmbH is located in Munich and has a R&D center in Berlin. The company has established in-depth cooperation with companies with core autonomous driving technologies including Great Wall Motor, Volkswagen Group (including its three brands VW, Audi and Porsche), Ibeo, Ouster, Innovusion and NVIDIA etc. www.liangdao.de

LIDARIS mission - better laser optics performance within the global supply chains via fast turnaround optics testing services. We support those organizations that seek to learn more about laser optics performance or want to improve it. Our main focus is ISO standard-based Laser-Induced Damage Threshold (LIDT) measurements in a wide range of testing conditions (UV-IR / fs - CW) and related R&D services. The company was founded in 2012 as a spin-off of the Vilnius University Laser Research Center by a group of researchers working on laser damage phenomena. More than 140 organizations worldwide trust LIDARIS services daily. LIDARIS's experience covers more than 20 years of research in the field of LIDT. Currently, our team consists of 18 people, 5 of them holding Ph.D. in physics. www.lidaris.com

LIDROTEC developed a laser system that reduces material and processing costs for microchip manufacturers by reducing the material waste in the wafer dicing process by 90-100%.
LIDROTEC's unique innovation are specifically designed liquids that

i. efficiently cool the work piece during the dicing process, and
ii. keep the surface clean by washing away micro and nano particles.

Due to the liquids, we achieve narrow kerf widths without micro cracks, without chipping, without thermal defects and without debris on the surface. As a consequence, the dicing yield is increased to >99%. Our technology can be used for glass/ceramics and semiconductor materials. www.lidrotec.de

LIGENTEC

LIGENTEC is a Swiss based manufacturing partner, offering low loss SiN Photonic Integrated Circuits (PICs) for industries such as quantum technologies, LiDAR, communications, space and sensors. Due to its high confinement, the thick nitride waveguides and resonators have low bending losses and excel even in high power applications from the visible to the mid-IR. The main application areas for this advanced silicon photonics low loss technology include coherent telecommunication, LiDAR, metrology, supercontinuum generation, spectroscopy, sensing and microwave photonics. Ligentec's All Nitride Core Technology platform is fully CMOS compatible, thus allowing us to offer ramping up to high volumes benefiting from the scale of the semiconductor industry. www.ligentec.com

LIGHT CONVERSION

Light Conversion is a major ultrafast laser technology company with over 300 employees and more than 4500 installed systems worldwide. Company designs and manufactures ultrafast lasers, optical parametric amplifiers (OPAs) and oscillators (OPOs), optical parametric chirped pulse amplifiers (OPCPAs) for industrial, scientific and medical applications, as well as kinetic spectroscopy systems.Light Conversion TOPAS and ORPHEUS series of OPAs constitute around 80% of the global continuously wavelength-tunable ultrafast light source market. Ultrafast laser applications are covered by the PHAROS and CARBIDE lines. PHAROS is designed for basic research as well as material processing applications with a focus on customizability, reliability and process-tailored laser output parameters. CARBIDE is a compact, rugged, industrial-grade, femtosecond laser with air- and water-cooled models reaching average powers of up to 80 W. Company also produces HARPIA – a comprehensive femtosecond and nanosecond pump-probe spectroscopy and microscopy system.Light Conversion was one of the key technology providers for the single-cycle SYLOS laser at the ELI-ALPS facility delivering CEP-stabilized 6.6 fs pulses with a peak power of 4.9 TW at 1 kHz.With a proven competence in the design and manufacture of lasers, OPAs and spectroscopy systems combined with state-of-the-art R&D facilities, Light Conversion offers unique solutions for most challenging ultrafast laser technology and applications. www.lightcon.com

Lightnovo

Lightnovo has been founded in 2019 by a team united by the belief in making a difference with innovative Raman spectroscopy solutions.Our goal is to provide premium performance Raman spectrometers and microscopes with the World's smallest form factor at a price that democratizes access and opens new application areas. Lightnovo's mission is to "Harness the power of Raman spectroscopy and make it widely accessible for the benefit of mankind.". It is our vision to become the recognized leader in providing the highest value Raman spectroscopy and Raman microscopy solutions for research, industry and healthcare. www.lightnovo.com

Light Tec offers optical design tools and optical scattering measurements. Light Tec's team is made of 22 employees at 3 locations, one in Hyères (France) and one in Munich (Germany) and one in Courtrai (Belgium) .The tools proposed include: Optical design software tools (Code V, LightTools, LucidShape, RSOFT) + technical support and training. Optical Scattering measurement tools including the development and sales of industrial products ("Mini-Diff", Mini-Diff VPro and "REFLET 180S"). With a high-skilled team of optical engineers, the company also offers optical engineering and optical measurement services.
www.lighttec.fr

LightTrans offers solutions for the entire development cycle of optical components. Our products and services include optical design software, optical engineering, training and consulting. All the products and services of LightTrans are based on the physical optics design software "VirtualLab Fusion" developed and produced by Wyrowski Photonics, which provides ray tracing and fast physical optics methods. LightTrans provides solutions for, among others, the following fields:

- Light Shaping
- Optical Metrology
- Imaging Systems
- Laser Systems
- Virtual and Mixed Reality

www.lighttrans.com

Lightwave Logic develops innovative optical materials and devices for the Algorithmic Age. We seek to lower the friction for moving the ever-growing amounts of data that characterize our times. Our target customer base is the optical datacom and telecom hardware suppliers that interconnect the vast pools of data residing with cloud providers, communications providers, enterprises and governments. Our solutions start with our own engineered materials which are used in devices and packages that we design to optimize performance. The resulting components transmit data at unmatched speeds. They require less electric power than their conventional counterparts. Their fabrication is simpler and requires less expensive equipment. We currently focus on several markets, including electro-optic modulators to address 100 Gbps and 400 Gbps fiber optic communications. We expect to introduce our high-performance photonic devices into the commercial marketplace in the near future. Lightwave Logic, Inc. is a US company with in-house materials synthesis, device

and package design, wafer fab and test capabilities in our Englewood, Colorado headquarters. www.lightwavelogic.com

LIGHTWORKS
PASSION FOR LIGHT

LIGHTWORKS is an SME based in Holzkirchen near Munich. In addition to our main location, we operate a TechCenter in Ostrava, Czech Republic. As an internationally active service provider and innovation driver in the field of optics and lighting system development, we are an established partner for leading manufacturers and TIER 1 suppliers.Setting tomorrow's standards together, LIGHTWORKS supports industrial clients around the world and across all sectors in driving forward the possibilities of innovative lighting technologies and implementing them with commercial success. To design the development process from A to Z with maximum efficiency, we combine expertise in optics, mechanics and electronics with the knowledge of the best industrial implementation under one roof. Our range covers the development of individual lighting functions to complex lighting systems and comprehensive lighting architectures. www.lightworks-gmbh.com

LioniX INTERNATIONAL

LioniX International is a leading global provider of customized microsystem solutions. We have driven technological and commercial development in photonic integrated circuits since 2001. We work with OEMs and system integrators, using a vertically integrated approach to support all stages of the production process, from design to delivery of a finished module. And with world-class fabrication facilities, we scale production volumes as customer requirements grow. Our ability to deliver innovative modular solutions based Photonic Integrated Circuits (PICs), lies in our strong IP portfolio. This includes our proprietary waveguide technology–TriPleX™–as well as the fundamentals of our competences in micro-fluidics, opto-fluidics and MEMS. www.lionix-international.com

€ Funded Research Projects Experience

- BOOM: In this project the TriPleX technology: in particular ringresonators were developed for a telecom application.
- PYTHIA: In this project the waveguide technology was combined with lightsources and detectors on silicon for sensing applications.
- FOODSNIFFER: continues on the development of PYTHIA by further optimizing the waveguide technology and the sensing platform.
- In LIPHOS the TriPleX technology was used for the development of completely innovative biophotonic diagnosis tools.
- SANDRA focused on the development of phased array antennas with photonic beamforming based on the TriPleX technology.
- In BIOMONAR the optofluidic technology is used to develop a suite of dynamic nanoarray biosensors for monitoring of environmental pollutants and pathogens.
- PHASTFlex: Photonic Hybrid Assembly Through Flexible Waveguides.

LIOP-TEC develops, manufactures and distributes opto-mechanical products and tunable dye laser systems and accessories. Opto-mechanical components comprise highly stable and precise mirror mounts for laser beam steering applications in R&D and industry and fine thread screws up to 170 TPI. In addition we develop customer specific solutions, e.g. mirror mounts for large mirrors used in petawatt laser systems or mirror mounts for ultrahigh vacuum. LIOP-TEC dye laser systems are characterised by their extremely stable mechanical design and modern beam steering concepts. www.liop-tec.com

LISA Laser Products has been founded 1989 in Katlenburg-Lindau, Germany. Since then the company is the trendsetter in surgical laser systems. The core competence of LISA Laser Products is in the development, manufacturing, sales and marketing of medical lasers at 2 µm wavelength based on Holmium and Thulium lasers. LISA Laser Products owns the longest experience in Holmium lasers in the industry dating back to the scientific work of its founders who did grow and lase the Holmium YAG crystal first worldwide. LISA Laser Products also developed and introduced the Thulium YAG laser for soft tissue surgery. The stimulus for continuous product research and development at LISA Laser Products is the optimization of minimally invasive and endoscopic surgical laser procedures - to the benefit of patients and customers. Many of these products have been developed in close collaborations in the frame of research projects which have been funded by the European Commission and the German Federal Ministry of Education and Research. www.lisalaser.de

Lithium Lasers develops and manufactures cutting edge ultrafast lasers for science and industry. Thanks to our innovative laser platform LITHIUM SIX lasers emit perfectly clean, pedestal-free pulses with duration below 150 fs and high average powers of up to 10 W at typical repetition rate of 80 MHz. LITHIUM SIX are suitable for many scientific applications such as two photon microscopy, spectroscopy, non linear optics, terahertz generation, supercontinuum generation, two-photon polymerization and seeding of ultrafast amplifiers. Additionally, Lithium lasers is developing a revolutionary ultrafast laser able to drastically speed up ultra-precise micromachining processes. www.lithiumlasers.com

Lithoglas is a specialist in advanced opto-electronic packaging components. We enable miniaturized, hermetic SMD packages with a focus on Laser Diode, UV LED and opto

sensor packaging. Employing wafer-level processing techniques we can offer highly customized solutions at cost-efficient scalability. Certified according to ISO 9001:2015 quality is a fundamental element of our company`s philosophy. Lithoglas is located in Germany with production lines in Dresden and Berlin. www.lithoglas.de

Litilit is on a mission to advance industries through well-designed, reliable and affordable femtosecond lasers. We have 12+ years of experience delivering fiber lasers and related components for industrial, medical and scientific applications. www.litilit.com

Lithuanian Laser Association (LiLA) strives to consolidate the efforts of its member companies, institutions and the Lithuanian laser community overall in retaining and persistently strengthening the leading positions the laser and closely related fields, counting both science and commercial developments. , The companies under the LiLA umbrella ensure their customers and partners the highest quality R&D in laser technologies, and supply various components and devices ranging from micro-lasers to utmostly sophisticated equipment for Extreme Light Infrastructure facilities. Laser companies possess a full spectrum of skills and know-how necessary for the design and manufacturing of optical coatings, optical and opto-mechanical components, fine mechanics, short and ultrashort pulse lasers, laser technology equipment & work stations, and a number of other products and services. www.ltoptics.org

Liverage Technology Inc. was founded in 2003, which is in Tai Yuen Hi-Tech Industrial Park in Zhubei, Hsinchu. It is very close to the Hsinchu Science Park and the Industrial Technology Research Institute. We are a professional manufacturer of high-quality fiber optical components, transceivers, and measurement equipment in the fiber optic communications industry. Our mission is “Enjoy your life” which means to bring the optical broad bandwidth at a reasonable price to your life. With over 30 years of experience, our team members pride themselves on our innovation and dedication to the highest quality in the fiber optical industry. www.liverage.com.tw

Living Optics is a stealth company spinning out of the Oxford University Physics Department aiming to democratize the ability to see the invisible. The team uses new computational and optical methods to radically miniaturize hyperspectral imaging systems – bringing down

costs while materially expanding their performance envelope. The team is composed of experienced scientists, operations, and business people and backed by Oxford Sciences Innovation among others. www.livingoptics.co

Lobre is specialized in the design, development and manufacturing of high-precision optical systems for OEM's, research centres and university science departments accumulating in more than 74 years of activity a unique experience of both authentic ancient craftsmanship and the deployment of state-of-the-art CNC machinery. This forms the basis for our R&D department to design, develop and manufacture our customized optical systems and components in a cost-efficient way, tailor-made to the client's specific needs. We offer full service in Optical engineering: From planning, development and prototyping to mass production, offering customer-dedicated optical assembly services and high-precision optical systems, ready to be installed with an excellent quality/price ratio. Lobre is a fully vertical integrated manufacturer: all production phases of optical systems, objectives and optical components are fully realized in-house. Even the mechanical parts are designed and manufactured in-house, in our own mechanical production facility in Milan. Having development and fully integrated production capability in house enables us to serve our clients with the best solution possible in a timely manner. www.lobre.it

LUCEDA PHOTONICS

Luceda Photonics enable photonic IC designers to enjoy the same power as electronic IC designers. We automate and integrate the complete photonic design flow. Our Python-based platform enables design teams to easily share and reuse their photonic design IP using a standard language. We leverage more than 50 years of photonic experience to help our customers create manufacturable designs. Our design products bundle our expertise to enable our customers to quickly achieve their first tape-out and get their design right the first time. www.lucedaphotonics.com

LED professional

Luger Research, Institute for Innovation & Technology, is the leading worldwide authority for LED and OLED lighting technology information. The company authors the LED professional publications: magazine, homepage, newsletter and hosts the LED professional Symposium +Expo in addition to offering research and innovation methodology support. The LED professional publications are the first publications in the fields of LED and OLED lighting technologies to provide the international lighting industry and research with up-to-date information on technological developments in Solid State Lighting. The LpS, an annual congress fair held in Bregenz, Austria, has become the leading LED and OLED

technological focal point in Europe. This is where international lighting experts present and discuss the latest research, technologies, products, services and trends. www.lugerresearch.com

Łukasiewicz
Institute of Microelectronics
and Photonics

Łukasiewicz – IMiF (Łukasiewicz – Institute of Microelectronics and Photonics) was founded on 1 October 2020 on the merger of the Łukasiewicz – Institute of Electron Technology and the Łukasiewicz – Institute of Electronic Materials Technology, conducts scientific research and performs developmental work in the fields of micro- and nano-electronics, materials engineering, optoelectronics and nano-photonics, microwave electronics, power electronics, transparent and flexible electronics. The Institute implements and disseminates the results of these works in the economy, being open to cooperation with entrepreneurs.

The research at the Institute is organized around technology lines for: optoelectronic subassemblies, silicon subassemblies, wide band gap semiconductor subassemblies, advanced materials and the LTCC technology. These state of the arts lines enable the scientific community to participate in research, and entrepreneurs to develop new solutions. www.imif.lukasiewicz.gov.pl

LUMENTUM

Lumentum is a market-leading designer and manufacturer of innovative optical and photonic products enabling optical networking and laser applications worldwide. Lumentum optical components and subsystems are part of virtually every type of telecom, enterprise, and data center network. Lumentum lasers enable advanced manufacturing techniques and diverse applications including next-generation 3D sensing capabilities. Lumentum is headquartered in Milpitas, California with R&D, manufacturing, and sales offices worldwide. www.lumentum.com

€ Funded Research Projects Experience

- RAZIPOL: Ultrafast Lasers with Radial and Azimuthal Polarizations for High-efficiency Micro-machining Applications
- APPOLO: Creating a HUB of Application Laboratories for the laser micromachining industry
- ADALAM: Sensor-based adaptive laser micromachining using ultrashort pulse lasers for zero-failure manufacturing.

Lumics

Lumics, founded in 2000 and headquartered in Berlin, is a global key player for design and manufacturing of high-power diode lasers. Own in-house capabilities range from chip level up to fiber-coupled diode laser modules and complete system solutions based on single emitter technology. The product range comprises multi & single mode diode lasers from 670nm up to 1940nm. The LuOcean™ series features an unmatched choice of both single and multiple wavelengths modules, sensors and accessories, offering fiber-coupled output

powers from 1W up to >600W. Proprietary driver boards and heat management solutions complement the offering. Other industry standard solutions include 2-pin TO packages up to 10W and single mode 14-pin BTF packages up to 1.2W (peak power). All lasers are field proven and 100% individually tested. Additional features allow for perfect adaptation to numerous applications in Medical & Life Sciences, Material Processing, Analytics, Sensing, Metrology, Seeding, Pumping, Illumination, and many more. www.lumics.com

LUMINUS

Luminus is a vertically integrated fast-growing high-tech company that engages in high power Light-Emitting-Diode (LED) solid-state lighting for a variety of application areas such as industrial UV, IR, medicals, projection displays, high-end illumination lighting, horticulture lighting and automotive lighting. Luminus is at the forefront of the undergoing solid-state lighting revolution that will change the lighting technology in almost every aspect of our everyday work and life. www.luminus.com

Lumiphase

Lumiphase builds optical communication chips to help network equipment vendors and cloud providers manage the exploding data traffic. Our products enable chips to interact using light in the most efficient way, facilitating sustainable growth of the information technology industry, and ultimately transforming computing, networking and sensing. We design and manufacture photonic engines that are unmatched in terms of bandwidth density, optical loss, power consumption and footprint. At the core of all Lumiphase products lies a unique crystal – Barium Titanate (BTO) – featuring the largest electro-optical effect on silicon and directly integrated into a large-scale CMOS platform. Let's connect to build together the future of optical networks, LiDARs and AR/VR displays. www.lumiphase.com

LumIR Lasers

LumIR Lasers, established in 2019, is a market-leading provider of mid-IR fiber lasers and components, unlocking the disruptive potential of this wavelength range for research, medical device, material processing and sensing applications. Our expertise, the culmination of a decade-spanning partnership between researchers at Quebec City's Center for Optics, Photonics and Lasers (COPL) and the world's foremost provider of mid-IR optical fibers, Le Verre Fluoré inc., allows us to deliver unmatched power, quality, and convenience. Our current products include 10-watt-level singlemode fiber lasers emitting above 2.8 µm in wavelength and 5-watt lasers emitting above 3.1 µm, with more wavelengths and specifications on the way. www.lumirlasers.com

LUMOS LASER

Lumos Laser is a company founded by a team of experts to produce ultrashort pulsed fiber lasers dedicated to increase micromachining in production lines. With a cumulated experience over ten years, Lumos Laser provides reliable and robust lasers for applications like Tissue Processing, Ultrafast Spectroscopy, Medical Device Manufacturing, Glass and Saphire Processing, Nonlinear Imaging, surface microstructuring without generation of microcracks and heat affected areas. In addition to supplying cutting-edge lasers to users, Lumos Laser also provides laser solutions such as prototyping and job-shop services for small batch productions using our machines. Lumos Laser also offers customization, optical design, and consultation services. We are a team with expertise in lasers, optics as well as laser applications on both industrial and scientific side. So, we are offering to share our knowledge with customers to perfect and implement their designs or help them increase their process efficiency by utilizing ultrafast lasers. We can supply project-specific lasers with parameters that will be defined with the user. We can help implementing different platforms to our lasers such as imaging systems, microscopes, material processing platforms, translation stages, rotation stages, galvanometer and polygon scanners, spatial light modulators. www.lumoslaser.com

LUMOSCRIBE is an innovative SME company established in Cyprus in 2018 specialising in developing sensors and lasers using optical fibers for sensing and fibre laser applications. Lumoscribe is interested in developing complete end-user sensing solutions and optical devices, such as light sources, spectrometers, and fibre lasers, amongst others. The company has already participated in various national and international research projects with more than a million euros total funding. www.lumoscribe.com

Luna Innovations is a leader in advanced lightwave measurement technologies, providing unique capabilities in high-performance test and characterization of fiber optic systems and integrated photonics, as well as solutions for distributed strain and temperature sensing. Luna's award-winning products, including optical component analyzers and ultra-high resolution backscatter reflectometers, are used to accelerate the design and development of the photonic components and systems that are the building blocks of modern, high-speed communications networks. Whether in the lab or in production, Luna’s test systems provide fast and complete characterization of optical components and systems, delivering unprecedented visibility into the device’s insertion loss, return loss, polarization, dispersion, etc. For the aerospace, automotive and energy markets, Luna’s high-definition fiber optic sensing (HD-FOS) systems can accurately map strain and temperature profiles with sub-millimeter spatial resolution, using standard optical fiber. www.lunainc.com

INGENUITY AMPLIFIED

Luxinar has a singular focus: developing laser technology to enhance our world. Like a laser that channels light into a single, powerful beam, we focus on improving the lives of our customers. This allows us to create solutions to meet every single challenge – from heavy industry to delicate, high precision applications. We support the laser technologies of

yesterday, focus on today's and pioneer those of tomorrow. Luxinar has been at the forefront of laser technology for nearly 25 years and is a leading manufacturer of sealed carbon dioxide (CO2) laser sources up to 1000W and, more recently, femtosecond laser sources. To date, we have an installed base of over 20000 lasers worldwide. www.luxinar.com

Luxottica Exciton designs and produces high purity and high-performance dyes, including Narrow Band Visible & Infrared Absorber dyes for optical filters, Fluorescent and the closely-related Laser dyes. For about 50 years, Exciton has excelled in the design and production of high purity and high performance dyes. Their expertise includes Narrow Band Visible and Infrared Absorber dyes for optical filters, Fluorescent and the closely-related Laser dyes. www.exciton.luxottica.com

LuxQuanta was born in May 2021 as a spin-off from ICFO, and after being incubated for over 4 years, with the mission of developing Quantum Key Distribution (QKD) systems. These systems can distribute cryptographic keys between users with the highest level of security as they rely on the unique properties of quantum physics instead of mathematical algorithms. LuxQuanta uses a novel QKD technology capable of providing high-performance and cost-effective quantum cryptography solutions, easy to integrate into existing optical network infrastructures while capable of delivering a quantum-safe layer of security on top of traditional crytographic techniques. From its headquarters in Barcelona and with solid Spanish shareholders foundations, LuxQuanta want to deliver ultra-secure data encryption and communications to all European Union's governmental institutions, financial sectors, data centers and private telecommunication network providers for years to come. www.luxquanta.com

Lyncee Tec is the reference company in the field of 4D microscopy and of Quantitative Phase Imaging (QPI). Its unique technology, based on digital holography (DHM®), provides simultaneously high acquisition rate and interferometric resolution optical profilometry, and label-free bio imaging. It opens new quality control possibilities and novel research opportunities, enabling applications that were not possible before. Lyncée offers complete solutions, from sample handling to data analysis, in the field of MUT, micro production, semiconductor, micro-optics, watch industry, high content screening, and cell imaging. www.lynceetec.com

Lynred and its subsidiary US-based Lynred USA are global leaders in designing and manufacturing high quality infrared technologies for aerospace, defense and commercial markets. Their vast portfolio of infrared detectors covers the entire electromagnetic spectrum from near to very far infrared. The Group's products are at the center of multiple military programs and applications. Its IR detectors are the key component of many top brands in commercial thermal imaging equipment sold across Europe, Asia and North America. The organization is the leading European manufacturer for IR detectors deployed in space. www.lynred.com

Machinix makes custom opto-mechanics sourcing simple, fast, and efficient with our digital platform and team of manufacturing experts. Machinix is an easy-to-use digital platform that allows you to order machining parts with flexibility and certainty. Create an RFQ in seconds, get a quote and technical feedback within 48 hours, configure your order simply by choosing options that fit your project timeline and budget. After issuing a PO, all the information you need will be waiting for you on the platform dashboard. Our supply chain experts identify and mitigate delivery risks, ensuring your parts are shipped on time and quality. www.machinix.io

Maiman Electronics is specializing in development and manufacturers laser diode drivers, TEC controllers and Plug and Light laser diode modules. Company provides ultra-compact and highly reliable solutions that can be easily integrated into the customers laser system. This makes Maiman Electronics LLC an important partner for companies across various industries: medical devices (skin rejuvenation, hair removal, nerve stimulation, varicose vein treatment and etc), materials processing (marking, welding, cutting, soldering and etc, 3d printing), Illumination, sensors, lidar, raing finders, spectroscopy, microscopy, analytical instruments, pumping and seeding, gas detection, scientific research. www.maimanelectronics.com

MantiSpectra is a spinoff of the Eindhoven University of Technologyproviding spectral sensors capable of classifying and/or quantifyingmaterial composition just using light. Our core technology is based onhigh-performance detectors having selective wavelengths in thenear-infrared region (850 -1700 nm). We provide a full standalonespectral module, the SpectraPod™, that allows users to take measurementsand build predictive models exploiting advanced machine learningalgorithms. At MantiSpectra, we believe that integrating spectroscopy at a waferlevel will open up new applications where volume is key: from qualitymeasurements in agriculture and raw material identification in recyclingto mobile healthcare and chemical analysis in consumer devices, pervading soon our everyday life. www.mantispectra.com

Manutech brings together in Saint-Etienne (France) academic (Université Jean Monnet, Centrale Lyon, Mines Saint-Etienne) and industrial partners (CETIM, Groupe HEF, Groupe WeAre) sharing their resources and knowledge to provide an open femtosecond laser technological platform dedicated to exploring and exploiting its scientific and industrial possibilities. As an expert in science and technology engineering and multi-scale surface functionalization, Manutech USD allows you to texturize and characterise your surfaces and define the adequate economical and industrial process. Manutech USD offers an access to its equipment and associated expert resources. The platform is dedicated to research and industrial projects from start-ups to large corporations. Our expertise encompasses the treatment of all materials without exception, high-speed processing and its deployment on surfaces of all sizes. The main activities are engraving, cutting, functionalization, engineering, TRL elevation and surface characterization. www.manutech-usd.fr

Mapsi Photonics is a startup dedicated to the manufacturing of optical filters in the MWIR and LWIR. Our disruptive technology based on macroporous silicon is inexpensive and does not rely on exotic materials (e.g. Se). This makes us very flexible in the design and manufacturing of our filters to better adapt to customer needs. In addition, our all-silicon technology makes our filters very resistant and suitable for applications at very high temperatures and/or pressures. We target the usual applications of optical filters, such as gas detection and thermography, but, thanks to the porosity of our filters, we can expand into new and very interesting applications, such as biodetection and photocatalysis. This unique feature, porosity, makes our filters permeable to fluids and maximizes the surface-to-volume ratio, significantly increasing the detection sensitivity of our filters when coated or biofunctionalized. www.mapsi.es

Marktech Optoelectronics is a leading provider of high-quality InGaAs and silicon photodiode detectors, LEDs, emitters, assemblies, innovative packaging, and custom solutions for a diverse array of industries, including aerospace, medical, defense, and industrial. With a

strong focus on innovation and customer satisfaction, Marktech delivers reliable, cutting-edge products designed to meet unique detection and emission needs from 250nm to 3100nm or across the UV, visible, NIR, SWIR, and extended SWIR spectral bands. In addition, our testing laboratory can measure all optical and electrical parameters of detectors and emitters. Established in 1985, Marktech's corporate headquarters, engineering department, and testing laboratory are in Latham, New York (USA). Marktech manufactures silicon photodiodes and packages detector and LED components in their Simi Valley, California factory. Our 1.7µm and 2.6µm InGaAs PIN photodiode detectors and high-integrity TO-can and SMD hermetic packaging are designed and manufactured in Japan. Their ATLAS 2.0 SMD ceramic-metallic package is incredibly innovative, with an improved seal for high reliability, including MIL-SPEC space qualification when required. The seam-welded hermetic seal excludes moisture and oxygen to protect detectors and emitters in the harshest environments. Marktech's products can be found in heart-lung machines, satellites, exploratory spacecraft, spectrometers, optical encoders, photoelectric sensors, semiconductor metrology systems, and consumer products. www.marktechopto.com

MATERION

// BALZERS OPTICS

Materion Balzers Optics is the innovative and independent industry partner for the development and production of coated optical components and subassemblies.The company possesses a broad and in-depth knowhow in optical thin-film coating processes, complemented by sophisticated patterning, glass bonding and sealing, and further processing capabilities necessary for producing optical thin-film coated components up to optical subassemblies.Highly experienced and skilled development and engineering teams collaborate closely with customers to develop innovative solutions meeting their specific requirements. The combination of these capabilities and skills places Materion Balzers Optics at the forefront of markets in the photonics industry such as Life Science, Industry, Consumer, Space, Automotive, and Lighting. www.materionbalzersoptics.com

materize

Materize offers R&D, prototyping and industrialization services in fields of photonics, sensors, spectroscopy, thin films and coatings. We have a single point of contact for industry to deliver best of the science expertise and infrastructure available at our research center with more than 100 researchers (PhD) and nanofabrication facility in the 650 m² - ISO class 7-8 cleanroom, with ISO 9001:2015 certified cleanroom process. Our main industrial partners and platforms are GroGlass (anti reflective glass), LightGuide Optics International, CeramOptec (custom fiber optics), EuroLCDs (LCD technologies for micro displays and planar optical elements), LightSpace (volumetric 3D technology and VR), Baltic Scientific Instruments (radiation and infrared detecting and monitoring systems). www.materize.com

MBDA

MISSILE SYSTEMS

MBDA is a multi-national group with 10,500 employees working together across France, Germany, Italy, Spain and the United Kingdom. It is a joint venture of the 3 European leaders in aerospace and defence: Airbus (37.5%), BAE Systems (37.5%) and Leonardo

(25%). MBDA is a missiles and missile systems world-class leader. It offers a comprehensive product range incorporating today's most advanced technologies. Furthermore, it is the only European group capable of designing and producing missiles and missile systems to meet the whole range of current and future needs of the three armed forces (land, sea and air). MBDA is involved in research, development, design and manufacture of missile and weapon systems including, but not limited to, the design and development of novel, emerging and supporting technologies. MBDA values both its strong historical culture of "internal" innovation, and that which is developed "externally" by its current and future potential partners ranging from large industrial companies and research institutions to SMEs and academia, as well as our essential partners in the innovative process, our customers. www.mbda-systems.com

mBryonics Ltd. is a SME providing satellite optical transport network (OTN) and photonics technologies to the space industry. The company provides the full end-to-end architecture for beyond terabit communications for both the space and ground segments. Services and product portfolio include:

- Terabit optical ground stations for bi-directional links
- Constellation network topologies
- Hybrid optical/RF extremely high throughput satellite payloads (Intra-sat; inter-sat & feeder links)
- ROADM software defined optical network controller for network orchestration
- Data management for distributed optical ground network and convergence with terrestrial networks
- Design and build of ground infrastructure and networks

The company works in close cooperation with the European Space Agency and is prime contractor on SAPPHIRE, a photonics phased array optical feeder link for LEO and GEO satellites and AFFRESCO, network architecture and data management for future Earth Observation space and ground segment. www.mbryonics.com

€ Funded Research Projects Experience

- OIP4NWE Pilot Line (Interreg NWE): Advancing the TRL from 4 to 7 of the InP photonics eco-system for industrial scale manufacture of PIC products.
- National Photonics Manufacturing Pilot Line (Ireland, Development Fund): The development of a manufacturing platform for advancing disruptive photonics technologies to commercialisation.

Medlight
A Rakuten Medical Company

Medlight SA is a Swiss medical company founded in 1997, which develops, manufactures and commercializes a broad range of optical diffusers, as well as ancillary devices such as

needle catheters and balloon catheters, as a key player in the Photodynamic Therapy (PDT) and Photoimmunotherapy field. Medlight further solidified its industry presence after joining the Rakuten Medical group in 2020, receiving strong support from the group, while also continuing to operate as an independently managed subsidiary. With over 25 years of experience of complying with the highest regulatory standards, Medlight has a proven track record of ISO certification audits without any major non-conformities, and most recently having been granted commercial approval for 2 product categories by the Japanese Ministry of Health, Labour, and Welfare.In addition to providing a robust selection of existing standard off-the-shelf devices, Medlight is continuously innovating and developing new devices, internally and through partnerships, to meet as many patient needs as possible. www.medlight.com

MEETOPTICS is a Specialized Photonics search where engineers, scientists and innovators meet components and technologies amongst verified worldwide suppliers. This search, listing more than 30,000 a year after launch, is highly customizable and specialized in dealing with the technical details of products, allowing optical engineers, researchers, technicians and innovators in photonics to quickly find the products they need to build their photonics technology and access any other photonics-based technology and services, while photonics manufacturers can advertise their products and services centrally. MEETOPTICS increases the visibility of highly specialised photonics technology companies and connects them with a direct need of requested technology from customers in the field. www.meetoptics.com

MEGA Materials is an Innovative Startup born as a spin-off of Pisa University, devoted to the growth of high-purity fluoride crystals, with application in solid-state lasers, optical cryo-coolers, optical insulators, metrology, energy, and communication. Our main products are single-crystal boules and samples of rare-earth-doped fluorides, in particular LiYF4, LiLuF4, KY3F10, BaY2F8 and LaF3. With our R&D-oriented background we are also able to provide custom solutions with more “exotic” fluoride materials. We deeply involved in the development of Pr-based laser sources, NIR and mid-IR lasers, materials for optical insulators, and ultra-pure crystals for optical refrigeration of solids. www.megamaterials.it

Menhir Photonics is a worldwide supplier of ultrafast lasers (picosecond and femtosecond lasers) and related photonics solutions. We focus on customer satisfaction and industrial-

grade quality, by placing the emphasis on the reliability and robustness of our products. Our goal is to ensure that our ultrafast lasers can be used in any situation from laboratory setup to harsh environments (encountered e.g. in space applications). Thanks to innovative technology and design, we have developed a unique high-repetition rate laser platform delivering femtosecond pulses and ultra-low noise performances. Our lasers are used in numerous applications including synchronization electronics, microwave generation, telecommunication or material processing. www.menhir-photonics.com

MenloSystems

Menlo Systems is a leading developer and global supplier of instrumentation for precision metrology on the highest level. Based in Martinsried near Munich, Menlo Systems is known for its Nobel Prize winning optical frequency comb technology. Their main product lines are optical frequency combs, solutions for time and frequency distribution, ultrastable lasers, terahertz systems, and femtosecond lasers. Menlo Systems deliver state-of-the-art products to customers from industry and academia worldwide. To push the limits of the measureable, Menlo Systems work closely with selected customers and develop new solutions for laser-based precision measurements. www.menlosystems.com

Mentor®
A Siemens Business

Mentor, a Siemens business, is a technology leader in electronic design automation, providing products, consulting services and award-winning support for the world's most successful electronics and semiconductor companies. We offer the broadest industry portfolio of best-in-class hardware and software design solutions focused on IC design and physical verification, functional verification, design for test, PCB design, embedded software, thermal and fluid analysis, and integrated system design. Mentor's innovative tools provide scalable solutions for a wide range of design challenges in markets including automotive, consumer, communications, computer, industrial and military-aerospace, as well as IoT. www.mentor.com

MERCK

Merck, a leading science and technology company, operates across healthcare, life science and electronics. Around 58,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2020, Merck generated sales of € 17.5 billion in 66 countries. Innovation in Electronics is driven at the atomic level. We develop science that sits inside technologies and changes the way we access, store, process, and display information. Our contributions to the electronic industry help enable high-tech materials and solutions that are vital to our everyday lives, like smartphones, the Internet of Things and autonomous driving. Working in partnership with leading global players, we develop materials that help enhance each new generation of products, making them smaller, faster, smarter and better connected. Electronics starts with us. We are the company behind the companies advancing digital living. www.merckgroup.com

UNIVERSITY OF TWENTE. | MESA+ INSTITUTE

MESA+ at the University of Twente is one of the world's leading research institutes on nanostructures, nanomaterials, nanosystems, and nanodevices; delivering high-quality, competitive and ground-breaking research and technologies. This is enabled by embracing a multi-disciplinary approach: combining physics, electrical engineering, chemistry, mathematics, materials science and engineering, and engaging social sciences and humanities. MESA+ houses a 1200 square meter open access cleanroom that plays a crucial role within the MESA+ research and it's commercialization strategies. The institute counts over 80 principle investigators and 600 researchers all focused on furthering the science on nanotechnology in order to help meet the societal and industrial challenges of tomorrow. Solutions to these challenges are typically developed from Technology Readiness Level 1 through to level 5. MESA+ actively seeks for collaboration with external partners and offers a strong regional ecosystem that creates the breeding ground for successful solutions and businesses. www.utwente.nl/en/mesaplus

Meta

Meta builds technologies that help people connect, find communities, and grow businesses. When Facebook launched in 2004, it changed the way people connect. Apps like Messenger, Instagram and WhatsApp further empowered billions around the world. Now, Meta is moving beyond 2D screens toward immersive experiences like augmented and virtual reality to help build the next evolution in social technology. Reality Labs is a business and research unit of Meta Platforms that produces virtual reality and augmented reality hardware and software, including virtual reality headsets. https://about.meta.com

MICLEDI Microdisplays, a technology startup from Belgium, develops small, ultra-bright display microchips for Augmented Reality (AR) glasses. It is a latest spin-out of imec based on the manufacturing technology and IP developed in the research centre. MICLEDI' s business model is a fabless development and sales of AR 'light engines'. This will basically be a single chip that will include the LED arrays, the advanced CMOS backplane, the driver electronics and optics - all tested and calibrated for AR headset use. This highly integrated solution enables MICLEDI's customers to enjoy an extremely small display footprint, a low power consumption, and an excellent image quality that can be calibrated and tuned for specific headset requirements. www.micledi.com

MicroAlign

MicroAlign was founded in 2021 in the Netherlands and is a spin-off of the Eindhoven University of Technology. MicroAlign is developing a revolutionary alignment solution to

optimally connect multiple optical fibers and photonic integrated chips. The connection of optical fibers and photonic chips has always been an exhausting operation, and MicroAlign's task is to provide a micro-positioning stage capable of relaxing the involved strict alignment tolerances. MicroAlign technology aims to optimize the quality of each optical fiber-to-chip connection, for tens of optical fibers and with sub-micrometer accuracy, by means of a novel micro-electromechanical system. The alignment method offered by MicroAlign has potential impact in the Photonic world for a number of applications ranging from DATACOM, sensing, LIDAR, up to infra-red communication. www.microalign.nl

microrelleus

MICRORELLEUS is a service company established in 1983. They specialize in laser texturing services (functional and design), laser microstructuring and industrial engraving for molds, tools and final parts. They work for different sectors: packaging, pharma, automotive, medical, appliances, lighting, aerospace. In 2016 Microrelleus SL became world pioneers in using a femtosecond laser machine in complete 5 axis to service other companies. They also use nanosecond lasers for machining in 5 axis, milling machines and die-sinking EDM. www.microrelleus.com

micro resist technology

micro resist technology was established in 1993 and is an owner-managed company with more than 50 employees. The corporate office incl. the development department, the manufacturing and logistics as well as its own application clean room on 300sqm is located in Berlin, Germany. The company is successfully certified according to the standards: ISO 9001:2015 und ISO 14001:2015. micro resist technology GmbH is one of the world's leading companies for innovative photoresists, polymers and photopolymers and offers a wide range of specialized products for the key technologies of today and the growth markets of tomorrow. www.microresist.de

MICROTECH VENTURES

Microtech Ventures is focused on strategic venture capital and M&A advisory services. Our mission is to accelerate the development of sensors, MEMS, semiconductors, silicon photonics, and microtechnologies for the advancement of human civilization and the improvement of quality of life. Our deep industry knowledge and extensive network, combined with practical hands-on strategy experience, enables us to quickly identify the connections that result in multiple opportunities to maximize ownership value, and ensure successful outcomes. www.microtechventures.com

Microwave Photonics (MWP) is a high-tech start-up from University Duisburg-Essen. Our aim is to develop technologies for connecting the fiber-optic and wireless worlds. We are developing integrated microwave photonic solutions for applications in RF and medical. Our technological solutions are based upon photonic integrated chips (PICs) for RF and medical applications in the microwave (3-30 GHz), millimeter-wave (30-300 GHz) and THz (0.3-3 THz) region. www.microwave-photonics.com

Midel Photonics specializes in cutting-edge, all-reflective laser beam shaping. Their expertise lies in the design and production of innovative beam shapers based on high-quality micro-structured laser mirrors. These reflective Diffractive Optical Elements (DOEs) excel in applications ranging from high-power continuous-wave to ultra-short pulse lasers. What sets Midel Photonics apart is its unparalleled, in-house manufacturing technology, allowing it to deliver tailor-made solutions that optimize laser beam shapes for specific processes, elevating both quality and speed. www.midel-photonics.de

Mikrocentrum is an independent knowledge institution contributing to the improvement of technical and business processes of companies which are active as OEM or supplier in technical manufacturing and/or process industry in the Netherlands and Belgium. Mikrocentrum realises this by organising events in which a combination of knowledge transfer and knowledge networking is the focal point. Part of these activities is the organization of the yearly international Photonics Event in The Netherlands. The most important activities are:

- Trainings: Lower, intermediate and higher academic levels.
- Events: yearly about 50 smaller and larger events.
- A High Tech Platform: 560 participating companies assembled in a High Tech Company guide.

www.mikrocentrum.nl

mikrop has been setting standards, for over 40 years, in the area of miniaturisation for optical components and integrated solutions for optical micro-components with diameters starting from 0.3 mm. We provide customer-specific micro-objective lenses and micro-systems for industrial and medical applications such as endoscopy or intraoral scanners. Our solutions include spherical glass lenses as well as polymer micro optics. Optic design, development,

production and assembly of highly precise micro-optics belong to the broad mikrop portfolio. www.mikrop.com

Mintres B.V. is a Dutch SME and has supplied the electronics and opto-electronics industry globally for 13 years and other more niche markets. It employs over 40 people and continues to grow (growth in 2020 is ~25%) and invests significantly in new process technologies. It is ISO9001:2015 certified. Mintres B.V. specializes in applied R&D, prototyping and both large and low volume production of the components (all in-house). It offers variety of synthetic diamond and hi-performance ceramics products, such as heat-spreaders (thermal management of “hot-spots”), temperature sensors, electro-chemical sensors, and various detectors. www.mintres.com

Miraex provides cutting-edge technology to capture the most imperceptible vibrations of machines and prevent asset failure before it happens, in the most demanding environments. Miraex industrial IoT solution combines smart optical sensors and artificial intelligence technologies to reduce machine downtime and maintenance costs. www.miraex.com

mirSense is a French manufacturer of quantum cascade lasers and gas spectrometers. Our clients are all over the world, from university labs to large industrial manufacturers, in diverse sectors like automotive, biogas, medical or defense. We manufacture high-power lasers delivering watt-level power in the mid-infrared (4, 4.6, 4.8 microns) and we also manufacture DFB lasers for spectroscopy applications in the [10-17] microns wavelength region. Our clients can purchase turnkey systems for lab use, OEM systems including laser + driving electronics or packaged QCL lasers and even chips on submount. www.mirsense.com

Mitutoyo Research Center Europe (RCE) is part of the worldwide research organization (Japan, USA, and Europe) under the umbrella of Mitutoyo Corporation. The 85-years old Mitutoyo is a global leader in dimensional metrology with six thousand employees. Mitutoyo offers dozens of product families ranging from well-known hand tools purchasable in hardware stores, to extremely sophisticated in-line automated measurement solutions for the aerospace, semiconductor, automotive, and other industries. At RCE, new technologies] are developed for the benefit of these diverse Mitutoyo products. Innovations are made that lead to the enhancement of current products and which can also be the basis of completely new product lines. www.mitutoyo.nl

modulight

Modulight is an ISO9001, ISO14001 and ISO13485 certified company focusing on design, development and manufacturing of laser diodes and laser systems. Modulight lasers are deployed mainly in medical, industrial, security/defence and display/projection markets. The company provides components and turnkey laser systems with wavelengths range between 405 nm and 1650 nm and power levels up to 100 W along with design and implementation of sub-system level laser integration including cooling, drivers and mechanical design. The products are offered from bare and mounted laser chips to packaged and fibre-coupled lasers and complete turnkey laser systems. The Company has in-house laser diode production facilities and headquarters in Tampere, Finland and a fully owned subsidiary Modulight USA, Inc., based in San Jose CA. www.modulight.com

€ Funded Research Projects Experience

- PHOS-ISTOS: Development of Flexible light emitting textile dedicated the treatment for dermatologic diseases.
- RAPIDO - Revolutionary Advances in Photonics Integration Being Applied for Optical Communication
- BRIDLE - BRilliant Industrial Diode LasEr
- APACOS - Automated Precision Assembly for Complex Optical Systems
- MERMIG - Modular CMOS Photonic Integrated Micro-Gyroscope
- FosterNav - Flash Optical Sensor for Terrain Relative Robotic Navigation
- DeLight - Development of low-cost technologies for the fabrication of high-performance telecommunication laser

monocrom

Monocrom's passion for lasers started back in 1993, when its first laser was developed in Vilanova i la Geltrú, Spain. Today, Monocrom **Laser Diode Solutions** advance sectors and industries where exist conventional technologies are reaching their limits in terms of speed, precision, efficiency and sustainability. Monocrom design develop and manufactures high-power diode lasers for the Medical, Aerospace & Defence and the Industrial sectors, based on it's own Patented technology of mounting- Clamping. Monocrom has been able to achieve a very nice pace of growing since 2015 by implementing process automation, high quality assurance and a "YES WE CAN" target oriented way of thinking. www.monocrom.com

Morrison Optoelectronics was established in September 2003. We specialize in thin film optical coating on glasses and wafers, and also has the equipment to process the lithography part. Focusing on the development of a variety of precision optical element and specialized in integrating optical coating and semiconductor fabrication to create

differentiation advantage which contains software and hardware and related process technology, and various kinds of optical applications. www.moe.com.tw

morphotonics

Morphotonics is the leading supplier of Roll-to-Plate Nanoimprint equipment, stamps and materials. Through its unique nanoimprint technology, micro- and nanostructures can be applied on very large areas (up to and beyond 2 m²) in high volume at an unparalleled low cost. This opens up the potential of nanoimprinting for innovative features and functions in, for example, displays, smartphones, lighting products or solar panels. The reusable flexible stamp ensures a cost-effective and versatile process that can be applied on various types of substrates (rigid/flexible/opaque). Within its competence centre, Morphotonics offers to scale-up your master, optimize processes and facilitate low-volume production. Morphotonics supports you in bringing your nanoimprint application from lab to fab! www.morphotonics.com

motherson

Motherson Innovations is the open innovations and incubating arm of Motherson group, committed to provide the best solutions for our customers. It aims to accelerate the development of Motherson's advanced technologies and to enter new and attractive market segments including future of mobility and medical devices. Motherson Innovations stands at the cross section of the Motherson's diverse business divisions and is uniquely positioned to bundle the most skilled engineers, researchers and business developers from across the globe to forge synergies and create inventive solutions. Motherson Innovations is connecting the dots not only within the group, but also through collaborations with start-ups and customers. Intended to improve society and the well-being of people and the environment, Motherson Innovations constantly strives to bring new technologies and ideas to life. www.motherson-innovations.com

Mountain **Photonics**

Mountain Photonics represents innovative manufacturers of lasers, light sources, instruments for optical measurements, optomechanics and photonic accessories in the German speaking market and some neighboring countries. Furthermore, we develop our own product lines for integrating spheres (Mountain Spheres), customized optical components (Mountain Optics) and optical measurement devices (Mountain Instruments) and offer services like order measurements, calibration or product trainings. With together about 80 years of experience in the photonics industry our sales team accompanies and supports our customers to master their measurement tasks by adding additional value to

each application. We are the first point of contact for all questions concerning optical measurements, offer orientation at the beginning of the purchasing process and, if desired, also accompany our customers during their project. Intensive consulting and our technical expertise enable us to build long-term and trusting customer relationships. www.mountainphotonics.de

MPS Microsystems develops and manufactures high-precision and high-performance electro-mechanical microsystems. By managing the miniaturization and integration of functions in small spaces, MPS Microsystems provides solutions that meet specific customer requirements. The MPS product family includes, but is not limited to: “short stroke, high frequency lens focusing mechanisms” based either on flexure elements or linear actuators; “compact zoom mechanisms” used for laser guidance or stereoscopic surgical cameras; and “particle free laser focusing systems” suitable for laser cutting or other laser machining technologies. MPS Microsystems also offers a standard range of mechanical components, such as linear bearings and ball screws. Located in Bienne, Switzerland, in a modern and well-equipped facility, MPS Microsystems offers its 220 employees an exceptional working environment and provides customers with unique capabilities that are perfectly suited to the requirements of the optics & photonics industry. www.mps-microsystems.com

MRSI Systems (Mycronic Group), is the leading manufacturer of fully automated, high-speed, high-precision and flexible eutectic and epoxy die bonding systems. We offer solutions for research and development, low-to-medium volume production, and high-volume manufacturing of photonic devices such as lasers, detectors, modulators, AOCs, WDM/EML TO-Cans, Optical transceivers, LiDAR, VR/AR, sensors, and optical imaging products. With 30+ years of industry experience and our worldwide local technical support team, we provide the most effective systems and assembly solutions for all packaging levels including chip-on-wafer (Cow), chip-on-carrier (CoC), PCB, and gold-box packaging. www.mrsisystems.com

The MTC (Manufacturing Technology Centre) was established to prove innovative manufacturing processes and technologies in an agile environment in partnership with industry, academia and other institutions. The MTC houses some of the most advanced manufacturing equipment in the world, creating a high quality environment for the development and demonstration of new technologies on an industrial scale. This provides a unique opportunity for manufacturers to develop new and innovative processes and technologies. www.the-mtc.org

MultiLane Inc. is a leading provider of High-Speed IO and Data Center Interconnect test solutions. Products include BERTs, TDR, optical and electrical oscilloscopes, optical switch boxes, and a host of MSA-compliant development tools for QSFP28, QSFP-DD, OSFP, and other standards. MultiLane's products are used to te EXFO st semiconductors, DACs, AOCs, optical transceivers, and system switch cards. MultiLane also offers compliance test services and fully automated, turn-key test solutions. In addition, MultiLane develops high speed ATE modules that fit in wafer-scale automated test systems such as Advantest's V93K platform. www.multilaneinc.com

a company of Heidelberg Instruments

Multiphoton Optics supplies 3D lithography equipment (high-precision 3D printing) for manufacturing of optical packages, photonic components, or biomedical and life science products, prototyping and engineering support. The 3D lithography process allows the integration of optical interconnects at the locations required by the components, with the required precision and repeatability. We supply a process that automates high-precision optoelectronics assembly and allows interconnecting optical components, Silicon or III/V Photonic chips, and the creation of novel optical component packages. The technology allows scaling optical packaging operations to large volumes as it is compatible with standard assembly processes known from electronics manufacturing, ideally fitting into standard processing lines. Target markets include hardware for Big Data computing and storage systems as well as optical transport infrastructure. www.multiphoton.de

INNOVATION CENTRE

MULTITEL is a research centre leading applied research and development activities for industry leaders, SMEs and spin-off companies. Multitel is an organization that specializes in innovation by bringing together pertinent ideas, components and technologies and integrating them into prototype products for its customers. Multitel has an international reputation with the industrial services offered in the field of the optical metrology: characterization of optical fibre networks, reliability of optical sub-systems and components, calibration of optical tests equipment amongst other. Multitel also participated in various European projects, mainly focused on lasers and optical sensors as well as measurement technologies and reliability. www.multitel.be

€ Funded Research Projects Experience

- CHARMING aims at developing compact and fully fibred visible lasers for fluorescence spectroscopy and high resolution confocal microscopy systems.

MEMBER OF THE NYNOMIC GROUP

The m-u-t group develops and produces contact-less optical high-tech measurement systems for a wide range of applications. Starting with the optical component over measurement units up to turn-key solutions the companies within the group offer a complete range for different levels of integration and value creation. Those technologies and competences within the group are used in all levels of integration, to offer state-of-the art customer solutions with optimal value creation. www.mut-group.com

Nanosystems and Technologies GmbH
nanoplus

nanoplus Nanosystems and Technologies is the technology leader for distributed feedback lasers for high-precision gas sensing in industry and research. We design and produce monomode DFB laser diodes (760 nm – 3000 nm), DFB interband cascade (3000 nm – 6000 nm) and quantum cascade lasers (6000 nm – 14000 nm). Based on more than 20 years of experience, we support our customers with extensive engineering know-how, OEM solutions and various technological services. Our devices operate reliably in more than 30.000 installations worldwide. Applications include industrial process optimization, oil & gas, environment, defense, safety, automotive, health and space. nanoplus is a ISO 9001:2008 and ISO 14001:2004 certified supplier.www.nanoplus.com

nano scribe
A BICO COMPANY

Nanoscribe is the pioneer and market leader in high-precision additive manufacturing with 3D printers and grayscale lithography systems as well as specially developed printing materials and application-specific solutions for various microfabrication applications. With the Quantum X product line, Nanoscribe offers a platform with specific capabilities for manufacturing optical components such as microoptics and waver-level optics. Quantum X align moreover supports precisely aligned 3D printing on optical fibers and photonic chips with automatic compensation of substrate tilt, enabling innovative approaches to photonic integration. Founded in 2007 as a spin-off of the Karlsruhe Institute of Technology (KIT), Nanoscribe is part of the BICO Group since June 2021. More than 3,000 users and operators at top universities and innovative companies worldwide benefit from the groundbreaking technology and application-specific solutions for 3D Microfabrication. www.nanoscribe.com

€ Funded Research Projects Experience

- MiLiQuant: Industrial photonic packaging for quantum-based imaging systems
- HandheldOCT: Miniaturized integrated photonic chip technology for novel and compact imaging devices for point-of-care diagnostics
- PHOENICS: New hardware- and software-based solutions for alignment and photonic packaging to overcome the challenge in the efficient coupling of multiple photonic platforms with different optical coupling interfaces
- OptoGlass3D: Research on a high-precision 3D printing process of glass microstructures. As part of the research project, GP-Silica, the worlds' first photoresin for 3D Microfabrication of fused silica glass, was developed

nanovation

Nanovation is a pioneering French oxide epiwafer supplier, founded in 2001. We develop and supply novel oxide thin film and nanostructure coatings tailored for applications ranging from light/gas/movement sensing through transparent/extreme/opto-electronics to biomedical applications. Thanks to two decades of experience, and a unique manufacturing facility, Nanovation has established the state-of-the-art in a number of oxide semiconductor materials in terms of crystallographic and optical quality. Our key strength is putting our innovation capacity at the service of our customers. www.nanovation.com

National Research Council Canada | Conseil national de recherches Canada

The National Research Council of Canada (NRC) is the Government of Canada's premier research organization. The NRC's Canadian Photonics Fabrication Centre (CPFC) provides a "comprehensive facility" for the development of your next photonics product, seamlessly taking it from design through to commercial production. You gain access to top-level industrial engineering expertise and the latest developments in semiconductor photonics technology. CPFC offers a comprehensive suite of facilities and services for photonic device development and commercialization:

- MOCVD III-V semiconductor epitaxial growth including multi-level overgrowth and selective area growth.
- Fully equipped 11,000 sq ft Class 100/1000 cleanroom for III-V Photonics Integrated Circuit (PIC) prototyping and high yield manufacturing utilizing stepper, ebeam and holographic lithography enabling complex multilevel processing (25 mask levels) for next generation photonic component requirements.
- Extensive data collection, analysis, engineering, manufacturing and IP controls via dedicated MES and QMS systems.
- Back end processing including wafer thinning and optical facet coating for prototyped devices.
- Device design and optical test support for both active and passive photonic components. www.nrc-cnrc.gc.ca

nb-photonics
Universiteit Gent
Center for Nano- and Biophotonics
Ghent University

NB-Photonics was established in 2010 as one of five Multidisciplinary Research Platforms (MRPs) in a Ghent University research policy plan for promoting excellence in research. These MRPs were selected by recognition of established expertise, multidisciplinary collaboration and potential to become world leaders. The NB-Photonics concept emerged due to several realizations. Our society is faced with important challenges, such as, qualitative and affordable healthcare, clean and renewable energy, and efficient ICT. Key Enabling Technologies (KETs) within photonics, nanotechnology, and biotechnology have the potential to help provide solutions. The intricate nature of the challenges at hand necessitates a multidisciplinary approach. NB-Photonics solves such challenges and provides training through our members' expertise and their facilities in combination with academic and industry collaborating partners. www.nb-photonics.ugent.be

neoLASE

neoLASE is an innovative laser manufacturer and one of the world's leading supplier of solid-state laser technologies. A comprehensive portfolio of lasers, laser amplifiers and customized laser systems is provided to a wide range of commercial, industrial and scientific applications. neoLASE was founded in 2007 as a start-up company from the laser development department of the Laser Zentrum Hannover e.V.. The long term experience in the field of diode pumped solid-state lasers allows neoLASE holding a high degree of qualification and competence in developing customized laser solutions on high industrial levels. From steel cutting to examining a single cell, from gravitational wave detection to atmospheric measurements we enable our customers' success with products and services that turns light into solutions. www.neolase.com

NEO Monitors is the world leading provider of instrumentation based on Tunable Diode Laser Absorption Spectroscopy (TDLAS). Our innovative products are used for a variety of industrial gas and dust concentration measurements. With our headquarters in Norway, our sales offices in China and the US, and a worldwide network of distributors, we provide tailored solutions for various industries such as oil & gas, petrochemical, metal and power plants. NEO Monitors offers the broadest application portfolio with the best detection limits and the lowest total-cost-of-ownership on the market. In addition to this, we have the largest install-base worldwide and hold status as the only supplier offering products using near- as well as mid-infrared lasers for gas measurements. www.neomonitors.com

NewPhotonics is a fabless chip startup solving the main challenge of data centers - Energy consumption and efficient capacity growth. Their market first, highly efficient, 'All-Optic' silicon chip seamlessly replaces millions of power-hungry and costly CMOS electronic chips in use in every datacenter. www.newphotonics.com

The Netherlands Cancer Institute (NKI) for decades has been among the absolute world top when it comes to the unique connection between the care and research that makes all the difference for cancer patients. In multidisciplinary teams surgeons, oncologists, radiologists, radiotherapists and nurses are continuously working on tailor-made treatments. Because in essence no two cancers are the same. As it is now becoming possible to unravel the specific genetic changes in the nucleus of the cancer cell that influence the behavior of the tumor, our researchers are increasingly capable of developing new, tailor-made treatments. The Netherlands Cancer Institute chose, already a century ago, for the ground-breaking approach of combining the research at the Netherlands Cancer Institute with the specialized

cancer care of the Antoni van Leeuwenhoek hospital. The institute is located in Amsterdam. It is the only OECI designated Comprehensive Cancer Center in the Netherlands, and is an important national and international center of scientific and clinical expertise, development and training. www.nki.nl and www.avl.nl

New Imaging Technologies (NIT) is a leader in SWIR imaging solutions and HDR CMOS sensors, based on innovative pixel designs and disruptive process. NIT was founded in 2007 as a spin-off from Institut-Telecom Sud-Paris. NIT develops, manufactures and sells InGaAs sensors and cameras for short wave infrared band imaging (900nm – 1700nm) and High Dynamic Range CMOS sensors for high-end visible band, with a transverse knowledge scope from IC design, material process, FPGA, electronics and mechanical engineering. NIT addresses various markets such as industry, scientific, space, aeronautics, surveillance & defense. NIT employs 20 people and is located at Verrieres le Buisson, close to Paris. www.new-imaging-technologies.com

New Infrared Technologies (NIT) is a company located in Madrid (Spain), which develops and commercializes industrial solutions for real-time process monitoring and smart control of laser-based industrial processes (Additive Manufacturing, LMD, cladding, laser welding) and other technologies (WAAM, arc welding, etc). These solutions are based in self-produced infrared cameras, manufactured with a unique technology, sensitive in the medium wavelength infrared (MWIR, 1-5 microns), high-speed capabilities and uncooled operation at room temperature. www.niteurope.com

€ Funded Research Projects Experience

- LASHARE (LASPRO): Laser Equipment Assessment for High Impact Innovation in the Manufacturing European Industry
- MASHES: Multimodal Spectral Control of Laser Processing with Cognitive Abilities
- FLEXHYJOIN: Flexible Production Cell for Hybrid Joining
- AMBLIFIBRE: Adaptative Model-based Control for Laser-assisted Fibre-reinforced Tape Winding
- COMMUNION: Net-shape joining technology to manufacture 3D multi-materials components based on metal alloys and thermoplastic composites
- SEERS: Snapshot Spectral Imager for IR Surveillance
- FLAIR: Flying Ultra-broadband Single-shot Infrared Sensor

NIL Technology (NILT) is leading in the area of nano-optics. Vertically integrated from design to mass production of diffractive optical elements (DOE) and meta optical elements (MOE)

also known as metalenses. In addition, NILT supports the growing AR/VR/MR industry with highly specialized masters for repliacaotn of waveguides used in the AR display. NILT is your go to partner for nano-optics solutions, from development to mass production. We enable future optical solutions for Smartphones, Augmented Reality, IoT, Automotive, and in addition we serve the biotech and space industries among others. www.nilt.com

Nippon Electric Glass strives to Build a Brighter Future for the World by Uncovering the Unlimited Possibilities of Glass. This corporate philosophy is a reflection of the founding mission, a statement of devotion to creating products infused with the very best of human civilization for the betterment of society. They have been providing a variety of products for various industries such as electronics, photonics and semiconductor for over 70 years. They engaged in wide-range in-house efforts focused on material development, product development, and process development, which enable them speedy and quality industrialization and commercialization. www.neg.co.jp/en

NIREOS SRL is a fast-growing start-up and official spin-off company of Politecnico di Milano University, located in Milan (Italy). Incorporated in 2018, NIREOS is rapidly empowering its business and strategic market positioning thanks to the development of ground-breaking technologies in the spectroscopy and photonics sector. The solutions provided by NIREOS, such as interferometers, spectrometers and hyperspectral cameras, are now unlocking new applications both in the industrial and in the scientific field. NIREOS is also part of SimDOME (https://simdome.eu/), an H2020 European Project. www.nireos.com

NIRx Medizintechnik is a leading provider of comprehensive solutions for functional near-infrared spectroscopy (fNIRS) research. Our non-invasive and user-friendly fNIRS technology enables the measurement of neural activity in the cortex and large-scale cortical networks, providing insights into the neural mechanisms underlying perception and cognition. Our complete range of research solutions includes a versatile multimodal hardware platform, advanced online and offline analysis software, expert technical and scientific support, and comprehensive training programs. We are dedicated to supporting fNIRS researchers through our offices in Orlando, New York, and Berlin, Germany. Whether you're investigating changes in neural activity during development, researching disorders and their treatments, or exploring new applications in neuroscience, NIRx has the expertise and solutions to help you achieve your research goals. www.nirx.net

NKT Photonics is the leading supplier of high-performance fiber lasers, fiber optic sensing systems, and photonic crystal fibers. Our main markets are Medical & Life Science, Industrial, Aerospace & Defense, and Quantum & Nano Technology. Our products include ultrafast lasers, supercontinuum white light lasers, low noise fiber lasers, and a wide range of specialty fibers. We have lasers in space and deep under the oceans and our products run in both clean rooms and on oil rigs at sea. We seed the world's largest laser fusion experiment, power hundreds of the most advanced microscopes on the globe, and enable the quantum computers of tomorrow. We aim to make a difference in the world, and we are involved in projects that will transform the way we live through life-science, renewable energy, and the basic understanding of the Universe. With over twenty years of expertise, IP and experience, NKT Photonics strives to continually be the market leader in everything we do. NKT Photonics has its headquarters in Denmark with sales and service worldwide. NKT Photonics is wholly owned by NKT A/S. www.nktphotonics.com

NLIR | Mid-Infrared Sensors

NLIR makes Ultrafast Mid-Infrared Spectrometers and Detectors. Our ultrafast Mid-Infrared Spectrometers that can acquire up to 130.000 spectra per second. Applications are In-Line measurements during production of products, materials, coatings, OCT, NDT and more. We also offer up to 25 GHz Mid-Infrared Detectors. Applications are chemical kinetics, IR communication, Combustion analysis and more. Further a version of our Mid-Infrared Single Wavelength Detector is super sensitive. It has a NEP of a few fW/√Hz. www.nlir.com

noctiluca

Noctiluca (New Materials) is a Polish technology company listed on the Warsaw Stock Exchange (NewConnect market) which creates chemical compounds for products of the future.Noctiluca develops proprietary, advanced compounds in the area of photonics, which are used by manufacturers of displays and OLED panels. These are new, third- and fourth-generation OLED emitters, i.e. those exhibiting TADF (Thermally Activated Delayed Fluorescence) and Hyperfluorescence properties, which are a key component of displays (monitors, TVs, smartphones, wearables or VR devices) and light sources (e.g. lighting). In recent months, the Company has significantly developed its technology - it has a new laboratory in Torun, its own R&D department in Korea, has strengthened cooperation with major research institutes and has started a project with ITRI i.e. the most important high-tech

and industrial development agency in Taiwan.Nociluca's team has more than 15 years of experience in both research and development projects and in the production of organic compounds of various volumes - from milligrams to multi-kilograms. In addition to developing proprietary technology, Noctiluca is a Chemical CRO. The company conducts R&D research on behalf of its partners. Noctiluca scientific team undertakes projects in the chemical industry to develop cutting-edge solutions, primarily focusing on high-performance materials (HPMs). Additionally, the company is a producer of high-purity organic materials. With the specialized knowledge and resources, Noctiluca can also efficiently scale the sublimation process to meet the demands of a semi-industrial operation. www.noctiluca.eu

Nofima

Nofima is a leading food research institute that conducts research and development for the aquaculture industry, the fishing industry and the food industry. www.nofima.com

Noisy Labs

Noisy Labs is a leading company in the field of quantum optics. Their products are based on more than 20 years of cutting-edge academic research and development, now available for various applications and experiments. www.noisy-labs.com

NOKIA

Nokia is a trusted partner for critical networks, committed to innovation and technology leadership across mobile, fixed and cloud networks. Nokia creates value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs. Adhering to the highest standards of integrity and security, Nokia helps build the capabilities needed for a more productive, sustainable and inclusive world. www.nokia.com

NORCE

NORCE (Norwegian Research Centre AS) is one of Norway's largest independent research institutes, and deliver research and innovation with focus on energy, health, climate, environment, and society. Including NORCE's subsidiaries, the group has 1000 employees from around the world and an annual turnover over NOK 1,3 billion. NORCE Technology develop interdisciplinary solutions covering applications from subsea to outer space, and have expertise within remote sensing, fibreoptic DxS, vibrational spectroscopy, imaging, video analysis, machine learning, decision support, visualisation, drone and satellite mapping, smart instrumentation and signal processing. www.norceresearch.no

NorthLab PHOTONICS

NorthLab Photonics is a competence center for advanced fiber preparation, splicing, glass/fiber processing and FBG manufacturing solutions. The products and services are designed for a wide area of applications, from manufacturing of FBGs (Fiber Bragg Gratings), Mode Field Adapters, combiners/bundles to preparation and splicing of polyimide, exotic and large diameter fibers. NorthLab customers are found in all industries and research areas were optical fibers are used. Examples are companies and universities working with high power lasers, sensors, medical probes, telecom and defense applications. The product portfolio includes FBG manufacturing equipment, fusion splicers, glass processing equipment, cleavers, recoaters and interferometers for inspection of fibers and connectors. We are also long-term partners with 3SAE Technologies in the US and Furukawa in Japan as well as several other suppliers, distributors and research institutes around the world. www.northlabphotonics.com

nortus Optronic GmbH
Your expert partner in optics

nortus Optronic GmbH was founded in 1982 and is engaged in the development and production of optical components and systems for laser technology, medical technology, optical industry as well research and science. We are also able to supply optical products in the field of quantum technology.We are able to develop, produce and deliver customized products in small series as well as series products for OEM customers with our partners from the USA, Japan, Taiwan and China. The nortus Optronic GmbH stands for high quality products at reasonable prices. www.nortus-optronic.de

nortus Systronic GmbH
Your expert partner in advanced system solutions

nortus Systronic GmbH was founded in 2010 as a sister company of nortus Optronic GmbH and deals with the distribution of optical measuring systems.We have various manufacturers of high quality measuring devices from the USA, Japan, South Korea and Estonia as partners and represent them in Germany, Austria and Switzerland. We are also the contact for customers from the European Union.Our product range includes interferometers, wavefront sensors, spectrometers, LED reference light sources, FBG and interrogators as well as products for industrial image processing. www.nortus-systronic.com

NTS OPTEL

NTS Optel, since 1986 based in Nijmegen the Netherlands, is a contract manufacturer that develops, produces, assembles and tests complex (opto-)mechatronic systems. We serve the following applications areas: Illumination (medical illumination; machine vision illumination; fiber illumination; and general illumination); Imaging (custom imaging optics; custom cameras; machine vision using custom or off the shelf optics and cameras; microscopy systems; and fluorescence systems); Sensors (custom spectral sensors; custom position or height sensors; and other sensors); Laser beam delivery (scanning; focusing; beam shaping; and beam steering); and Industrial test equipment (these are turn key

integrated solutions involving e.g.: frame / cabinet design and production, user interface and machine control software, handling of products, motion control, optical sources and or sensors, and electronics). www.optel.nl or www.nts-group.nl/en/competences/optical-testers

NYFORS®

NYFORS is an innovative supplier of advanced glass processing and optical fiber preparation equipment for high strength and specialty splicing operations. A common feature, found in many products, is the automated fiber processing, intended to give consistent results and high production yield in volume production of optical fiber components. The product portfolio is continuously expanded to cover wider and more challenging customer applications. It currently includes CO_2 laser splicing and glass shaping equipment, automatic systems for fiber preparation and window stripping, high precision cleavers and optical fiber recoaters as well as proof testers and cleave check interferometers for fibers and ferrules. NYFORS also provides custom solutions for production applications such as volume manufacturing of fiber optical gyroscopes. All NYFORS products are developed with the user in mind for comfortable and easy operation in production and laboratory environment. www.nyfors.com

NYNOMIC
THE PHOTONICS GROUP

Nynomic AG is an internationally leading manufacturer of products for permanent, non-contact and non-destructive optical measurement technology. The products and services of the Nynomic Group are based on a wide range of intelligent sensors for measuring optical radiation and smart technologies for data acquisition, processing and evaluation. They can be scaled into different application areas and represent high efficiency increase and high customer benefit due to their good adaptability to customer processes. Miniaturization, digitization, automation - Nynomic consistently uses the constant technological change as the basis for above-average growth in the medium term compared to the market. The Nynomic Group has a clear marketing concept as a full-service provider from component to solution. It is globally positioned with independent brands and subsidiaries and around 425 employees. More information on the company is available on the corporate website at www.nynomic.com

obducat

Obducat is the world-leading supplier of lithography solutions enabling advanced micro- and nano- patterning of surfaces. Obducat develops and delivers innovative products and technologies focused on processes used in production and replication of advanced micro- and nanostructures. Obducat supplies its customers with process equipment as well as process know-how applied in both high-volume production and R&D. Obducat's products and services are aimed at costumers within various fields such as LED-, biomedical-, display-, MEMS-, semiconductor- and solar cell industries. www.obducat.com

Ocean Insight reflects our evolution from one of many suppliers of spectroscopy products to a singular provider of Applied Spectral Knowledge. Our purpose is to help customers define pressing challenges and deliver answers that promote a safer, cleaner, healthier future. Ocean Optics invented the miniature spectrometer, pioneering the concept of bringing the measurement to the sample. Now, your changing needs have inspired us to embrace new ways of innovating, collaborating and problem-solving. As Ocean Insight, we bring application-specific expertise, services, and solutions to define and solve important challenges across multiple industries and disciplines. We invite you to explore our integrated approach to customer need. We call it Applied Spectral Knowledge (ASK) - innovative spectroscopy hardware, software, and on-demand data delivery backed by deep category expertise. More simply, we're turning spectra into answers. www.oceaninsight.com

OCTLIGHT

OCTLIGHT is high-tech company developing and selling VCSEL OCT Swept Laser to medtech companies, making it possible to do optical biopsies realtime and effortless with diagnostic power for the healthcare specialist. www.octlight.com

OFFICINASTELLARE
OUR WORLD. YOUR SPACE

Officina Stellare S.p.A. is an innovative SME based in Italy, listed on the Alternative Investment Market (AIM) of Borsa Italiana and leader in the design and manufacture of complex opto-mechanical and aerospace instrumentation for Ground and Space-based applications. The Company stands out in the international industrial panorama for the entirely in-house availability of the know-how and processes necessary for the development, manufacturing and commissioning of its products and systems serving a variety of engineering domains, from aerospace to mechanics, from optics to electronics, computer sciences and astronomy. www.officinastellare.com

ofs
A Furukawa Company

OFS is a world-leading designer, manufacturer and provider of optical fiber, fiber optic cable, connectivity, fiber-to-the-subscriber (FTTx) and specialty fiber optic products. We put our

development and manufacturing resources to work creating solutions for applications in such areas as telecommunications, medicine, industrial automation, sensing, aerospace, defense, and energy. We provide reliable, cost-effective fiber optic solutions that help our customers meet the needs of consumers and businesses today and into the future. Headquartered in Norcross (near Atlanta) Georgia, U.S.A., OFS is a global provider with facilities in several countries worldwide. OFS is part of Furukawa Electric Group, a multi-billion-dollar leader in optical communications. www.ofsoptics.com

€ Funded Research Projects Experience

PHASORS http://cordis.europa.eu/project/rcn/87606_en.html (closed)
MODE-GAP http://modegap.eu/ (closed)
ROBIN http://www.space-robin.eu/ (closed)
COSIGN http://www.fp7-cosign.eu/ (closed)

OMMATIDIA
A NEW LOOK AT LIDAR

Ommatidia LiDAR specializes in the digitalization of our world. We support the 4th industrial revolution with accurate 3D data of machines, vehicles, their environment, infrastructure and buildings. This information will improve production processes, create new products and services, and allow the next wave of automation. Ommatidia LiDAR builds on proprietary technology that allows faster, more accurate and longer-range 3D imaging than was previously possible. This unique capability results from the company's ability to use innovation to generate value for its customers. This guiding principle, together with a strong focus on quality in its processes and products, results in first-in-class solutions with the potential to transform a wide range of industries. www.ommatidia-lidar.com

mks | Ophir®

Ophir**,** a MKS business unit, has over 40 years of experience providing a complete line of instrumentation including power and energy meters, and beam profilers. Dedicated to continuous innovation in laser and LED measurement, the company holds a number of patents, including the R&D 100 award-winning BeamTrack power/position/size meters; BeamWatch®, the industry's first non-contact, focus spot size and position monitor for lasers in material processing; and Spiricon's Ultracal™, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The Photon family of products includes NanoScan scanning-slit technology, which is capable of measuring beam size and position to sub-micron resolution. The company is ISO/IEC 17025:2005 accredited for calibration of laser measurement instruments. Their modular, customizable solutions serve manufacturing, medical, military, and research industries throughout the world. www.ophiropt.com

opta sensor

OptaSensor develops vision systems and components for medical devices. With stablished expertise in the field of micro opto-electronics development, integration and manufacture, Optasensor pushes technological boundaries to realize innovative products. With pioneering experience in the first commercially available small factor cameras for single use endoscopic

applications, a new era of healthcare solutions where diagnostic products effectively save lives was created. Established since 2019 in Nurnberg Germany by a team of passionate technical experts in the area, Optasensor is committed to a range of standard products as well as to attend to customer customizations. www.optasensor.com

Keywords: micro camera modules, CMOS medical cameras, wafer level integration, wafer level optics, single use endoscopy, disposable endoscopes, medical imaging.

OpTecBB e.V. (Optec-Berlin-Brandenburg) is the Competence Network for Optical Technologies an Micro Systems Technologies in the German Capital region of Berlin and Brandenburg. It is the aim of the network to connect representatives in industry, research, education, the finance and consulting sector as well as politics, to jointly foster the development and application of Optical Technologies and Micro systems Technologies. Particular focus areas include: 1 laser technology: 2 lighting technology, : 3 optical and especially x-ray analytics,: 4 biophotonics and ophthalmology,: 5 optical communication, sensor and quantum technologies,: 6 microsystems technologies. www.optecbb.de

OPTICS11 delivers state-of-the-art fiber optic sensing solutions for the energy, defense, and industrial sectors, safeguarding essential assets in demanding environments. For the energy sector, we excel in partial discharge monitoring, ensuring secure and efficient operation of crucial infrastructure. Our solutions supply valuable data to enhance safety, reduce downtime, and boost efficiency. In defense, we provide advanced fiber optic sensing systems, heightening situational awareness, and fortifying security. Our solutions aid military organizations in detecting threats and safeguarding critical infrastructure. In the industrial domain, we offer transformative sensing solutions for condition monitoring, asset tracking, and process control applications, promoting data-driven decision-making and optimized operations. Leveraging innovation and expertise, OPTICS11 is dedicated to driving progress and enhancing the world around us. www.optics11.com

Optimax is set-up to manufacture, test and deliver high precision optics, including aspheres, cylinders, prisms, spheres, and freeforms with the speed and quality your project demands. Over the past 25 years, we have grown to nearly 400 employees and expanded our capabilities to include innovative research and higher production volumes. As one of the largest optical manufacturing companies, we remain committed to small volume, high quality, and quick delivery. www.optimaxsi.com

Optiwave is the emerging leader in the development of innovative software tools for the design, simulation, and optimization of components, links, systems and networks for the dynamically growing fields in photonics nanotechnology, optoelectronics, optical networks and other photonic applications. Since its inception in 1994, Optiwave's software has been licensed to more than 1000 industry-leading corporations and universities in over 70 countries worldwide. Today, Optiwave's cutting-edge photonic design automation software and customized engineering design services offer its customers a distinct competitive advantage, by vastly shortening their time to market while dramatically improving quality, productivity and cost-effectiveness. www.optiwave.com

OPTIX designs and manufactures optical, opto-mechanical and opto-electronic assemblies and devices for commercial, military and law enforcement applications since 1998. From design and implementation of prototypes to serial production of components, assemblies and devices, OPTIX is supporting multiple industries as OEM and with proprietary solutions for various industries and defense customers in more than 50 countries across the world.

The company is specialized in design, manufacturing and testing of hi-tech products in:

- Opto-mechanical production - custom optics, mechanics, and assemblies. OPTIX offers products such as optical and crystal visible and infrared components and assemblies, spherical and aspheric lenses, flat optics, blanks, microprisms and others. Manufacturing capabilities include CNC grinding and CNC polishing, diamond turning, conventional polishing, engraving, bonding and coating.
- Night vision products for observation and sighting – goggles, monoculars, binoculars, sights, and clip-ons for extended capabilities and excellent situational awareness at night.
- Thermal imaging products for observation and sighting - cameras, binoculars, sights, and clip-ons for usage in various conditions regardless of environmental light.
- Integrated surveillance systems – advanced fixed and mobile multisensor surveillance systems for monitoring and protection of border security, strategic objects and critical infrastructure, early wildfire detection, and others.

With several manufacturing facilities in Bulgaria and sales offices in Sofia, Bulgaria and Berlin, Germany, OPTIX is certified under ISO 9001, 14001, 27001, 45001 and AQAP 2110. The company also operates and tests its products in ISO 17025 accredited laboratory. Company's own machine park, in-house R&D, 5-point QMS, proprietary IP rights, know-how and more than 550 employees, define OPTIX as reliable partner focused on supply of products and services for excellent customers' experience and success. www.optixco.com

Opto is a leading developer and manufacturer of high-precision optomechanical inspection modules and equipment, with locations in Germany and France. We produce Imaging Modules with software "reduced to your needs" for measuring, detecting and analysing in the micrometre range. Always reliable and fast, for your Industry 4.0 and AI applications in medical technology and industry. Since its inception in 1980, Opto has stood for optical inspection and digital imaging systems. It is a provider for some of the most technologically advanced industrial and bio-industrial applications in the world - including high-throughput cellular imaging, laser eye surgery, stent inspection, laser fault injection and much more. www.opto.de

OPTOCRAFT
OPTICAL METROLOGY

Optocraft manufactures and develops optical measurement devices based on Shack-Hartmann wavefront technology for testing of optical elements, optical systems and laser beams since 2001. With its substantial know-how, Optocraft's team opens up innovative solutions for advances in metrology and for individual customer requests. In this way, it is possible to provide efficient standardized systems as well as perfectly customized solutions for optics and laser manufacturers, contact lens and intra-ocular lens manufacturers, as well as for astronomy and space applications. www.optocraft.de

OPTOFIDELITY

OptoFidelity is an optical metrology and industrial automation company. With its HQ, located in Finland, OptoFidelity serves to its customers also from their Cupertino, CA and Redmond, WA offices in USA and various locations in the APAC region. With their own R&D, service and manufacturing facilities in Europe, USA as well as in China, OptoFidelity employs about 600 skilled engineers and other staff. OptoFidelity is currently the market leader for AR metrology and testing. Their turnkey systems are available for functional and performance testing of DOE/HOE/ROE AR waveguide combiners, light engines as well as subassemblies and EOL testing of fully assembled smart glasses/HMDs. www.optofidelity.com

OPTOGAMA

Optogama designs, develops and manufacture custom laser related products and develops technologies for material processing, spectroscopy & analytical instrumentation, aerospace, security, vision and other applications.

Company products and services cover:

- Laser beam delivery systems, beam expanders, laser power attenuators
- Laser components, crystals, accessories
- 1,54 um "eye-safe" range lasers
- Contract manufacturing of lasers and optical devices
- R&D of lasers for material processing, spectroscopy and medical applications
- Laser crystal materials development and manufacturing

www.optogama.com

OPTOMAN designs, develops and manufactures advanced, high accuracy, and repeatability IBS thin film coatings and laser optics since 2017. R&D driven culture forces the OPTOMAN team to constantly improve the performance and reliability of thin film coatings so our partners eventually could enjoy the benefits of lower total cost of ownership. OPTOMAN as your sidekick is always willing and ready to help you with finding optimized solutions (ultra)fast and back you up in critical situations and finally get the job done as was promised. High level development is possible with experienced staff and innovative ion-beam sputtering (IBS) technology. Progressive control and automated process allow the deposition of complex structures of several hundred thin film layers. The advantages of spectral control include features, such as: higher contrast, repeatable performance, and tighter tolerances. In combination with ISO-6 clean room environment, OPTOMAN manufactures outstanding overall quality laser optics. Do not forget that with great laser power comes great responsibility for coaters! www.optoman.com

Optonas is a professional Lithuanian company specializing in vacuum coating technologies: IBS, E-beam and Thermal evaporation and offers customized production, providing customers with solutions tailored to their specific application. The coatings produced by Optonas are extremely robust and resilient under long-term laser illumination, mechanical impact and varying ambient conditions. Coatings for infrared, visible and ultraviolet spectral ranges from as low as 190nm to as far as 20000nm are available. The coating materials include thin-film dielectrics, metals and semiconductor, ensuring highest quality and durability. They find applications in lasers devices and other optical systems. It's a regional leader of UV, VIS, Mid IR, Far IR, Variable Reflectivity and crystal coatings. Most advanced IBS sputtering machines are running at 24/7 regime to ensure fastest product manufacturing time. The company makes coatings of ultimate performance and durability on AGS, DKDP, LBO, LiIO3, ZGP, YAG, KTA, KTP, YVO4, ZnSe, RTP, KGW, CaF2, BBO and other optical materials. www.optonas.com

OptoNet - the Photonics Network Thuringia represents the leading players of Photonics in Jena region, empowers communication and cooperation, strengthens the international visibility and supports talent promotion. The cluster, situated in the heart of Germany and Europe, is a top business location with a unique density and an extraordinary wide range of optics technology. With more than 100 members, around 20 years of cluster experience and a broad international network, OptoNet considers itself as one of the German hubs for Photonics industry. www.optonet-jena.de

OPTONIQUE

Quebec Photonics Cluster

Optonique – Quebec's Center of Excellence in Optics-Photonics is a non-profit organization that unites Quebec's photonics sector around common objectives of innovation, growth and competitiveness. Its mandate is to bring together the main players in the industry, i.e., companies, research centres and educational institutions, to contribute to the dissemination of their expertise. Quebec, the FrenchEnglish bilingual region of Canada, comprises more than 220 photonics companies that generate close to $3 billion in GDP and employ more than 22,000 people. Quebec photonics companies' primary sectors of activity are life sciences, advanced manufacturing, aerospace & aeronautics. Their innovative products, such as sensors, imaging systems, software and signal processing are well-known worldwide, as indicated by their 92% export rate. Optonique fosters partnerships with European organizations such as Photonics Hub (Germany) and French competitiveness clusters such as Pôle Optitec and Alpha RLH with whom we've signed memorandums of understanding. www.optonique.ca/en

OPTOPRIM

Optoprim Group, since its foundation in 1994, has established itself as one of the main players in the European Laser & Photonic market. As a supplier and distributor of well-selected laser components of global leading manufacturers Optoprim offers solutions at any integration level. With subsidiary offices in Paris, Monza, Rome and Munich we have over 50 employees which have enabled us to build a diverse customer base from big OEM´s, integrators, end-users to research institutes. With our product portfolio we do support our customers on industrial and scientific requests from the development status to the serial production of systems and machines. Optoprim offers highest standard of customer service throughout Europe as well as we are providing high expertise in industrial laser applications with our application team and state of the art equipped applications lab. www.optoprim.de

OptoRes

Optores is a pioneer in ultrafast swept lasers and optical coherence tomography. With sweep rates of several million OCT A-scans per second, Optores' founders coined the term "MHz-OCT". These ultrahigh speeds are ideal for novel OCT applications, such as real-time surgical guidance with 4D-OCT, large-area surveys, visualization of blood flow, and high-throughput industrial inspection. www.optores.com

OptoSigma®

OptoSigma, a subsidiary of Japanese based SIGMAKOKI Group, was established in the California, USA in 1995 and opened a new subsidiary in France to mark its presence in Europe in early 2014. The SIGMAKOKI Group possesses more than 43 years of experience in manufacturing high quality optics components, optomechanical components and

optoelectronics systems. Thanks to the rich Japanese know-how we have cultivated over the years, high reliability products at an affordable price. Our optics portfolio includes all kind of optics such as high power laser mirrors, beamsplitters, lenses, polarizers, filters among others. Our portfolio also includes a wide variety of opto-mechanics products to hold all kind of optics, as well as motorized and manual stages, optical tables and most of the building blocks for photonics applications. www.optosigma.com

OPTOSKAND™
OPTIMIZE YOUR LASER

Optoskand AB is working in the field of fiber optic beam delivery of high-power laser radiation for industrial use. Optoskand AB is situated in Mölndal, close to Gothenburg, Sweden. The company was formed in 2002 as a spin-off from Permanova Lasersystem AB and is since November 2016 owned by Coherent Inc. The experience of high-power fiber optic transmission goes back to the early 1980s. Our first patent has a priority date in 1983 and since then a number of patents has been approved. Today we can offer durable Fiber Optic Cables as well as Incoupling Optics and External Optics for fiber optic beam delivery system. www.optoskand.se www.coherent.com

€ Funded Research Projects Experience

- LIFT: Leadership In Fiber Technology

LASHARE: "Laser equipment ASsessment for High impAct innovation in the manufactuRing European industry"

OQMENTED

OQmented is a spinoff from Fraunhofer Institute for Silicon Technology. The founders of OQmented have been major drivers in the development of MEMS mirror technology for more than 20 years. They have put together a very dedicated team of engineers and employees who are passionate about the world's most advanced laser scanning and projection technology. We enable breakthroughs and market disruptions for some of the automotive and consumer industries' top technology developments. We are committed to excellence, offering you complete laser scanning solutions of the highest quality. OQmented develops, integrates and sells complete laser scanning solutions composed of a MEMS chip, driver electronics, application specific system electronics and software for automotive, consumer and industrial applications such as LIDAR, adaptive laser headlights, HUDs, 3D cameras, augmented reality displays, virtual reality displays, high power laser displays, structured lighting and laser material processing. www.oqmented.com

ORAFOL®
Fresnel Optics

ORAFOL Fresnel is a supplier of optics and lenses that are used in the photonic market. The main segments are instrumentation, optical sensors, lighting, display, solar, automotive and industrial image processing. With our integrated R & D department we are able to provide a variety of custom designed optical components that improve the performance and efficiency

of systems and devices. Our micro- and nanostructured optical components are based on polymer substrates and Silicone on Glass (SOG) Optics. We supply to customers in Europe, Asia, North and South America. Fresnel Optics was integrated into the ORAFOL group in 2011. The company dates back to 1972 and employs today about 80 people. www.orafol.com/de

Orion Engineering is the project sourcing agency of choice for engineering and technical assignments. Our professionals have a solid technical background and we do have different options to strengthen teams; from filling temporary assignments to recruiting employees. We always deliver solutions tailored to our clients' needs and search for the best solution. Orion Engineering offers an infallible assessment of the professional atmosphere and wishes at a client ensures a prompt and perfect match. Our driving forces are technical professionals of intermediate, higher or academic level. People who are flexible and want to be challenged by interesting projects at a(n) (inter)national level. The success formula of Orion Engineering was rewarded in 2018 with 2 prizes, for being one of the fastest growing companies in the Netherlands. www.orionengineering.nl

Osai A.S., founded in 1991 by Carlo Ferrero, operates in the field of the automation for industrial processes. OSAI has 3 branches located in Germany, China and the United States of America. The solutions offered by OSAI are based on standard systems or on special machines for assembly and testing of high-tech components for the semiconductor industry, the automotive industry and electronics manufacturing. Currently, the company relies on: 181 employees, 6.500 mq of production areas and more than 77% export sales. R&D activities represent for Osai an important activity branch. The permanent dedication to innovation allows our company to satisfy with more and more specific standards customer requests and to interact with international realities, taking part to European project, such as Horizon. At the moment R&D activities involve inside Osai a team, that works and collaborates with experts from all over the EU. Projects outcomes and innovations developed inside bracing fields such as international projects, contribute also to internal business development in Osai. www.osai-as.com

OSRAM, based in Munich, is the global No. 1 in automotive car lighting and a globally leading lighting manufacturer with a history dating back more than 100 years. The portfolio ranges from high-tech applications based on semiconductor technology, such as infrared or laser lighting, to smart and connected lighting solutions in buildings and cities. As a high-tech enterprise, OSRAM is enhancing people's lives in the digital age. Our identity is shaped by a long tradition of innovation in the field of lighting technology. Be it with laser light for automobiles, increased security thanks to iris recognition, or intelligently connected lighting, we are shaping the future with all kinds of solutions in the areas of visible and invisible light. Our capacity for innovation is being deployed in new fields. The commercial utilization of

chip fabrication expertise and novel applications in the visible and invisible light spectrum are examples of how the next chapter in the OSRAM success story could unfold. www.osram.com

Oxford Instruments (OI) is a leading provider of high technology tools and systems for industry and research. The company designs and manufactures equipment that can fabricate, analyze and manipulate matter at the atomic scale for wide variety of applications ranging from photonics to life sciences, astronomy, quantum technologies and graphene .Oxford Instruments Plasma Technology (OIPT) is a business unit of Oxford Instruments nanotechnology Tools Ltd (OINT), based near Bristol in the UK. OINT is wholly owned by Oxford Instruments plc (OI). OIPT has designed, manufactured and sold thin film processing tools using plasma and ion beam techniques for nearly 40 years. OI has more than 300 employees worldwide, with the majority in the UK at its manufacturing and product development site near Bristol. It is well known for designing and supplying thin film etching and deposition tools for research, pilot production, and for the transition to full production in optoelectronics/photonics, sensors, power and RF markets. It has approximately 15 PhD-qualified technical staff, and operates substantial research and applications laboratories, with 15 of its own deposition and etch tools and a suite of thin film characterization equipment. It has participated in several collaborative projects, and is currently active in the Eindhoven pilot line for integrated photonics (OIP4NWE), H2020 project ULISSES for Graphene based photonics sensors, FP7 project 'Single nanometer manufacturing' (SNM) and two ENIAC projects which looked at feasibility of transition to 450mm silicon. www.oxinst.com

Oxford Ionics is a start-up building Quantum Computers to revolutionise industries from drug discovery to material design. Quantum Computing offers a radically new way of building computers that harnesses the power of quantum physics to be exponentially more powerful than conventional supercomputers. We are using unique trapped-ion technology to build the first Quantum Computers that can realize this potential, which includes integrated photonics technology. Located in Begbroke Science Park with great transport links to Oxford's beautiful city centre and University as well as London, we are an agile, ambitious company who champion creative thinking in a fast-paced environment at the cutting edge of technology. www.oxionics.com

Oxford Lasers, established in 1977, have been at the forefront of laser applications for over 40 years. Specializing in the fields of Laser Micromachining and Laser Imaging, we offer, across both Divisions Subcontract Services as well as fully integrated systems. In particular, the Laser Micromachining Division supplies both systems and services, focusing on high quality and high accuracy features and parts. These parts being machined with sub-micron accuracy from almost any material covering metals and ceramics through to polymers and glasses. The in-house contract manufacturing facility offers parts from one off prototypes, through to high volume manufacture. The Imaging Division, is a supplier of products and services for droplet, particle, and bubble size measurement, including characterization, through quantification, of spray pattern and plume geometry. High speed imaging of welding and ballistics events is also possible for process optimization. Oxford Lasers operate from the UK and US as well as having presence in Europe and Asia. www.oxfordlasers.com

Oxxius

Simply Light

Oxxius is a laser design and manufacturing house founded in 2002 to bring disruptive innovations to the market of visible lasers. We develop advanced continuous-wave laser modules targeting numerous applications in bio-photonics, metrology, spectroscopy and other analytics and instrumentation applications, for both research and industry customers. Oxxius is headquartered in western France and located among a major optics and photonics cluster. Oxxius' products leverage an innovative, patented solid-state laser architecture offering major advances in compactness, reliability and cost of ownership. In addition, this technology enables exceptional spectral and spatial beam characteristics, as well as market-leading power levels. We also offer a broad range of diode laser modules to cover all the wavelength range from UV to near-infrared. Together with bringing outstanding products to the market, Oxxius is committed to offering a world-class level of quality. www.oxxius.com

PakPIC

PakPIC Ltd is a subsidiary of mBryonics Ltd which has been established to address the significant gap in the market for volume packaging of photonic integrated circuits (PICs) and associated design and engineering services. PIC packaging is the process of design, assembly integration and test of tightly integrated and miniaturised optical and electrical systems. PakPIC offers a pure play packaging platform, building 'foundry agnostic' photonics and electronics building blocks for particular applications, including markets demanding high reliability solutions such as space, automotive, telecom and datacom. PakPIC offers medium-to-high volume PIC assembly, integration and test services and very high volume services with its partners. www.pakpic.com

PANDAO

From optics to fabrication

PanDao created a whole new kind of software for the optical industry: Save cost, time and minimize your risk. The PanDao software tool determines the optimum fabrication chain during the design stage, its cost and helps to find the optimal supplier. It offers a wide spectrum of benefits in your daily business depending on your field of expertise as an

executive manager, optical designer, optics engineer or purchasing manager. As a company we already have experience writing EU project proposals for example we applied for the Horizon 2020 Tender. www.pandao.ch

PEAR-labs is specializing in photonic applications, especially in novel methods to facilitate microscopy beyond the diffraction limit. The current main product is a disruptive photonic chip which can be used to provide high resolution imaging beyond the diffraction limit in conjunction with a state-of-the-art light microscope.PEARLabs has developed such a ground-breaking optical chip which permits super-resolution imaging capable of visualizing structures far beyond the diffraction limit of visible light, exploiting addressable plasmonic elements. The resulting photonic chip does not require the sample to be labelled and is biocompatible and therefore enables in-vitro imaging needed for life sciences. PEARlabs have proven the concept of the technology and are currently demonstrating spatial resolutions below 21 nm. PEARlabs is currently supported by the European commission via the SME Tools and EU ACTPHAST 4.0 programmes and is supported by Science Foundation Ireland (SFI) through the Future Innovator Prize. www.pear-labs.com

Pegasus Chemicals is a UK company and our core business is the development, manufacture, purification or transfil of high purity precursors to support Atomic Layer Deposition (ALD) and Chemical Vapour Deposition (CVD). We specialise in small scale manufacture and scale up of high purity precursors, purification and high purity transfil for niche applications. Our product portfolio is wide and varied with a specific focus on intrinsic purity and consistency. Our in-house manufacturing and analytical capabilities to measure ppb level metals and oxygen impurities, ensure the delivered product is suitable for the application as required. We provide technical support to develop precursors with custom made packaging for specific applications, or we clean, prepare and refill customer packaging. Our technical and product application knowledge in ALD and (MO)CVD applications has been honed through the manufacture and supply of specialist chemistry with many years' experience. www.pegasuschemicals.com

MICRO-OPTICS IS...

PHABULOuS is the European pilot line and one-stop-shop for all requests for prototyping and manufacturing of free-form micro-optics services: from pilot to full-scale production. PHABULOuS serves as the single entry point to a full supply chain of Europe's leading Companies and Research & Technology Organizations. PHABULOuS's goal is the industrial manufacturing of innovative and highly demanded micro-optical components for various

photonics applications, with a clear roadmap for high volume production in Europe at a competitive cost. www.phabulous.eu

phaseform

Phaseform designs and manufactures new types of refractive wavefront correction devices. Our core technology enables transmissive, ultra-miniaturized, adaptive optics elements: Deformable Phase Plates (DPP). They are able to perform high-order aberration corrections like deformable mirrors, but at the same time can be seamlessly inserted into any optical beam path like a lens. Our products allow us to compensate for complex aberrations (e.g., from 3D samples like in life-science microscopy) but also for spherical aberrations, negating imperfectly aligned optical setups or ill-prepared samples thereby increasing throughput of inspection workflows. The DPPs benefits can be applied in multiple fields, most prominently in microscopy, ophthalmology, optical testing and analysis, optical communication, astronomy, AR/VR and material processing. Phaseform is a spin-off from the Department of Microsystems Engineering (IMTEK) of the University of Freiburg in Germany. It aspires to become a leading company in the “New Era" of adaptive optics (AO) - where AO has finally become a standard and cost-effective tool for restoring the best possible quality of any optical system affected by optical aberrations. www.phaseform.com

PHASICS
the phase control company

Phasics offers metrology and imaging solutions to laser engineers, lens manufacturers and microscopists. With a range covering UV to far infrared, Phasics’ high resolution wavefront sensing solutions - based on the patented Quadriwave Lateral Shearing Interferometry technology - combine high accuracy, best-in-class dynamic range and ease of use. A modular product range including wavefront sensors, automated instruments, expert software and accessories provides insightful analysis for R&D and manufacturing in 3 major domains:
• LASER: Laser beam testing and correction, adaptive optics with any deformable mirror;
• OPTICS: Lens testing (MTF, aberrations, comparison to design) for production quality control, lens benchmark before integration and R&D;
• MICROSCOPY: Quantitative Phase Imaging, label-free cell imaging, refractive index mapping.
www.phasics.com

PHIDRIVE
DRIVING TECHNOLOGY

PHI-Drive S.r.L., founded in 2013, has won numerous awards due to its innovative character including the “National Award for Innovation” conferred by the Presidency of the Republic and the prestigious H2020 by proposing and developing a piezoelectric-based gimball to orient the antennas in satellites. Phi-Drive is specialized in the study and the development of

mechatronic mechanisms. Its products are addressed to micromanipulation and assembly of very small objects. Furthermore, it supports its customers in the development of brand-new technological mechanisms and to improve their solutions. Phi-Drive products are characterized by the absence of lubricants and a very high customization to address complex customer requirements. Filed of applications includes, but are not limited, to space, optics, microelectronics, automation and biomedical. Phi-Drive product catalogue and service includes: — GRI-PHI: piezoelectric micro-grippers suitable for gripping very small object, from 30µm up to 5mm. Characterized by high precision, adjustable opening, fixed or interchangeable fingers, a wide set of hardware and software options to interface them with complex system. — PHI-SS: piezoelectric rotary or linear table systems to achieve precise movements and small corrections. Fully integrable with GRI-PHI in robotic application to get a perfect positioning of the end effector. — FEM & Multiphysics analysis to support manufacturers to optimize their machineries. www.phidrive.eu

€ Funded Research Projects Experience

- H2020 – SME Instrument - space sector PRE2POS Project _ Funded
- Eurostar Project A lot of submission approved but not funded for missing Budget
- Proposal submissions in RIA (Research and Innovation Action) in sector like industrial , Clean Sky CS2 , Fast Trak innovation Program
- National innovation Program proposal submissions and project funded (the last one on running : A-fless – Reserch and innovation action for new innovative product F.E.S.R. 2014-2020-I.1.b.1.2) automotive sector.

PHILIPS

Philips Innovation Services - Our MEMS & Micro Devices expertise We design, develop and manufacture custom microelectromechanical systems (MEMS) and assemble micro devices. Our 140 experts working at the MEMS Foundry and Micro Devices Facility follow a phase-gated approach to demonstrate the feasibility and give proof of concept, develop the process to the required maturity level and manufacture your devices with the right quality. Prototyping, process development and manufacturing At our facilities we offer MEMS prototyping, MEMS process development, MEMS manufacturing, as well as Micro Devices services. We follow our qualified way of making prototypes, systematically developing your idea into a prototype or device according to your requirements. We work with proven processes, methods and tools, making innovation work. We use a phase-gated approach, using design for excellence principles to address critical-to-quality parameters and new, critical processes. We do this in close cooperation with our customers. We strongly believe that robust integral design and quality is achieved in co-development with you. www.innovationservices.philips.com

PHLUX

Phlux Technology is developing high performance infrared sensors that will dramatically improve the performance of laser rangefinder, LIDAR, fibre sensing and imaging systems operating at wavelengths from 1000 nm to 1700 nm. www.phluxtechnology.com

PHIX Photonics Assembly is offering a cost-effective manufacturing service for Photonic Integrated Circuit (PIC)-based modules in scalable volumes; from prototypes to large scale production. PHIX has experience with all PIC technology platforms and is specialized in hybrid integration of multiple PICs in one module both with optical fiber interfaces as well as free space optical interfaces through micro optical components. PHIX is located in Enschede, the Netherlands. www.phix.com

Phoelex has developed disruptive intellectual property that can lead to dramatic enhancement of energy efficiency and cost reduction in high speed optical transceivers. The applications of the technology cover vast range of domains, with specific emphasis on data centres. www.phoelex.com

Photin aims to support worldwide customers in design, #epitaxy and #III-V #MOCVD wafer growth for R&D and small scale production #Photonics and #PIC. #Wafers: #InP based FP / #DFB lasers, #LED / #SLED / #SLD, #infrared #detectors, #GaSb and #InGaAsSb based #eSWIR detectors and #emitters, #GaAs + #InGaAs based lasers, LED, and #photodetectors. www.photin.eu

PhotonDelta is a European network consisting of researchers, chip designers, foundries and software developers. Our goal is to develop a sustainable ecosystem that can have a significant impact on our customers, in future applications and in solving social and technological challenges. PhotonDelta provides the necessary access to a.o. networks, knowledge, business development and funding. www.photondelta.eu

Photon Design was started in 1992 in Oxford UK to provide professional quality software to the photonics industry. Since that time, it has introduced many innovations to photonics modelling, and now provides World-leading tools for the modelling of active and passive photonics components and circuits. Photon Design products are now in use in 30+ countries, 100s of research labs and contributed to 1000s of leading research publications, helping to develop the next generation of datacom components and innovations in micro and nano-optics. We are also able to provide custom solutions based on our standard products and our experts with decades of simulation experience are available for consulting. www.photond.com

PHOTON ENERGY
A Hitachi Group Company

PHOTON ENERGY, specializes in developing and producing laser sources and laser marking devices for industrial applications. Their expertise is tailored solutions paired with qualified and individual customer support. This concept, combined with strong product quality, guarantees our sustainable success. The state-of-the-art manufacturing techniques in the new production facility with several cleanrooms and highly qualified employees are essential to their business. Continuous in-house training and a positive work environment ensure a high level of motivation. www.photon-energy.de

PHOTONFIRST
Integrated Photonics Sensing

PhotonFirst is a pioneer in next-generation smart sensing technologies. Our mission is to empower our customers with the data-driven insights they need to make informed decisions about their assets. We understand FBG-based sensing applications better than anyone and are committed to use our Photonic ICs (PICs) technology to deliver reliable and affordable products that enable a paradigm shift in the fiber optic sensing world. PhotonFirst was the first company to use PICs as the heart of their measurement solutions, making them scale well with volume allowing for low cost data generation. www.photonfirst.com

PHOTONIC INSIGHTS

Photonic Insights - technology service provider for photonics and AI applications, offering applied research & development as well as evaluation/due diligence. Photonic Insights de-risks high tech innovation to minimize the risks of complex research and development for partner organizations via the following collaboration formats: Success-based compensation for research and development. Support or sole acquisition of government subsidies to support joint research and development. www.photonicinsights.com

PITC
Photonic Integration Technology Center

Photonic Integration Technology Center (PITC) is a joint initiative by Eindhoven University of Technology, University of Twente, TNO and PhotonDelta. PITC aims to shorten the path to commercial application of Integrated Photonics through application-driven technology programs and by offering access to shared infrastructure. PITC is an independent R&D center that brings photonic technologies to industrial maturity, builds partnerships, strengthens the photonics ecosystem, and links it to a global customer base. Customers get access to technology and know-how in an early stage while sharing the costs and risk of new technology development. www.pitc.nl

PHOTONICPARTS

PHOTONICPARTS works in the field of joining and assembly technologies and production of laser components mainly for the photonic market. Besides laser technology, the core know-how of PHOTONICPARTS lies in producing homogeneous large-area solder joints for any materials or material pairings. The focus is usually on the customer's requirement for a thermally stable and robust solder joint with the lowest thermal and electrical resistance between two or more joining partners. Major fields of application are the packaging, adjustment and thermal management of laser crystals, optics and fiber optics in the markets of laser technology, aerospace and quantum technologies. www.photonicparts.com

photonics4

PHOTONICS4 is dedicated to serving the photonics industry. We do this by offering different information portals and by offering services to bring technology providers and (end)users closer together. www.photonics4.com

PHOTONICS BRETAGNE PERFOS R&D platform of Photonics Bretagne

Photonics Bretagne is a Photonics Innovation Hub located in Lannion (Brittany, France). The association integrates a Business Cluster supporting innovation, commercial and technology development of its members and a Research and Technology Organization (RTO) expert in the development of specialty optical fibers and related components (PERFOS® product line). We design and manufacture custom fibers such as microstructured (Airclad, Nonlinear PCF, Hollow-core, endlessly single-mode…), multicore, few mode, active VLMA but also silica capillaries, stress rods, Fan-in/Fan-out, fiber tapers. Scientific studies and proof of concepts in the field of biophotonics (in particular for the Agrifood sector) are also a growing activity. Photonics Bretagne is sited in a Photonics Park, at the heart of a rich ecosystem of industry, research centres and schools dedicated to photonics. www.photonics-bretagne.com/en

€ Funded Research Projects Experience

- OASIS: Open the Access to Life Science Infrastructures for SMEs
- NEXPRESSO: Network for EXchange and PRototype Evaluation of photonicS componentS and Optical systems
- LIFT: Leadership In Fiber Technology
- InnoPho21

The Photonics Communications Research Laboratory (PCRL) of the National Technical University of Athens (NTUA), performs mainstream and forward-looking research on the design and implementation of photonic devices and systems for optical communication systems, datacom applications as well as biophotonics/biosensing applications. PCRL's research scope includes innovative solutions for optical interconnects, high-capacity, flexible optical transmission networks, systems with advanced modulation formats, all-optical signal processing systems/subsystems, multi-wavelength sources for wavelength division multiplexing systems, novel optical network architectures for datacentres and photonic integrated circuit (PIC) design. PCRL has significant presence and a proven track record with successful participation and leadership in numerous projects from all the European framework programs up to Horizon 2020. www.photonics.ntua.gr

€ Funded Research Projects Experience

- **EUROFOS (FP7- coordinated NoE of 17 partners across Europe):** Pan-European Photonics Task Force: Integrating Europe's Expertise on Photonic Subsystems
- **PANTHER (FP7 – coordinated):** PAssive and electro-optic polymer photonics and InP electronics iNtegration for multi-flow Terabit transceivers at edge SDN switcHes and data-centER gateways
- **BIOFOS (FP7 -coordinated):** Micro-ring resonator-based biophotonic system for food analysis
- **HAMLET (H2020 – coordinated):** Heterogeneous Advancement and hybrid integration of polymer and tripLEx platform for Integrated Microwave PhoTonics
- **NEPHELE (H2020 – coordinated):** eNd to End scalable and dynamically reconfigurable oPtical arcHitecture for application-awarE SDN cLoud datacentErs

Photonics Finland is the Finnish research, innovation and technology cluster and platform in photonics. It connects Finnish photonics companies, research centres, universities, and public authorities together. Photonics Finland supports the development of the photonics field from basic research through to the deployment and market launch of products. Photonics Finland develops new business and research opportunities, and helps realize the full potential of the photonics industry in Finland in sectors like health care, energy efficiency, safety, manufacturing, and sustainability. Photonics Finland supports networking within Finland and establishes contacts within Europe, especially to the European technology platform Photonics21. www.photonics.fi

Photonics Foundry is at the forefront of advanced photonic and MEMS backend packaging services. As a young but experienced and disruptive force in the industry, the company operates as a contract manufacturer based in Bremen, Germany. But also offering

comprehensive services for the design, prototyping, fabrication and machine selection and transition process. With a commitment to innovation, Photonics Foundry provides streamlined processes for prototyping and scalable production, positioning itself as a key player in Europe's assembly strategy for the future. The company's presence in Bremen underscores its dedication to excellence and its role in contributing to next-generation technologies like Lidar, fiber array attachment, PIC assembly, active alignment, HPLD assembly and much more. www.photonics-foundry.com

The Photonics Group in the Electronic and Electrical Engineering Department of University College London: UCL is involved in R&D of opto-electronic devices, sub-systems and systems ranging from semiconductor lasers and liquid crystal wavelength division multiplex filters to millimetre-wave over fibre broadband access systems. We are a major contributor to the London Centre for Nanotechnology. With the University of Cambridge, University College London: UCL has established a world leading Centre for Doctoral Training in Photonic Systems Development, leveraging their current strong collaborations in research and innovation. We are looking for industry to suggest research topics for our Masters of Research: MRes and PhD students related to photonic systems development with MRes projects running from Nov-May and May-August each year and PhD projects starting every September. www.ee.ucl.ac.uk/research/photonics

Photonics Hub was founded in 2018 by the two shareholders of the Photonics Hub GmbH, the German Photonics networks Optence e.V. und bayern photonics e.V., in order to streamline structures, bringing together the competences of the regional networks and establish cross-regional services while maintaining regional contacts. The Photonics Hub offers working groups, projects, training courses, events, marketing support, promotion of young scientists and brings together the expertise of more than 180 members. We are taking part in national funding programs and have also experience in EU Projects like LASER GO Global. www.photonics-hub.de

Photonics Industry & Technology Development Association (PIDA) is a non-profit organization, founded in 1993 endorsed by the Ministry of Science and Technology (MOST). PIDA organizes various events, such as introducing new advanced & cutting-edge technology Forum, hold the largest OPTO& Optics Show. It is the only optical and optoelectronic international professional exhibition platform in Taiwan. In 2021, it will focus on technologies such as “Automotive Photonics”, “Biomedical Photonics, “Communication

Photonics", "Display Photonics", "Silicon Photonics", "5G Optical Communication", "Space and Defense Photonics" and "Epidemic Prevention Photonics". In addition, a series of seminars will be held on LiDAR autonomous driving, epidemic prevention technology, 5G optical fiber communication, Micro LED, silicon photonics, and quantum technology seminars to demonstrate advanced technologies, product development, industrial status, and business matchmaking. www.pida.org.tw

photonics
precision engineering

Photonics Precision Engineering is a team of experts offering optical design with tolerancing, system engineering and project management, with experience gained in many years within international projects. Beside the support of complex optical developments, PPE also does the sourcing and integration of customized optical designs and solutions. On-site training of employees or co-development is part of the services of the Jena optics design consulting agency. www.ppe-jena.com

PHOTONIKBIZ
Leads & Sales Organization

PHOTONIKBIZ helps you to find new leads and new customers using a methodology adapted to your particular situation. Starting with your product offer, your price policy, your marketing tools and your strategy, we define the targets. With our network in Europe, Canada, China, Korea and Japan, we organize meetings with qualified leads. We implement a sales dynamic giving you opportunities in short, mid and long terms. To make the right actions at the right time, we use Customer Relationship Management tool (CRM). This data base helps our customers for making sales forecasts, sales reports and sales strategy, for the best money comes from the customers! www.photonikbiz.dev

PHOTONIS

PHOTONIS is a global manufacturer of electro-optic solutions used in the detection of ions, electrons, and photons. We develop, produce, and market innovative sensors for detecting and amplifying very low levels of light, charged particles, and radiation. Our products are used in a wide range of applications from night vision to analytical instruments, and even in nuclear reactors and warships. When you partner with Photonis, you will receive a custom detector designed to meet the specified performance and sensitivity criteria. www.photonis.com

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

The Photonics Institute (TPI), at the Nanyang Technological University, Singapore is led by a triumvirate of world-class directors, namely Professor Tjin Swee Chuan, Professor Sir David

Payne and Professor Nikolay Zheludev. It consolidates the research and innovation activities of photonics related research centres across the University. Under its umbrella, there are currently 5 research centres within the Institute as listed below:

- Centre for Optical Fibre Technology (COFT)
- Centre for Disruptive Photonic Technologies (CDPT)
- Centre for Optical & Laser Engineering (COLE)
- Centre of Excellence for Semiconductor Lighting and Displays (LUMINOUS!)
- Centre for OptoElectronics and Biophotonics (OPTIMUS)

AT TPI, we aim to establish a cradle of scholarship, research and innovation - making the transition from fundamental science to applied science. www.tpi.ntu.edu.sg/Pages/Home.aspx

PhotonicsNL Association (PNL) is the unique Dutch platform for 'high tech' companies, knowledge institutes and educational institutes at all levels to exchange and spread knowledge regarding photonics. Creating awareness of the importance of Photonics as key enabling technology, resulting in new entrepreneurship and new jobs is our main objective. We are well connected to a widespread photonics network, both national and international. Besides our Photonics Magazine and website we organize all kind of activities like trade shows, workshops, tailor-made trainings and last but not least our own annual Photonics Event. As the unique Dutch platform PNL is involved in several EU-projects together with partners from all over Europe that aim for the same goal. www.photonicsnl.org

Photonic Solutions are an independent supplier of photonics and associated technologies to the UK scientific and industrial market. We are the exclusive representatives of many of the world's leading manufacturers of scientific and industrial laser systems, research grade spectroscopy solutions, optical instruments, cutting edge microscopy and imaging systems, together with optics, laser diagnostics and detectors for the photonics sector. Founded in 1999, our mission has always been to offer the highest quality photonic products backed up by unrivalled service and support. We are equally dedicated to delivering 'off the shelf' products and customised solutions that are tailored to the needs and demands of our customers, across the UK's top universities and high-tech manufacturers. Staffed by a team of highly qualified optoelectronic specialists, we have a wealth of experience across a wide range of disciplines. www.photonicsolutions.co.uk

Photonics Scotland, a network of Technology Scotland, is a community for all photonics and photonics-enabled organisations in Scotland. We are the focal point for the sector and a trusted partner to our members allowing us to represent their views to a number of key stakeholders. We also facilitate a cohesive sector, providing a range of events, working groups and networking opportunities that help to drive collaboration between industrial and academicpartners. Ultimately, our goals are simple: to raise the profile of the sector, help grow this thriving cluster, and drive photonics innovation in Scotland.Founded as the Scottish Optoelectronics Association in 1994, we are one of the oldest national photonics organisations in the world and remain one of the largest technology communities in Scotland. www.photonicsscotland.com

PHOTON IP

PHOTON IP is developing cutting edge technologies for advanced photonics applications. The company is based in Eindhoven, the Netherlands. The VC funded firm was founded in 2020, recognizing the continuing need to improve and expedite the development of advanced photonic integrated circuits. www.photonip.tech

PHOTONPATH

PhotonPath is an European based designer, manufacturer and vendor of Integrated Photonics based optical components and subsystems. Spin-off from the prestigious Politecnico di Milano, has manufacturing, research facilities and offices in Milan, Italy. PhotonPath provides both the hardware and the software to tame Integrated Photonics technology for application in telecom/datacom, optical-based sensing, and photonics-based computing. In our holistic approach, we handle all the complexities from the Integrated Photonics design, prototyping and manufacturing to provide our customers functional Integrated Photonics based devices and systems. www.photon-path.com

PHOTON VENTURES

DEEP TECH FUND for INTEGRATED PHOTONICS

PhotonVentures is a deep tech venture capital firm, purely focused on the key enabling technology of integrated photonics. As a spin-off and strategic partner of PhotonDelta, the European hub for the integrated photonics industry, they have in-house expertise that gives them a thorough understanding of the industry's success drivers and value inflection points. This allows them to identify and invest capital, time, and network into Europe's best integrated photonics companies. www.photonventures.vc

PhotonX Networks

PhotonX Networks is a start-up company that is developing innovative optical data center solutions. As a spin-off from the Eindhoven University of Technology, we have a tight collaboration with groups at the very edge of the technological frontier. This is enabling us, in collaboration with the University of Technology, to design and develop the integration platforms needed for next-generation data center components using our proprietary technology. We are currently looking to engage with companies seeking to create high performance and cost effective packaging solutions for optical engine engines for emerging 800 and 1,600 Gb/sec Datacomm transceivers solutions and beyond. www.photonxnetworks.com

PHOTOSYNTHETIC

Photosynthetic is a start up based in Amsterdam, The Netherlands. We are working on a new technology that will enable rapid prototyping for micro-optics, microfluidics, microsensors and other microscale applications. By exploiting advanced computational methods in combination with single-photon polymerization, we are aiming to reduce prototype fabrication times from days to hours, allowing faster design iterations, and perhaps even providing the possibility for a medium sized production. In a nutshell, we are creating a polymer-based 3D printer capable of generating 3D structures with sub-micron resolution at unprecedented speed. www.photosynthetic.nl

PI

PI (Physik Instrumente) with headquarters in Karlsruhe, Germany, in the past five decades has become the leading manufacturer of nanopositioning systems with accuracies in the nanometer range. With four company sites in Germany and fifteen sales and service offices abroad, the privately managed company operates globally. Over 1500 highly qualified employees around the world enable the PI Group to meet almost any requirement in the field of innovative precision positioning technology. All key technologies are developed in-house. This allows the company to control every step of the process, from design right down to shipment: precision mechanics and electronics as well as position sensors. The required piezoceramic elements are manufactured by its subsidiary PI Ceramic in Lederhose, Germany, one of the global leaders for piezo actuator and sensor products. PI miCos GmbH in Eschbach near Freiburg, Germany, is a specialist for positioning systems for ultrahigh

vacuum applications as well as parallel-kinematic positioning systems with six degrees of freedom and custom-made designs. www.pi.ws

PiBond

PiBond is a specialty materials company that focuses on the development and manufacturing of advanced materials for semiconductor, optoelectronic and photonic applications. The three technology platforms that form the offering by PiBond consist of dielectric materials, lithography materials and clear silicone adhesives. Specific applications for dielectrics include semiconductor back-end dielectrics, photo-dielectrics, and optical dielectrics with wide range of refractive indexes. Our advanced lithography products consist of silicon- and carbon-based underlayer materials, silicon photoresists, and auxiliaries. The silicone adhesives are designed for display and lens applications. The company is ISO 9001/14001 certified and has a +10-year successful track record in global supply to the market. All products manufactured in our clean room meet the most stringent technical and quality requirements, and have been adopted in latest the electronic devices, security cameras and automobiles. www.pibond.com

PICadvanced

PICAdvanced founded in 2014, PICadvanced is a Portuguese startup specialized in solving complex problems through the development and packaging of optical components based in integrated circuits. PICadvanced defined the photonic integrated circuits as the key for the innovation and challenge for the telecommunication industry. Currently PICadvanced is focused on development of NG-PON2 technologies based on both discrete and integrated optics. PICadvanced is the leader of the research project HeatIT funded by P2020 program. HeatIT main goal is to develop a line of transceivers for NG-PON2 based on photonic integration. PICadvanced is also part of the consortium of the H2020 project TERRANOVA that researches technologies for beyond 5G. www.picadvanced.com

PicoLAS

FOCUSSING POWER TO THE POINT

PicoLAS is headquartered in Würselen, Germany. We are specialized in the development and manufacturing of drivers for diode lasers. Our OEM drivers provide pulse durations from 200 ps to cw with currents of up to 2000 A. Our R&D team also develops customized drivers in close cooperation with the customers to fulfill individual requirements. www.picolas.de

PICOPHOTONICS

Picophotonics Ltd addresses the need for compact and cost-effective laser sources delivering high energy short optical pulses at high repetition rates. Using a proprietary Q-switched microchip laser platform, our lasers deliver a unique combination of output parameters, with pulse duration ranging below 100 ps to > 1 ns domain, and repetition rate from tens of kHz to MHz range. Using an integrated amplifier, the average power can be

scaled-up to W-level. Owing to the high peak-power features, the infrared laser can be efficiently converted to generate high energy pulses at visible wavelengths. The performance of the current product lines is tailored to emerging applications, such as time-gated RAMAN spectroscopy, eye-safe LIDAR system, or photoacoustic microscopy. www.picophotonics.com

pi imaging

Pi Imaging Technology is fundamentally changing the way we detect light. We do that by creating photon-counting arrays with the highest sensitivity and lowest noise. We enable our partners to introduce innovative products. The end-users of these products perform cutting-edge science, develop better products and services in life science and quantum information. Pi Imaging Technology bases its technology on 7 years of dedicated work at TU Delft and EPFL and 6 patent applications. The core of it is a single-photon avalanche diode (SPAD) designed in standard semiconductor technology. This enables our photon-counting arrays to have an unlimited number of pixels and adaptable architectures. www.piimaging.com

LIGHTING

Pi Lighting is specialized in device and system modelling for the Lighting and Photonics industry, on the forefront of the most advanced modern Research.We provide customized solutions and tools to companies developing high end products with “exotic” specifications, and automation of such solutions. www.pi-lighting.com

€ Funded Research Projects Experience

- Delphi4LED: develop a standardized method to create multi-domain (thermal-optical-electrical) LED based design and simulation tools for the solid-state lighting industry
- AI-Twilight: AI powered Digital twin for lighting infrastructure in the context of front-end Industry 4.0

Pilot PHOTONICS

Pilot Photonics offers unique optical comb source and photonic integrated circuit solutions that it develops as a platform technology applicable to many markets including communication, spectroscopy, sensing, and metrology. Since its foundation in 2011, the company has been developing deep IPR around optical comb generation. Headquartered at Invent, a state of the art Innovation and Enterprise Centre located on the Dublin City University campus in Dublin, Ireland, Pilot Photonics has, through technology development and licensing, a deep portfolio of patents and know-how to several important patents in this field and based on these delivers the world’s most versatile optical comb sources. Our sources provide a highly stable comb of coherent low linewidth wavelengths. By monolithically integrating these with additional components, such as, filters, splitters and

couplers, we can produce dedicated and unique solutions for use in a multitude of applications. www.pilotphotonics.com

PISEO is a platform of industrial innovation specialized in the design and characterization of illumination, detection and imaging systems integrating advanced photonic technologies (LED, VCSEL, laser diodes, spectrometers, image sensors, lidar, phosphors, optical materials ...). Endowed with a strong industrial crop, we support companies of all business sectors (automotive, aeronautics, railways, healthcare, imaging and machine vision, security & defence, general lighting…) in their efforts to innovate and improve their operating margins. www.piseo.fr

Pixel Photonics builds scalable, high-performance single-photon detectors based on superconducting nanowires integrated with nanophotonic waveguides. With their unique technology, PIXEL Photonics combines single-photon detection and integrated photonics, allowing for a higher integration level and paving the way for novel quantum applications. Unlike other approaches, their technology is inherently scalable and satisfies the requirements of quantum optics applications. PIXEL Photonics delivers highly parallelized, efficient and ultra-fast single-photon detection that drives research in many areas from imaging to quantum cryptography. As part of the QuNet+RECONNAITRE and the QSAMIS project, PIXEL Photonics is developing low complexity, highly efficient turn-key quantum receiver systems for high-speed QKD. www.pixelphotonics.com

€ Funded Research Projects Experience

- QSAMIS: High-Performance Detector Technology Quantum Communication
- QuNet+ RECONNAITRE : Complexity-optimized quantum receiver with free-space interface

PlanOpSim are experts in meta-lens software. We develop single workflow design software for planar and meta-optics. PlanOpSim unites the design of planar optics into an easy-to-use meta-lens software tool. PlanOpSim software integrates the different stages of designing metasurface and planar optics components. Multiscale simulations are used to efficiently model from the nano- to the macro scale. Full wave solution of nano-structures seamlessly integrated to fourier optics for large components. Easy interaction with ray-tracing and manufacturing files for system integration. Next to that PlanOpSim offers meta-surface design and R&D as a service. PlanOpSim's primary expertise is numerical modelling and design of photonics and optical components. With a unified workflow, meta-surface design with PlanOpSim gets rid of gluing together different tools. Available on the cloud or in a local version. www.planopsim.com

Plasma-Therm is a U.S. manufacturer of advanced plasma-processing equipment, providing etch, deposition, and plasma dicing technologies used in semiconductor packaging, solid-state lighting, power, data storage, renewable energy, MEMS, nanotechnology, photonics, and wireless communication markets. Plasma-Therm's VERSALINE platform is the workhorse for a variety of applications in specialty semiconductor markets. The platform's modular design allows flexible configuration of substrate handling and technologies that address the wide range of customer requirements. Plasma-Therm's Singulator® systems bring the precision and speed of plasma dicing to chip-packaging applications. Manufacturers, academic and governmental institutions depend on Plasma-Therm equipment, designed with "lab-to-fab" flexibility to meet the requirements of both R&D and volume production. Plasma-Therm's products have been adopted globally and have earned their reputation for value, reliability, and world-class support. www.plasmatherm.com

INNOVATIVE OPTICAL SYSTEMS

PLX is a major innovator and leader in monolithic optics, providing solutions to fit the demands of a new generation of optical requirements for the Defense, Aerospace, Commercial and Scientific organizations. From a fabricator of conventional system optics to a system integrator, PLX provides high-quality optical assemblies that maintain their integrity and accuracy over time, as well as withstanding harsh operating conditions. PLX clients include some of the world's leading space and defense contractors as was as laboratories around the world. PLX's proprietary Monolithic Optical Structure Technology (M.O.S.T.tm), integrates complex optical elements into compact monolithic structures, achieving exceptional accuracy and stability under sever environmental conditions. Some applications where PLX products are used are in metrology, boresighting, beam delivery/steering, long path spectroscopy, interferometry, machinery and optical alignment as well as LiDAR where miniaturization techniques are utilized. PLX Inc. is located at 40 W. Jefryn Blvd. Deer Park, NY 11729 USA. www.plxinc.com

PODIUM
PHOTONICS ASSEMBLY CONSORTIUM

PODIUM is a Photonics Assembly Consortium, a unique ecosystem to accelerate and standardize the packaging of integrated photonics. The name PODIUM refers to PIC Open Development Infrastructure for Universal Markets. The consortium from Chip Integration Technology Center (CITC), Tegema, PI (Physik Instrumente) and PHIX runs a program in which optical termination technology, assembly and packaging is developed for a wide range of integrated photonic applications.

- Tegema's machine platform is used for integration of a wide range of motion, process and handling modules.

- The machine platform uses state of the art motion hardware and firmware of Physik Instrumente (PI) which enables ultra-high motion precision and active optical alignment routines.
- Optimized packaging solutions are likely to be transferred to PHIX, offering optical assembly services.
- As joint innovation center Chip Integration Technology Center (CITC) combines electrical and optical package know-how of the partners involved to create an innovation in the field of photonics packaging to support, develop and evaluate equipment, processes, standardization and new technologies.

PODIUM helps customers to optimize their packaging solution, from package design to mass production. www.citc.org/photonics-assembly-consortium-podium

POLARITON TECHNOLOGIES

Polariton Technologies builds the fastest and smallest electro-optic modulators. Our plasmonics modulators demonstrated to be more than 10-times faster than state-of-the-art photonic modulators (500 GHz world record in the lab). At the same time, the modulators are 100-times more compact, more energy-efficient, and potentially cheaper in production. These world-records are enabled by Polariton Technologies' plasmonic modulator technology. www.polariton.ch

POLARUS

Polarus is an advanced picosecond laser manufacturer from Russia. Polarus, one of Technospark's laser cluster companies, is located in Troitsk, city, which is known as a "Russian laser capital". We have been producing picosecond lasers since 2013. Since then, we have gone from the R&D stage to small-scale production. Polarus provides customers with picosecond, high-power, fiber laser, produced with highly doped optical fiber, making it possible to process even particularly brittle materials. Due to special technology and mastership of engineers, Polarus laser is 40% cheaper than its analogues and the operational costs are two times lower in comparison with other picosecond lasers in a laser market. We have now started the stage of planning large-scale production of PL70 in China. www.polaruslaser.ru

Polish Centre for Photonics and Fiber Optics

Polish Center of Photonics and Fiber Optics (PCFS) - coordinator of the Polish Cluster od Photonics and Fiber Optics - was established to conduct scientific and research activity, in particular to conduct scientific research and development works and to disseminate the results of this activity, with particular emphasis on activities for the development of fiber optic technologies, including photonic fibers. The Center is also active in the following areas: youth education and promotion of photonics achievements, cooperation between science and industry, commercialization of knowledge, support of enterprises and scientists as well as dialogue with representatives of authorities and institutions. Polish Cluster of Photonics and Fiber Optics mission is to create an innovation ecosystem for the development of

companies in the photonic industry in Poland, to establish the necessary international cooperation and to achieve the common goals of cluster participants. www.pcfs.org.pl

POLITECNICO MILANO 1863

Politecnico di Milano is a scientific-technological university which trains engineers, architects and industrial designers. The University has always focused on the quality and innovation of its teaching and research, developing a fruitful relationship with business and productive world by means of experimental research and technological transfer. Research has always been linked to didactics and it is a priority commitment which has allowed Politecnico Milano to achieve high quality results at an international level as to join the university to the business world. Research constitutes a parallel path to that formed by cooperation and alliances with the industrial system. www.polimi.it

POLITECNICO DI TORINO

Politecnico di Torino (POLITO) - founded more than 160 years ago, 35000 students enrolled - is one of the most prestigious public institutions for education, research, technological transfer and services in all sectors of architecture and engineering. Polito, with over 160 H2020 funded projects and 50 partnership agreements with large international enterprises, is a “Research University” that is particularly focused on the balanced development of fundamental and applied research. Photonics is mainly addressed by groups belonging to the Department of Electronics and Telecommunications (DET) and to the Department of Applied Science and Technology (DISAT). These groups have a long experience in developing materials and technological solutions for photonic applications ranging from communications, to materials processing, to biomedicine and to environmental sensing. www.polito.it

POLYGON PHYSICS

Polygon Physics designs and produces charged particle or plasma sources as well as complete systems for vacuum surface engineering applications such as ion beam sputter deposition (including co-evaporation thin film deposition), surface nano-structuring, large area ion beam figuring, electron beam or ion implantation. We are specialized in ultra-compact ultra-low power ECR technology. This technology enables stable and reliable plasma, ion or electron beams and beam arrays of any size and shape. Due to the filament-less design of our products also reactive gases (e.g. oxygen) can be used and the maintenance is very low. We can offer from a very cost-effective version to very specific versions matched to the power requirement of the user. www.polygonphysics.com

Posalux, founded in 1943, is a privately owned Swiss company with 100 employees located in Biel/Bienne and worldwide service and sales network with subsidiaries and independent agents. Posalux is a leading manufacturer of micro-machining solutions for mass production, based on three different technologies: Femto Laser, Electro-Erosion and Mechanical Machining. Main markets are automotive and electronics, followed by special applications for watch, medical and other industrial solutions. www.posalux.com

PowerPhotonic is a global leader in the design and manufacture of precision freeform fused silica micro-optics. Our business was founded with the objective of providing unsurpassed excellence in all aspects of micro-optics product realization for laser applications. Our world-class design skills are supported by an innovative and flexible manufacturing process that allows the company to design both a broad range of state-of-the art industry standard laser micro-optics products and, uniquely, to offer a low-cost rapid fabrication service for creating completely freeform optical surfaces. www.powerphotonic.com

Precisement is a design house for customized semiconductor and optoelectronics packaging equipment. Precisement excels in both precision robotics and laser processing solutions. We address the market needs for advanced packaging solutions required for emerging deep-tech. Precisement and its partners in EU and Taiwan offer both R&D tools and production equipment. www.precisement-ltd.com

Precitec Group is the worldwide innovation and market leader in the development and manufacture of components and system solutions in the field of laser technology and optical metrology. The challenges of our customers spur us on every day. Great changes are driven by technology. And technologies change the world. Our passion is to make the almost limitless possibilities of our fields of technology available to industry. As a value-oriented family business, our focus is on sustainable and independent development. www.precitec.com

Prima Electro is a Contract Electronics Manufacturing company based in Italy that designs and produces a Turnkey Service including boards, inverters, drives, UPS's, converters and

complete control units for industrial and rail applications. Prima Electro is a full-service technology company and a leading player in the embedded product market, with a strong know-how in industrial, transports & energy markets. DOTS electronics (Dedicated-Off-The-Shelf) is the business model of Prima Electro, aiming to provide “dedicated” products tailored to customer’s specifications, requirements and applications, but with the same industrialisation level as any standard commercial product. It is a business model that combines the ability to offer dedicated solutions with a fast time-to-market and competitive costs. www.primaelectro.com

PRIMES

PRIMES is a leading high-tech supplier of laser beam diagnostics and supports its customers worldwide. For more than 30 years, PRIMES has been developing and manufacturing systems for the characterization of industrial laser beams for use in the automotive industry, plant engineering, additive manufacturing, R & D and laser manufacturing. The owner-managed company, located in the Rhein-Main area, has about 135 employees. Worldwide sales are handled by a subsidiary in Japan and an international network of distributors. www.primes.de

PRODRIVE TECHNOLOGIES

Prodrive Technologies develops, manufactures and supplies innovative Electronics, Software, Mechanics & Optical solutions for multiple markets. Our company was founded in 1993 by technical professionals from the Eindhoven University of Technology. Since then every year has shown a steep growth rate due to a very successful business concept. We have sales offices over the globe and manufacturing facilities in the Netherlands (Eindhoven), China (Suzhou) and America (Planned 2018).
www.prodrive-technologies.com

PROFACTOR®

PROFACTOR is an applied research company with headquarters in Steyr and Vienna. The company conducts applied production research in the field of industrial assistive systems and additive micro/nano manufacturing. PROFACTOR acts as an interface between science and business. In more than 1,700 projects, PROFACTOR have demonstrated what can be created with applied production research: Innovation. PROFACTOR enables you to be a step ahead and work to ensure Europe’s continued industrial prosperity. With a team consisting of 75 employees from 15 academic fields and working across disciplines to find solutions for the manufacturing industry, PROFACTOR sets standards in robotics, image processing, simulation, and functional surfaces and nanostructures. www.profactor.at

PROFOUND CORPORATE RECRUITMENT

ProFound Corporate Recruitment is a niche Recruitment Company. Companies outsource (part of) their recruitment process to Profound so we become strategic partners. This means

that we help our customers translating their business strategy into a long-term recruitment strategy first and develop a short-term operational recruitment plan afterwards. Next, we execute this recruitment plan as a member of our customers' HR organization. This means Profound takes full control of your recruitment process and fill all your positions against reduced time & cost! The global labor market of today requires a Pro-Active Recruitment approach. Especially within the EPIC community, with many hard to fill positions, Profound believes that preparing for the "day after tomorrow" is needed to become and stay successful. Together with EPIC members we want to develop the ideal recruitment strategy based on expected industry developments and growth of your organization. We also execute recruitment scans (process, tools, people, KPIs) and describe the bottlenecks in your current recruitment process including writing recommendations to make improvements. This way you can focus on your company and your technology while Profound takes care of your Recruitment. www.profoundresources.nl

PROPHESEE
METAVISION FOR MACHINES

Prophesee is the inventor of the world's most advanced neuromorphic vision systems. Prophesee's patented sensors and AI algorithms, introduce a new computer vision paradigm based on how the human eye and brain work. Like the human vision, it sees events: essential, actionable motion information in the scene, not a succession of conventional images. This event-based method allows for unprecedented speed (>10 000fps), dynamic range (>120dB), data volume (10x to 1000x less) and power efficiency (<10 mW). Prophesee bio-inspired revolution opens a new path to absolute efficiency and safety in autonomous driving, IoT and Industry 4.0. www.prophesee.ai

€ Funded Research Projects Experience

- ECOMODE aims at developing and exploiting the quickly advancing biologically-inspired technology of event-driven sensing of audio-visual information, to realize a new generation of low-power multi-modal human-computer interface for mobile devices. The project is based on two main technology pillars: an air gesture control set and a vision-assisted speech recognition set. The final goal is to facilitate the access of ICT technology to visually impaired and the elderly people.
- ULPEC aims at developing advanced vision applications with ultra-low power requirements and ultra-low latency. The output of the ULPEC project is a demonstrator connecting a neuromorphic event-based camera to a high speed ultra-low power consumption asynchronous visual data processing system (Spiking Neural Network with memristive synapses) for ADAS and AD applications.

PROSPECTIVE

Prospective Instruments develops and manufactures photonic-based multi-modal imaging solutions for research and clinical diagnostics. www.p-inst.com

PROUD is a deep-tech and purpose-driven company based on the production of high-quality CVD lab-grown diamonds. Thanks to the exceptional physical properties of our PROUD diamonds, we provide customized solutions to a wide range of application, from photonics and power electronics to medical devices and quantum sensors. www.proud-technology.ch

PROXIMION

Proximion is developing and manufacturing high-end FBG-based products and systems. Special focus is complete fiber optic sensor systems for harsh environments. Starting in 1998 Proximion to date designs and manufactures the world's longest continuous and most complex FBGs. Proximion is a fully owned subsidiary to Hexatronic Group, publicly traded at NASDAQ. www.proximion.com, www.hexatronicgroup.com

€ Funded Research Projects Experience

- EO-Net: Novel networking concept based on "elasticity" for improved utilization of resources in WDM optical networks
- SENDATE-Ficus: Flexible infrastructure for data center communication providing unique security

PSC Technologies
Pure Silicon Carbide

PSC Technologies, a start-up specialising in silicon carbide based in Berlin, has developed processes for direct 3D-printing of silicon carbide alloys. PSC-SiC is massive, non-porous material with customisable properties in arbitrary forms produced from proprietary precursors. PSC was founded in 2015 for translating decades of basic research by Prof. Greulich-Weber into widespread industrial application. PSC-SiC overcomes the hurdles that until now limited the use of the well-known outstanding mechanical, thermal and semiconductor properties of SiC. Photonics is one of many sectors where it may find widespread application. PSC is essentially a service company developing processes and materials, offering small series production and later leasing of specialised 3D-printing machines. www.psc-tec.com

pureLiFi

PureLifi is a world leader in LiFi innovation and commercialisation and works broadly to drive adoption of light communication for mobile wireless connectivity. Our vision is to see LiFi in every light and every device connecting everyone and everything. Imagine, billions of

connections powering billions of smart devices unlocking unprecedented productivity, autonomy and powering the next generation of high-bandwidth disruptive applications such as AI, AR, and edge computing. Imagine LiFi. With deployments of our technology in 23 countries, LiFi is already solving connectivity challenges of numerous sectors including industry 4.0, oil and gas, defense and the medical industry. www.purelifi.com

Q.ANT is a high-tech startup, founded in 2018 and part of the TRUMPF Group. Q.ANT's vision is to improve the quality of how machines analyze their environment, how humans process information, and how we think. To reach this vision, Q.ANT develops quantum sensors and quantum computing chips based on its Quantum Photonic Framework. Focusing on its four product lines of Photonic Computing, Particle Metrology, Atomic Gyroscopes and Magnetic Sensing, the company engages with a broad array of industries and applications ranging from medical technology and autonomous vehicles to aerospace and chemical engineering. Q.ANT employs more than 60 people at its site in Stuttgart. www.qant.de

Qioptiq is a proud member company of Excelitas Technologies since 2013. It is a photonics technology leader focused on delivering innovative, market-driven solutions to meet the high-performance lighting, detection and optical technology needs of today's global markets. We are committed in enabling our customers' success in applications across the fields of biotechnology, consumer products, defense & aerospace, medicine, scientific discovery, safety & security, automotive, energy & environment, semiconductor and industrial manufacturing. Excelitas maintains 19 state-of-the-art photonics technology centers across North America, Europe and Asia. We provide extensive photonic design, engineering, prototyping and manufacturing services to deliver sophisticated discrete components, complex photonic subassemblies, and complete turnkey systems. www.excelitas.com and www.qioptiq.com.

QiOVA is a French high-tech company specialized in the field of laser and photonics. Our team has been pioneering the development of digital optical technologies for industrial laser applications since 2011. QiOVA designs innovative laser material processing solutions, leveraging the patented multibeam technology powering our product line VULQ1 to uniquely

combine superior precision and throughput. We offer unique multibeam laser marking solutions to enable individual product traceability. Applications encompass anti-counterfeiting, customer engagement, brand protection or tracking and tracing. We are also active in the micromachining space, where our multibeam technology is applied to scale up productivity of fine processing like surface texturing or micro-drilling. Our team proudly enable the manufacturing of positive innovation products in sectors as varied as industry, packaging, medical and luxury goods. www.qiova.fr

QNA Technology was established in December 2016. Its founders and leaders are Artur Podhorodecki, Associate Professor, Eng and Mateusz Bański, PhD, Eng. We specialise in synthesis, characterisation and functionalisation of semiconductor quantum dots – the nanostructures with the potential to revolutionise a number of market sectors, such as production of displays or photovoltaics. At the same time, thanks to the globally unique flow synthesis technology, we are able to meet the requirements of manufacturers by providing industrial quantities of nanostructures with top quality physical and chemical parameters. www.qnatechnology.com

QS LASERS is a manufacturer of sub-nanosecond diode pumped lasers. Since the beginning main activity of QS LASERS includes development, production and sales of lasers and laser systems. Company is specialized in production of advanced short pulse DPSS, passive and active Q-switched air cooled lasers. The choice of different wavelengths (1064 nm, 1053 nm, 1030 nm, 1342 nm, 671 nm, 447 nm, 914 nm, etc.) is widely used in applications like scientific research, medical equipment manufacturing, precision measurement, radar communication, material processing, process control, online detection and many other fields. www.qslasers.com

Quantum Telecommunications Italy

QTI s.r.l., is the first Italian quantum key distribution (QKD) company, providing industrial grade systems and products for quantum networks. It is a young Italian start-up founded in October 2020 that engineers, develops, and produces reconfigurable QKD systems for telecom operators and private/government/defence market sectors. The company offers fully made in Italy products and solutions, designed, and developed with proprietary skills and expertise using a strategic European supply chain. Part of QTI shares is owned by Telsy S.p.A., part of the TIM (Telecom Italia) Group. www.qticompany.com

QUANDELA is a startup founded in 2017 in the region of Paris – Saclay that commercializes efficient quantum light sources. Based on a disruptive technology developed in the Centre for Nanoscience and Nanotechnology (CNRS – Univ. Paris Sud), these sources are building blocks for the development of quantum technologies (from computers to networks). Quandela is one of the first worldwide providers of efficient components to the actors of the second quantum revolution. www.quandela.com

QUANT-X SECURITY & CODING

Quant-X Security & Coding GmbH is an SME that offers consulting and solutions for complex digital challenges. Our services include:

- Management and coordination of information security projects
- Analyses of infrastructures, systems and protocols
- Software implementation

In photonics, we offer Quantum device security proofs and evidence as well as Quantum algorithm design and implementation. Our extensive experience in classical information security projects of strictly regulated organizations enables us to consider all relevant aspects of a quantum component in a classical infrastructure. www.quant-x-sec.com

Quantifi Photonics is transforming the world of photonics test and measurement. Our deep expertise in harnessing, manipulating and measuring the physical properties of light enables us to solve complex test and measurement challenges across a broad range of applications and industries. Through close collaboration with our partners Tektronix and National Instruments, we offer fully-integrated and turn-key test systems across coherent optical communicate ons, transceiver testing, and hypervelocity measurement, and also providing a broad range of photonics test and measurement instruments for the test bench or optics lab. www.quantifiphotonics.com

QuantLase Laboratory is a research and innovation laboratory focused on developing sustainable solutions. They have introduced a scientific breakthrough of a rapid coronavirus

laser testing technology, which uses an appealing and user-friendly technique called Diffractive Phase Interferometry (DPI). Compared to other tests, DPI can give a signature of the infection within a few seconds. The research is solidly based on deformational changes in the virus-infected blood cell structure. www.quantlaselab.com

QuantLR is about to provide versatile low-cost quantum cryptographic solutions based on quantum key distribution (QKD) technology to protect communicated data. This solution is proven to provide ultimate, for life security from any attack by contemporary or future, classical or quantum based computers.With top experts in Quantum Technology QuantLR presents a major breakthrough in QKD technology that will enable mass deployment of this ultimately secure solution. www.quantlr.com

Quantum Effects is a trade fair and conference for application-oriented quantum technologies with international impact. The four pillars of the trade fair are Computing&Enabling Technologies, Software, Sensing and Communication. With this broad offer, Quantum Effects is a novum in the trade fair industry, because it covers all relevant fields of applications and brings together different industries and branches. Quantum Effects helps to design and develop a comprehensive European ecosystem for quantum technologies in close cooperation with industry, science, politics and the relevant networks and investors. Find out more about the Quantum Effects in Stuttgart, with its exhibition, high class stage program, the Quantum Effects Award and Academy and much more at this website: www.messe-stuttgart.de

Quantum Optics Jena believes that quantum technology allows us to achieve more: more confidence in data security via quantum communication; more insights into matter and biology via imaging and sensing; more information processing capacity in quantum computing and machine learning. Our goal is to be part of the upcoming quantum revolution and deliver customized advanced photon sources and quantum optical systems. Building on decades of research experience at renowned quantum science institutes as well as the multi-faceted interface between applied science and industry in the fields of precision optics, mechanics and opto-electronics, we are looking forward providing innovative quantum optical solutions with outstanding performance for secure communication, as well as biomedical imaging and the scientific community. www.qo-jena.com

Quantum Valley Ideas Lab is a specialised advanced technology research centre with a focus on the commercialisation of quantum technologies. We bridge the gap between academic labs and industry to accelerate the research and development of the most promising quantum technologies as the basis for exciting new products and businesses. www.qvideaslab.ca

Quantune Technologies is a Berlin-based start-up focused on biomedical sensors based on mid-infrared lasers. Quantune Technologies develops Tunable QCL-based Micro Spectrometers for Industrial and Medical Applications. www.quantune.com

QubeDot GmbH develops and manufactures microLEDs and microLED-displays based on the InGaN material system for particularly high optical performance and switching speeds. Based on the knowledge of several years of research, we offer our worldwide customers and partners customized microLED solutions – made in Germany. QubeDot's core competency is its expertise in InGaN-based custom microLED solutions - starting with fully comprehensive consulting, design of lithography mask and processing in the fab. Our technology is used for various applications in industries such as metrology, machine vision, integrated circuits, biology, optogenetics and microscopy. QubeDot offers solutions for many interesting applications in the field of microLEDs which, in addition to the small emitter sizes, also require small batches - at least for the market launch. Already in this early project phase, we support – and like to find together with our customers the best possible solution for the use of our microLEDs. www.qubedot.com

QuiX Quatum is the European market leader for quantum computing hardware based on photonics. They are building the first Universal Quantum Computer based on photonics in Europe for the German Aerospace Center (DLR) and will soon offer cloud computing. The core technology is based on their commercialized market-leading, award-winning product (Prism Award 2023 for Quantum Tech category): the Quantum Photonic Processor. QuiX Quantum is a rapid-growing startup since 2019, with 4 offices in Europe, and have customers worldwide. www.quixquantum.com

Quside designs and manufacture quantum components for all connected devices. Using our proprietary quantum random number generator, we are enabling the transition to future-proven encryption solutions, enhancing cybersecurity across any device. The Quside team specializes in the development of scalable quantum components for the cybersecurity and computing markets, making use of photonic technologies, photonic integrated circuit technologies and electronics. www.quside.com

QustomDot

QustomDot is a newly founded spin-off company of Ghent University. It's QustomDot's mission to realize the full potential of quantum dots (QDs) by providing customized solutions for next-generation applications. More specific, QustomDot develops RoHS compliant quantum dots for downconversion and IR sensing/imaging. QustomDot will apply QDs directly on the LED chip, which is crucial for applications such as lighting, miniLED walls or microLED
displays. QustomDot also assists its customers in the integration of these materials in devices. www.qustomdot.com

QuTech

QuTech is the advanced research center for Quantum Computing and Quantum Internet, a collaboration founded in 2014 by Delft University of Technology (TU Delft) and the Netherlands Organisation for Applied Scientific Research (TNO). Within TU Delft, both the Faculty of Applied Sciences (AS) and the Faculty of Electrical Engineering, Mathematics and Computer Sciences (EEMCS) are involved in QuTech. Within TNO, the departments Quantum Technology, Radar Technology, Optics, Optomechatronics, Nano Instrumentation and Distributed Sensor Systems contribute to QuTech. QuTech aims to develop scalable prototypes of a quantum computer and inherently safe quantum internet based on superposition and entanglement, by bringing world-class scientists, engineers, and industry together in an inspiring environment. www.qutech.nl

RABUS.TECH has been founded to fill a gap in the rapidly changing technology world where product development cycles are getting shorter and disruptive technologies are readily available. In order to use the extensive know-how of your company’s infrastructure, the role of RABUS.TECH is to facilitate, educate, manage and introduce new technologies into your products, solutions and services. www.rabus.tech

Refined Laser Systems is a high-tech startup from the University of Muenster (Germany). Refined's patented fiber-based tunable picosecond laser technology features a fast switching speed and robustness of the systems, which, in addition to a high level of automation, offers a real technological advantage over existing systems. This technology enables various new applications of nonlinear microscopy in life science and diagnostics. www.refined-lasers.com

RefleKron is a premier provider of customized semiconductor saturable absorber mirrors (SESAMs). Every laser needs a unique SESAM for optimal performance, repeatability and long lifetimes. We address this need with a full product qualification cycle ensuring stable supply for volume production of pulsed laser systems. We offer a unique combination of semiconductor technology expertise, in-house epitaxy, SESAM design and characterization, and extensive knowledge in laser physics gained since our establishment in 2004. Our technology enables to develop SESAMs for both mode-locking and Q-switching applications, covering a wavelength range from 0.6 µm to 3 µm. www.reflekron.com

Renault Group: Our spirit of innovation takes mobility further to bring people closer. When you think of Renault Group you probably think about iconic cars, an international company bolstered by a unique Alliance with Nissan and Mitsubishi Motors, a presence in Formula 1 and futuristic concepts. But do you know what goes on behind the scenes in this unique human and industrial adventure? More than 111 000 employees in 38 countries propelled by a single driving force: passion. Where does this energy come from? From our shared mission: providing sustainable mobility to all around the world. The group is composed of 4 brands: RENAULT, a historic mobility brand and leader of electric vehicles in Europe, DACIA, a brand offering you the right value for money, ALPINE, a dedicated brand to innovative, authentic, and exclusive sportscars, benefiting from engineering mastery from the Formula 1. MOBILIZE, a new brand for intuitive mobility solutions that simplify daily life and that help drive the energy transition. www.renault.com

Renevo Capital is focused on delivering corporate finance advisory services to the "digital stack". This comprises the Materials, Process, Electronics, Photonics and semiconductor industries, along with Communications, Software, and Internet Services industries. Our

technical strengths and expertise generate the most value to companies with high growth potential in advanced technology industries, who are looking to capitalise on their potential. www.renevocap.com

HEINZ NIXDORF INSTITUT
Universität Paderborn

The Research Group System and Circuit Technology of University Paderborn and Heinz Nixdorf Institute in Paderborn works on nano-/microelectronic ICs for communications and sensing applications. Research is specifically focused on high-speed IC design for broadband communications (up to more than 100 Gbps) and wireless communications and sensing (up to 300 GHz), Silicon Photonics IC design, and mixed analog-digital IC design. We have access to cutting-edge semiconductor technologies (nano-meter CMOS, SiGe BiCMOS, silicon photonics). Our broadband / RF measurement lab allows for S-parameter measurements up to 125 GHz and digital signal measurement up to more than 100 Gb/s. www.hni.uni-paderborn.de

€ Funded Research Projects Experience

- BOOM (EU FP7)
- OptcialLink (Eurostars)
- 100GET (CELTIC)
- RF2THZ SISOC (Catrene)
- SUCCESS (EU FP7)
- OMEGA (EU FP7)

RhySearch
Das Forschungs- und Innovationszentrum Rheintal

RhySearch, the Research and Innovation Centre Rheintal, aims to promote research and innovation in high-tech areas. It is supported by the canton of St. Gallen and the Principality of Liechtenstein. To fulfil its mandate, RhySearch networks with existing research and educational institutions, forming a technology cluster that can manage large-scale research assignments and technology transfer. It also provides companies with a single contact point for comprehensive research and innovation support. In the area of applied research and development, RhySearch is currently focusing on the two focal points of optical coatings and precision manufacturing as well. www.rhysearch.ch

RIBER

RIBER S.A is the world's leading supplier of Molecular Beam Epitaxy (MBE) products and related services for the compound semiconductor research and industrial field. Riber MBE equipment is the most versatile and precise tool to deposit very thin layer of materials onto substrates with a very high control level. MBE technology is used to design and create the newest semiconductor structures for manufacturing of a wide range of novel devices, with the best performances. Riber equipment are key enablers to imagine and manufacture components of the future in various fields: power and RF electronics, lasers, IR detectors, displays, passivation, solar or emerging materials. More than products, RIBER provides solutions. www.riber.com

RIO is the leading global supplier of single frequency narrow linewidth lasers, modules, and subsystems to the fiber sensing, aerospace and defense, automotive LIDAR, renewable energy, security, oil and gas, and scientific markets. RIO's lasers have ultra-low noise, very narrow linewidth, unparalleled wavelength stability, small size, low power dissipation, Telecom grade lifetime reliability. www.rio-lasers.com

RISE Research Institutes of Sweden, Acreo is one of the leading research institutes in Europe within the fields of electronics, optics, communication techniques and sensor systems. We facilitate commercialization of research and collaborate with industry and academic partners. Types of assignments range from feasibility studies, long term research projects, prototyping, small scale production and verification/testing. One particular focus is Fiber Optics, where the R&D resources include fiber optic sensing and specialty optical fibers. www.ri.se/sv

€ Funded Research Projects Experience

- ALPHA: Architectures for fLexible Photonics Home and Access networks
- NoE PolyNet: Network of Excellence for the Exploitation of Organic and Large Area Electronics
- OASE: Optical Access Seamless Evolution
- COSYNET: Coherent optical transmission systems and their impact on 100G network design
- ALPHA: Architectures for fLexible Photonic Home and Access networks

Rivada Space Networks GmbH, founded in 2022 is a disruptive European company set to build and operate the first truly global low latency point-to-point connectivity network of LEO (Low-Earth-Orbit) satellites. Interconnecting its satellites with lasers, Rivada Space Networks will operate like an optical backbone in space. We provide ESP and B2B/B2G customers with the ability to securely connect any two points on the globe without touching other networks on ground or the internet. Ultra-low latency and high bandwidth will enable high-class connectivity services to any, including remote and underserved areas. Our constellation of 600 satellites will represent a fundamental upgrade in the availability of secure, global, end-to-end enterprise-grade connectivity. We will serve Telecom, Enterprise, Maritime, Energy, governmental customers, and other vertical markets. www.rivada.com/space

RiverD International develops and brings to market dedicated solutions for unmet diagnostic needs, based on in vivo and ex vivo Raman spectroscopic tissue analysis. RiverD's Raman microspectroscopy and fiber-optics technology platforms excel in sensitivity and reproducibility and are readily adaptable to meet the requirements of a particular application. The gen2-SCA family of in vivo skin analyzers provides unique insight into the molecular composition of the skin with high spatial resolution, and enables the study of skin penetration properties of topically applied materials. This technology is in use worldwide by personal care industry, pharmaceutical industry and university medical centers. RiverD's fiber-optic Raman technology aims for applications in guided (robotic/laparoscopic) surgery and guided biopsy. www.riverd.com

Robust AO GmbH (Robust Adaptive Optics) develops and sells fast Z-axes under the brand Zwobbel® for high speed laser material processing. The Zwobbel®, as a ready-to-use solution, can solve a crucial problem: the very slow z-axis positioning speed in high power laser processes. By using a novel optomechanical technology, the system is faster, more power stable and more compact than comparable products. The use of the Zwobbel® even enables new processing methods in the field of laser hardening, laser welding and laser cutting as well as the development of new processing fields in micro-structuring. We are also developing other professional fields for our high-power-capable Zwobbel®-technology in the fields of laser and quantum communication. www.robustao.de

Rockley Photonics is a fabless supplier of silicon photonics chipsets, IP, and design for high-volume optics applications. Rockley Photonics represents the commercialization of silicon photonics technology in its most exciting form yet. There is strong demand in the market for the speed and integration capabilities that silicon photonics can provide, and we aim to apply our experience to enable accelerated adoption of higher bandwidth networks for a faster and more productive internet experience. As a startup, we represent a unique multidisciplinary nature of team and culture. Rockley is focused on sales of chipsets plus customer-specific design of photonics chips and custom integrated packaged products. In this way, the company leverages its investment in photonics platform research and process development across broader market applications. The result is economies of scale that extend beyond applications in networking and data communications. www.rockleyphotonics.com

Rotonium is a startup founded in 2022 with headquarters in Italy. The ambition is to develop SWaP optimized Photonic Quantum Accelerators and Computers that can work anywhere and at room temperature. To achieve this result, Rotonium is pioneering a new approach to photonic qudits that allows a dramatic reduction in the photonic circuit complexity also simplifying the construction of the two-qubit gates. www.rotonium.com

RP Photonics offers advanced simulation and design software, technical consultancy, and last not least the most powerful digital marketing platform in photonics. The flagship software product is RP Fiber Power, the leading software for the fiber amplifier and laser design, including even ultrafast laser systems, and of course passive fiber optics. Other software products are suitable for laser resonator design, ultrashort pulse propagation and multilayer coating design. The RP Photonics website, containing the RP Photonics Encyclopedia and the RP Photonics Buyer's Guide, belongs to the most popular ones in photonics worldwide and functions as an effective digital marketplace, bringing together buyers and suppliers. www.rp-photonics.com

SABIC is a global leader in diversified chemicals headquartered in Riyadh, Saudi Arabia. It manufactures on a global scale in the Americas, Europe, Middle East and Asia Pacific, making distinctly different kinds of products: chemicals, commodity and high-performance plastics, agri-nutrients and metals. The company has more than 34,000 employees worldwide, an annual revenue of 39.9 bn US$ and operates in more than 50 countries, with innovation hubs in five key geographies – USA, Europe, Middle East, South East Asia and North East Asia.

SABIC's Specialties business produces highly differentiated products which include specialty engineering thermoplastic resins and compounds, composites, thermosets & additives, and additive manufacturing solutions. Offering a distinct set of multi-function physical properties to serve a wide range of industries, the branded portfolio includes ULTEM™ resins, LNP™ compounds, NORYL™ resins, LEXAN™ copolymers and EXTEM™ resins. SABIC also offers extensive material processing expertise, leveraging its product engineers and global application technology development centers. www.sabic.com

The SAES Group is a world leader in a variety of scientific and industrial applications where high/ultra-high vacuum conditions or pure metal vapors or ultra-pure gases are required. Starting in 2004 the Group has expanded its business into knowledge-intensive materials markets, in particular the market of NiTiNOL, whose super elastic properties are applied to medical devices while shape memory properties are applied in industrial and consumer electronics applications. For more than 70 years, our technology has been supporting innovation in the following sectors: i Information and Displays industry, ii Lamp industry, iii Vacuum and Ultra-high Vacuum applications, iv Vacuum tubes and electronic devices industry, v Ultra-high gas purification for Semiconductors, vi Renewable Energies area. Since 2004 our NiTi smart materials solutions have been innovating: i the Medical devices industry, ii the Consumer electronics industry, iii the Automotive industry, iv the White Goods and Domotic industries. The Group is also developing a wide range of advanced polymer-matrix composite materials for the encapsulation of OLED Displays, OLED Light Sources and other Organic Electronics and Organic Photonics devices. www.saesgroup.com

Santec is a dynamic, diverse and innovative company at the forefront of the optics industry. In its 40-year history, it has produced the world's first commercial tunable laser and is proud to be the largest manufacturer for test & measurement applications. Its swept-wavelength measurement system provides a fast, highly accurate measurement of insertion loss & PDL of waveguides and optical devices. Santec also has a dominant position in Optical Coherence Tomography (OCT). It develops OCT imaging systems for both medical and industrial applications and provides its swept-wavelength lasers on an OEM basis. Santec's laser products are complemented with high quality optical components such as tapped photo-detectors, variable attenuators, tunable filters and wavelength selective switches, which are used throughout the telecommunications industry and spatial light modulators based on reflective LCOS technology. www.santec.com

SCANLAB develops and manufactures high-performance galvanometer scanners and galvanometer-based scanning systems for the deflection and positioning of laser beams for more than 30 years. By precisely moving mirrors and optics, the products guide and position laser beams. With about 400 highly qualified and motivated employees and more than 35,000 scan solutions installed every year, SCANLAB has become the world-leading and independent OEM manufacturer of scan solutions. The products and systems are used for laser material processing (e.g. marking, welding, cutting, drilling, micro machining, additive and rapid manufacturing) and for medical and biomedical technology (e.g. ophthalmology, dermatology, confocal microscopy). The company offers solutions optimized for each of these highly varied markets and demanding applications. The product range includes high-performance galvanometer scanners, 2D- and 3D-scan heads, ultra-compact scan heads for

high-speed applications (more than 1,200 cps), complex scan solutions for USP and high-power lasers (multi-kW range), customized systems, vision solutions, advanced control electronics (also on-the-fly), laser processing software, laser optics and accessories. SCANLAB secures its international technology leadership through pioneering developments in electronics, mechanics and optics, as well as a trustful partnership with customers and laser technology users. www.scanlab.de

SCANTINEL® PHOTONICS
Scan | Detect | Navigate

Scantinel Photonics is a high-tech start-up developing next generation LiDAR technologies that show autonomous vehicles their way. At Scantinel, we believe that future long range, reliable LiDAR sensors will be based on coherent (FMCW) ranging and solid state scanning. Our Optical Enhanced Array (OPATM) scanning technology combines best in class silicon photonics with advanced optics, to deliver a high resolution 5D point cloud (xyz, velocity, reflectivity) with a range over 300m. The whole technology stack of Scantinel, including the integrated narrow line-width swept laser source, is fully based on CMOS compatible process technology, to ensure scalability for high volume manufacturing. www.scantinel.com

Schäfter + Kirchhoff
OPTICS, METROLOGY, AND PHOTONICS

Schäfter+Kirchhoff is based in Hamburg, Germany where they manufacture high-quality optical products delivered to customers all around the world. Founded over 60 years ago, Schäfter+Kirchhoff began with classical lens design and customized optical solutions. The focus has shifted gradually towards the current three product lines: polarization-maintaining fiber optics, laser lines and line scan cameras. A special focus is set on the winning combination of high optical and mechanical precision, which is the basis for the high-quality, stability and durability of their products. Schäfter+Kirchhoff is committed to providing the highest quality and reliability possible, a goal continuously improved by their quality control system. www.sukhamburg.com

SCHOTT
glass made of ideas

SCHOTT is a leading international technology group in the areas of specialty glass, glass-ceramics and related high-tech materials. With over 135 years of experience, the company is an innovative partner to many industries, including the home appliance, pharma, electronics, optics, life sciences, automotive and aviation industries. SCHOTT has a global presence with production sites and sales offices in 34 countries. In fiscal year 2020/2021, the Group generated sales of EUR 2.5 billion with its 17,000 employees. SCHOTT AG has its headquarters in Mainz (Germany) and is solely owned by the Carl Zeiss Foundation. This is one of the oldest private and largest science-promoting foundations in Germany. As a foundation company, SCHOTT assumes special responsibility for its employees, society and the environment. www.schott.com

Schott Primoceler helps our customers develop, manufacture and test hermetically sealed products. Our experience started in the medical device industry, where SCHOTT Primoceler's novel glass-to-glass bonding method solved issues in hermetic sealing of medical implants. From there, we worked with the Aerospace industry, where the advantages of our Glass Micro Bonding were verified and continuously tested. Furthermore, SCHOTT Primoceler offers manufacturing services. Quality assurance is at the center of all our processes and we have a wide range of expertise in hermeticity testing and reliability assurance. We can address even the most stringent demands. www.schott.com/primoceler

Schulz-Electronic is the leading provider of professional power supplies and laser diode drivers from watts to multi-kilowatts. Our portfolio includes laboratory units and OEM power supplies for pulsed to CW operation and QCW up to 1000 A, as well as custom driver developments for burn-in & OEM applications. Additionally, we offer rack integration and production of entire laser supply systems, including cooling and adaption to analog and digital customer PLC interfaces. www.schulz-electronic.de

SCIL Nanoimprint Solutions offers solutions for making nano-structures on wafers by using its unique and proprietary lithography technology (SCIL). These nano-structures are used on optics and other photonic products to increase performance, lower end-product costs and increase functionality. SCIL or Substrate Conformal Imprint Lithography is a cost effective, robust, high yield process enabling nanometer resolution patterns on a large variety of materials. SCIL delivers proven, high quality imprints on wafer areas up to 300 mm. It can be used to make patterns with feature sizes down to less than 10 nm and overlay alignment below 1 µm. SCIL Nanoimprint Solutions helps customers with optimized equipment, consumable materials and processes for high volume production in markets such as AR/VR glasses, MicroLEDs, Lasers, Metasurfaces, Wiregrid polarizers and many more. www.scil-nano.com

SCINTIL Photonics is a fabless company that develops silicon photonic integrated circuits. SCINTIL solutions combine the best of Silicon (Si) and Indium Phosphide (InP) materials using wafer-scale bonding of InP on Si and rely on commercial silicon foundry processes to

build fully integrated photonic circuits (comprising multi-wavelength lasers, waveguides, wavelength filters, and photodetectors). www.scintil-photonics.com

SCITODATE

Scitodate is the leading scientific market intelligence platform. Scitodate provides detailed and up-to-date actionable intelligence for your Sales operations, Product marketing and Product intelligence. We have created the biggest and most advanced Centralized Intelligence Unit for the scientific market. www.scitodate.com

SCIVAX

SCIVAX specializes in optical simulation and nanoimprint lithography. Their expertise led to the emergence and commercialization of two new types of lenses that surpass the performance of traditional DOEs. Branded as Ardisia® (dot projector) and Platanus® (diffuser), they offer a new way to sense the environment. No speckle, a long projection distance (target over 1 km), a wide illumination angle (160°) are the examples of unmatched features. Integrated to our Tx module, you can achieve high performance at low cost. They are an ideal choice for 3D sensing related applications such as ADAS (Flash-LiDAR, Driver Monitoring System), AR/VR, Industrial Automation and Biometrics recognition. www.scivax.com

INSTITUTE OF COMMUNICATION, INFORMATION AND PERCEPTION TECHNOLOGIES

Scuola Superiore Sant'Anna

Scuola Superiore Sant'Anna is a public university institute - with special autonomy - working in the field of applied sciences: Economics and Management, Law, Political Sciences, Agricultural Sciences and Plant Biotechnology, Medicine, and Industrial and Information Engineering. The Sant'Anna School of Advanced Studies aims at experimenting innovative paths in research and education. Professors and researchers live and interact with the students, day after day, enjoying a continuous cultural and intellectual exchange. Innovative ideas, which are then developed in collaboration with foreign universities, organizations, companies and research institutes, are generated here. Due to its international nature, education of excellence and scientific community, the Sant'Anna School of Advanced Studies established itself as a reference both in Italy and abroad. The Sant'Anna School of Advanced Studies is part of the EUA (European University Association) as an "individual full member". www.santannapisa.it

The Institute of Communication, Information and Perception Technologies: TeCIP has a research area focused on optical communications. The activity is carried out by around 70 people, and covers the full value chain, from component design and testing to system and network demonstrations. Among the research topics we have optical wireless communications, fiber-based sensors, all-optical signal processing, systems and subsystems for access networks, coherent systems for long-haul high speed; architectures of optical communication networks. TeCIP recently started also a group on design,

realization and testing of photonic integrated circuits. The institute has a long-term collaboration with Ericsson R&D and the Italian Interuniversity Consortium for Telecommunications (CNIT). It is active in several H2020 and ESA research projects. www.sssup.it

SEDI-ATI Fibres Optiques, bringing light to your customized, complex or extreme environment is our challenge! Since 1951, our mission is to design and build turn-key solutions to enable our customers to bring light in any environment, whatever their constraints are! SEDI-ATI offers achromatic multimode couplers, multimode wavelength division multiplexers, fiber optic hermetic feedthroughs, bundles & arrays, and medical probes. Our fiber assemblies are used in applications in extremely aggressive and hazardous environments such as those found in the oil and gas industry, in nuclear plants, in electric utilities, in the military and aerospace, or in the medical field. The applications of our products and solutions are as diverse as optical sensors, opto-pyrotechnics, cryogenics, or high-power lasers that can cut and weld steel. www.sedi-ati.com

SENKO Advanced Components develops, manufactures, markets and distributes hundreds of fibre optic products, providing solutions across the spectrum of fibre optic applications from FTTx, telecom and Datacom applications to broadcast and medical. They aim to be recognized as the global leader for interconnect solutions by providing our customers with the highest quality optical connectivity. The large team of design and manufacturing engineers are supported by test facilities in the US and China. These facilities ensure that products meet and exceed Telcordia and IEC standards. The technical team also benefit significantly from participation in working groups and forums in various industry standards bodies such as IEEE, IEC, INEMI as well fibre optic manufacturer associations like COBO, OSFP and QSFP-DD. www.senko.com

Senop's advanced night vision solutions enable situational awareness as well as increased firepower and mobility. Senop provides high-performance night vision devices, intelligent sensor technology-based solutions and demanding system integration services for both defence & security and industry & research needs. High-precision optics products and services tailored to customer needs and hyperspectral cameras representing the latest technology are also an important part of Senop's product offering for industry and research needs. Our high-tech products are designed, manufactured and tested to ensure uncompromising reliability even in the most extreme conditions. Currently, Senop operates in four locations in Finland and employs nearly 60 specialists. Senop is a part of the Patria Group. www.senop.fi

SENORICS is a start-up originating from the University of Technology Dresden commercializing an optical sensor solution for near-infrared (NIR) spectroscopy based on organic electronics. This proprietary technology allows low-cost and miniaturized NIR-spectroscopy integrated circuits with high performance. This has been proven by ZEISS, who is a strategic investor in SENORICS. SENORICS can deliver unique solutions for a multitude of measurement and detection problems in industrial applications. On top, for the first time, NIR-spectroscopy can be applied in consumer products because price and size fit the corresponding requirements. Even smartphone compatible integrated circuits are possible to positively impact everybody's life with material sensing. www.senorics.com

€ Funded Research Projects Experience

- ORGADETECT: Fully Organic NIR-photodetectors

SENSIRION

Sensirion, headquartered in Staefa, Switzerland, is a leading manufacturer of digital microsensors and systems. Founded in 1998 the company today employs people in countries such as the USA, South Korea, Japan, China, Taiwan, and Germany. The product range includes gas and liquid flow sensors, differential pressure sensors and environmental sensors for the measurement of humidity and temperature, volatile organic compounds (VOC), carbon dioxide (CO2), particulate matter (PM2.5) and formaldehyde. Sensirion sensors can commonly be found in the medical, industrial and automotive sectors, analytical instruments, consumer goods and HVAC products. One of the hallmark features of Sensirion products is the use of its patented CMOSens® Technology, which permits intelligent system integration of the sensor element, logic, calibration data and a digital interface on a single chip. www.sensirion.com

SENSOFAR® METROLOGY

Sensofar Group is a multi-national company whose mission is to develop, manufacture and commercialize high-end metrology tools. R&D is an additional goal of the company with more than 20% turnover investment. We have been combining the new product lines with some value-added improvements based on our comprehensive knowledge of the optical metrology field and by working very closely with research centres and universities across Europe. We also provide consultancy within the field of metrology, and pursues a philosophy of guaranteeing advanced techniques, high quality and customer services. The Sensofar Group headquarters is located in Barcelona, Spain, with more than 50 employees and a yearly turnover exceeding 10 M€. The Group is represented in over 30 countries through a global network of partners and has its own offices in Asia, Germany, and the United States. www.sensofar.com

SENSOR THERM

Sensortherm GmbH develops, produces and distributes intelligent and sophisticated infrared measurement technology. For more than 30 years, customer requirements and special

requirements have been implemented in measuring instruments and software applications, tailored to specific target groups. Sensortherm pyrometers are characterized by a fully digital construction. This ensures very high measuring speeds and signal outputs (response times) at the highest accuracy. As a result, Sensortherm is one of the technology leaders in digital pyrometer technology and offers economical and technically superior solutions from a single source. Sensortherm strives for long and trouble-free operation of the products. www.sensortherm.de

SensUp designs and manufactures OEM: Original Equipment Manufacturer optical systems based on lasers technology. Products and applications include laser rangefinder for target's distance measurement and laser scanning: LIDAR for obstacle detection. www.sensup-tech.com

Sentea has the ambition to become a market leader in fiber optic sensor interrogators leveraging the benefits of Silicon Photonics. Where most sensors fail in harsh environments, fiber optic sensors are resistant to extreme temperatures, electromagnetic interferences and corrosion, and they can safely be used explosive environments. They are often used as multi-point strain sensors in structural health monitoring in civil engineering, wind turbines, oil & gas, maritime and aviation. Fiber optic sensors are also used as vibration and load sensors on rotating equipment such as bearings, gearboxes and engines, as well as temperature sensors for industrial applications. Sentea offers cost-effective mini interrogators making fiber optic sensing scalable and affordable. www.senteatech.com

SENTECH Instruments develops, manufactures, and sells globally, innovative capital equipment focused on deposition, structuring and characterization of thin films in semiconductor technology, microsystems, nanotechnology and materials research. SENTECH offers advanced solutions for non-contact, non-invasive optical characterization using ellipsometry and reflectometry. SENTECH is an expert in the etching and deposition of thin films using plasma process technology, furthermore, SENTECH offers atomic layer deposition systems. SENTECH plasma etching and deposition systems including ALD and ALE support leading-edge applications. They are economical whilst featuring high flexibility and reliability. Plasma systems are used worldwide for industrial as well as research applications in nanotechnology, micro-optics, sensorics, photonics and optoelectronics. Low-damage etching by the SENTECH proprietary PTSA ICP plasma source enables our customers to manufacture unique compound-semiconductor devices. www.sentech.com

SFC Energy B.V. develops, manufactures and markets highly reliable standard and semi-standard high power platform solutions for demanding requirements in laser and semiconductor manufacturing equipment. SFC introduces the new standard in laser power supplies. The SFC high-power platform is a compact and cost-effective platform that is especially designed for the dynamic behaviour in laser systems. Therefore, SFC's power supply solutions improve the performance of laser systems significantly and increase their lifetime. SFC offers complete solutions from universal mains to laser diodes, up to 160 kW electrical output power, certified safety interlock, modular and scalable solutions that can be baseplate, water- and fan-cooled. www.sfc-power.com

Shamir Precision Optics (SPO) is a leading Israeli vendor of freeform and aspheric optical elements. Based on 40 years of free form design and manufacturing know-how by Shamir Optics for the ophthalmic market , SPO is pushing the technology limits in flexible NPI process of CNC glass grinding, polishing and metrology to address its customer needs in fast prototyping and manufacturing of advanced precision optical components including lenses, mirrors, complex contours and optical coatings for both defense and civilian markets. www.spo.tech

Shanghai Feibo Laser Technologies is based in Jiading, Shanghai, China, with two manufacturing facilities in Nanjing and Suqian, Jiangsu province. Since founded in 2012, FEIBO has played an active role in fiber laser industry and delivered more than 7000 units of medium to high power CW/QCW fiber lasers to customer in China and abroad, serving material processing, medical and scientific research markets. With 200+ employees, 6000+ sq. mt. of cleanroom space and a 1000 sq. mt. application research lab, FEIBO strives to expand its product line and services to solid state lasers, ultrafast lasers, and application solution to meet the ever changing and more stringent market demands. FEIBO is actively looking for partners in technology innovation and market expansion worldwide. www.feibolaser.com

SHUTE Sensing solutions

SHUTE Sensing Solutions A/S has developed a novel Polymer Optical Fiber (POF) sensor system which enables real-time monitoring of strain/stress, humidity, and temperature in points along a hair-thin optical fiber. The technology is quite versatile, due to the small size of the fiber and the flexibility of the material used: Polymer (plastic). The polymer makes the

sensors immune to electromagnetic interference (EMI) and makes it able to work in sophisticated environments, e.g. MRI, CT, Xray. The fiber sensor probe can go almost anywhere without compromising the structure it is embedded in. www.shute.dk

sicoya

Sicoya a spin off from TU Berlin, is developing silicon photonics (SiPh) based photonic integrated circuits (PICs) for optical data center interconnects using a fabless business model. The founding team raised 4.9 M€ of nonrepayable public funds for R&D in the last 8 years. Sicoya aims to enter the market with a 4x25 Gbit/s sealed and packaged transceiver chip for intra data center connections with link distances up to 2 km. Sicoya designs, packages and sells silicon photonic based Application Specific Photonic Integrated Circuits (ASPICs). Our technology enables the production of highly integrated optical transceivers at very low manufacturing costs. www.sicoya.de

SILENTSYS
ultralow noise systems

SILENTSYS is a French company, spin off of the University of Neuchâtel in Switzerland, that develops, produces and commercializes innovative ultralow noise systems covering photonics, microwave/THz and electronic modules. Thanks to our well-established know-how and our patented designs, SILENTSYS offers high-performance systems that are compact, easy to use and affordable, such as turnkey laser frequency stabilization modules that allow Hz-linewidths in a shoebox package. Our goal is to provide systems that are highly compatible with the needs of emerging industrial and laboratory applications such as those related to quantum technologies (Communications, Cryptography, Computing, Metrology, Sensing…). www.silentsys.com

SAL
SILICON AUSTRIA LABS

Silicon Austria Labs (SAL) is an Austrian research center for electronic based systems (EBS). The application-oriented center offers cooperative research in the areas of Sensor Systems, RF Systems, Power Electronics, System Integration Technologies, and Embedded Systems and develops technologies for Industry 4.0, Smart Health, IoT, MEMS, MOEMS, energy, or lifestyle. SAL has extensive experience and competencies in macro– and micro-optics and integrated photonics for miniature optical sensors and multifunctional sensing systems, covering the whole R&D chain of simulation and system design, device fabrication and testing, photonic assembly and system integration, as well as the development and application of novel sensing concepts. SAL's R&D photonic projects bridge the gap between fundamental research and application with advanced technologies focusing on major industrial markets including quantum sensors, environmental sensors, non-linear spectroscopy and spectroscopic sensors, smart lighting and imaging systems, LIDAR and remote sensing systems. www.silicon-austria-labs.com

Silicon Light Machines designs and manufactures the Grating Light ValveTM products. The facility includes a 1500 sq. ft. class 10 clean-room for wafer processing, clean labs for device and module testing as well as dedicated labs for electronics & optics development. www.siliconlight.com

Silina is a deeptech startup in microelectronics offering a B2B service to curve the imaging sensors produced by traditional sensor manufacturers, at industrial scale. Curved imaging sensor is the next major innovation for the imaging industry. It unlocks hardware limitations that no software can solve, and brings a whole new generation of vision systems. It enables drastic improvements on four key fields: increase of the image quality and detection capability, and reduction of cost and bulk of cameras. Silina has been developing a scalable curving process that can be adjusted to various types of sensors (from UV to IR, CMOS & CCD, FSI, BSI, and others), at various scales (single chip, multi-chip, wafer-level), and enables to reach various shapes (spherical, aspherical, freeform, and custom shapes on demand). www.silina.io

SILIOS Technologies is a French SME, established in 2001, specialized in micro-optics for diffractive optics and multispectral filters and sensors. Our two lines of products address the differents application fields of scientific, tooling and medical Lasers, Astronomy, Space & Defense, Astronomy, Bio-medical and Medical, Agriculture and Agro-food industries, Cosmetics and Dermatology, Forensics and Security. On one hand SILIOS Technologies proposes custom multi-spectral filters, sensors and cameras for the VIS/NIR ranges based on its COLOR SHADES® technology and has recently added the SWIR domain to its portfolio. Off-the shelf compact, lightweight and low cost multispectral 1.3 and 4.2 Mpx VIS/NIR cameras, the CMS nd CMS4 series are offered and VGA SWIR cameras from end 2020. On the other hand SILIOS Technologies proposes any type of phase plates such as beams shapers, homogenizers, modes converters, coherent beams combiners, wavefront correctors and generators, spiral phase plates and large grisms ranging from 193nm up to 10.6µm. Our “famous star” products being the homogenizers for the Ti:Sa crystal pump lasers (ELI beam lines and many intense laser chains worldwide), the large Grisms for the NISP instrument of ESA EUCLID Mission and the mode converter for the LIGO interferometer for Gravitational waves detection. www.silios.com

Sill Optics is one of a few medium-sized companies in Germany, which has specialized in the production of optical components of highest quality. Its philosophy: “100% Made in Germany”. www.silloptics.de

Single Quantum was established as the first European company manufacturing and commercializing superconducting single photon detectors. By sharing this ground-breaking technology, we aim to create a better future! Our multi-channel detection system has already been chosen by more than 150 academic and industrial labs all over the world to perform complex optical measurements. The unique combination of unparalleled detection efficiency and time resolution is what makes our superconducting detectors the ideal choice for quantum communication, cryptography, infrared fluorescence spectroscopy, laser ranging and many other applications. www.singlequantum.com

Sivers Photonics is the world’s most advanced supplier of customised compound semiconductor photonic devices, and a key strategic supplier to many Fortune 100 and Silicon Valley customers. From our UK based 2,000m2 cleanroom facility near Glasgow, Scotland, we have the unique capability of integrated in-house design and manufacturing. Our core strength is designing customised high-power DFB lasers for silicon photonic integration, including in-house product testing, qualification, and reliability capabilities, supporting product development through prototype proof of concept devices to volume production manufacturing. Sivers Photonics is a founding member of an elite group of companies signed up to a multi-source agreement (MSA) to define a new, industry-standard for high wavelength count, O-band, DFB, continuous wave (CW) laser sources. www.sivers-semiconductors.com

Skylark is a leading-edge UK photonics company specializing in the development and production of single frequency continuous wave DPSS lasers, with key applications in Raman spectroscopy, semiconductor inspection, direct write lithography and holographic mastering. Our proprietary technology platform delivers outstanding spectral performance with some of the highest output powers in the market and are trusted by clients in research

and industry worldwide to deliver reliable lasers with unmatched performance and impeccable support. www.skylarklasers.com

SmartIR stands as a pioneering force in elevating driver safety through cutting-edge photonics technology. Our revolutionary AI-powered system is meticulously designed to identify early indications of drowsiness by analyzing vital signs, thus significantly contributing to the creation of safer road environments. Additionally, our system is fortified with object detection modules for items such as cigarettes and mobile phones, further enhancing driver attention and road safety. Aligned with our unwavering commitment to reducing accidents, our proactive solution promptly alerts drivers to potential risks, underscoring our dedication to promoting safer driving habits. In the face of staggering statistics highlighting road risks – a substantial percentage of accidents attributed to drowsy driving – SmartIR's solution emerges as a beacon of hope for road safety enhancement. www.smartir.io

SMART Photonics**,** located in Eindhoven, The Netherlands, is a Pure Play Foundry offering production services for Indium Phosphide (InP) based photonic components. We use our extensive photonics knowledge, many years of experience in III-V production and dedicated equipment to create and produce the photonic designs of our customers. We offer the complete creation process from first Epitaxial growth, high resolution lithography, re-growth, wafer processing, metallization, polishing of wafers up to the coating of the chip facets. We help our customers with either a single process step or the full production process whether they are in the proof of concept phase or require volume production. Fast prototyping of PICs in InP on MPW-runs. SMART Photonics has further developed its generic integration technology for integration of InP based photonic components. For this new technology, free access to the SMART Photonics design manual is offered to customers to design their own PICs. Designs can be easily, and cost effectively, tested in the SMART Photonics MPW-runs which are offered on a quarterly basis. www.smartphotonics.nl

SnellOptics was founded in 2003 as a spin-off of the center for Research and Technology Transfer CD6 (Centre for Sensor, Instrument and Systems Development). Their previous history as a research group brings to the staff knowledge and dedication to meet the technological challenges that arise in the development of our business. The company's

experienced team of scientists and engineers, with extensive research and industry experience, offers to the company the following: high-quality products and faultless customer service, large capability to develop custom applications and diverse optical design projects and flexibility to adapt our business to the market needs. Within the broad field of optics, SnellOptics is well known for its high quality products and services. We have three product lines in continuous development: Plastic Optics (designs plastic optics for LED lighting), Instrumentation (measuring instruments ready to use), Engineering Projects (high expertise in viability, study and development of engineering optics projects). www.snelloptics.com

Soitec generates and manufactures revolutionary semiconductor materials for electronic and energy industries. Soitec is developing and manufacturing SOI: Silicon-on-Insulator materials, advanced substrates for microelectronic and CPV power plant for high irradiance countries. Soitec is an international company, with R&D and industrial manufacturing activities in France, Germany, Singapore, and the United States with headquarters in Bernin, near Grenoble, France. www.soitec.com

€ Funded Research Projects Experience

Soitec is and has been involved into many national and European projects, both as coordinator and participant, in projects such as:

- Eureka Catrene : SOI450: 450mm SOI substrates and technologies
- Eureka Catrene : Dynamic ULP: Smaller, faster, better CMOS technology
- Eureka Euripides : THOR: Striking technologies for Power
- FP7 : NACIR: hybrid solar project

SOLNIL developed a proprietary low cost nano-manufacturing technology that makes possible the direct nanoimprinting of metal oxides through advanced sol-gel chemistry. Metal oxides (e.g., SiO_2 and TiO_2) offer enhanced optical, thermal and mechanical performances compared to polymers used in standard nanoimprinting. SOLNIL's technology is suitable for applications requiring miniaturized and engineered optical functions: multispectral imaging, 3D sensing, laser optics, augmented reality, metasurfaces, gas sensing. www.solnil.com

SONNENBERG HARRISON

Sonnenberg Harrison has established itself as one of Europe's innovative intellectual property and technology law firms. Its attorneys have science and/or law degrees and are active in most fields of technology. The firm has advised startup companies and investors in the creation of new IP-based businesses together with technology transfer offices from universities and research institutes. It supports small and medium-sized companies by offering outsourced IP management services, particularly in the fields of physics and engineering. Its attorneys have experience working in patent offices and companies and the

advice provided is business-focused to support its international client base. www.sonnenbergharrison.law

son-x is a leading-edge technology and component supplier in the field of ultra-precision machining. The technology developed and commercialized by son-x enables direct ultra-precision machining of steel, which is conventionally not possible. We are specialized on high precision custom metal mirrors for space or high tech applications with up to 1 m in size with not only symmetric, but also off-axis or freeform surfaces. Furthermore, we manufacture optical mould inserts for injection moulding of lenses for a variety of applications, such as automotive lighting, camera lenses, sensors, AR/VR, etc. son-x also supplies high precision plastic lenses. www.son-x.de

Sony manufactures audio, video, communications, and information technology products for the global consumer and professional markets. With its music, pictures, games and online businesses Sony is uniquely positioned to become a leading personal broadband network company in the 21st century. Our Technology is where innovations and future generations of products are being developed to meet the requirements and needs of the worldwide markets and customers. www.sony.net

Sony DADC is a leading high-volume manufacturer of precision products of the utmost quality. We are establishing our partly unique manufacturing technologies and processes in the field of refractive and diffractive micro-optics and photonics. Sony DADC fabricates nano- and micro-structured optical components based on optical grade polymers. Manufacturing methods such as nano-imprint lithography (NIL), high precision injection molding and various coating processes are used. Apart from customized, scalable mass manufacturing for global customers we also offer electroforming processes (e.g. for the creation of durable metal shims and molding inserts) as well as research and development for next generation applications. www.sonydadc.com

Space Power builds the power distribution and generation infrastructure to support space-based industries' rise. The company's goal is to ensure that these industries have access to reliable and efficient energy, enabling them to thrive and drive the next wave of the industrial revolution in space. www.space-pwr.com

SPACEOPTIX is a Fraunhofer spin-off and supplier of high-performance metal optical components and systems for applications in space, astronomy, science, and industry. Based on a longstanding heritage engineering and producing metal optics for applied research and science missions, SPACEOPTIX GmbH offers a unique process chain for the realization of metallic mirror optics from millimeter scale to meter class. Our services include the development and fabrication of customized optical components as well as engineering and manufacturing services such as CNC machining, ultraprecision machining, polishing and surface form correction techniques, opto-mechanical design services, and optical system integration and testing. SPACEOPTIX GmbH is specially focused on engineering freeform optics for compact and high-performance reflective optical systems. www.spaceoptix.de

Sparrow Quantum is the first ever founded start-up commercializing deterministic single-photon sources as key enabling elements for quantum technologies. Born as a spin-off of the Niels Bohr Institute in Copenhagen in 2015, Sparrow Quantum provides scalable and top-performance quantum light sources for quantum communication and information, quantum computing and quantum sensing applications. www.sparrowquantum.com

SPECIM is a globally leading supplier in spectral imaging. As a true pioneer and forerunner in this field, we celebrated our 25th anniversary in 2020. Our international team of 70+ professionals, with expertise in optics, electronics, software, and machine vision, serves the market with the broadest range of hyperspectral cameras, imaging spectrographs, systems, and accessories. We are known as a trusted partner with products and support of superb quality and cost-efficiency. With our strategy, “Spectral imaging made easy,” our customers can rely on the scalability of our technology and products. It will allow our customers to keep improving the performance and competitiveness of their solutions and develop application solutions quicker and with less technical skills. www.specim.fi

MEMBER OF THE NYNOMIC GROUP

Spectral Engines develops and produces ground-breaking smart material sensing technology, which can measure the very make-up of materials. Our solutions improve industrial processes, enable advanced pocket-size analyzers and make material sensing possible in consumer applications. The team and technology platforms enable new measurement applications and business opportunities. Spectral Engines’ novel technology

originates from years of research done at VTT Technical Research Centre of Finland, now developed to a full industrial-grade sensor. www.spectralengines.com

SPECTROGON
Optical filters • Coatings • Gratings

Spectrogon is a full service independent manufacturer of optical components based in Taby, Sweden. The company serves customers in the automotive, space, medical, defense and process control industries. Our main technologies are Thin Film Optical Coatings and Holographic Diffraction Gratings. We design and manufacture thin film filters and windows for a wide range of requirements from high end imaging systems, through precision filters for gas detection and in filter wheels, to filters “diced on tape” for commercial volume applications. We also manufacture coatings and filters on wafer level optics and IR detectors. Our Filters span the full range from the UV, through the visible and Near Infrared, and out to approximately 20 microns in the IR. The vast majority of our production is custom manufacture for sale to OEMs. Additional services linked to main products are quality testing and documentation, low chipping dicing (sapphire, germanium, silicon, quartz and glass), environmental testing and parts assembly. Spectrogon is certified to ISO 9001:2015 and ISO14001:2015. www.spectrogon.com

SPIDEN

Spiden is a Swiss deep-tech startup located outside of Zürich that is pioneering a light- and ML-based technology platform for continuous, non-invasive clinical-grade monitoring of biomarkers and drug concentrations in tissue, blood, and other bodily fluids. Spiden’s label-free, optical monitoring platform supports a range of medical use cases including monitoring of glucose for diabetics, patient monitoring in the ICU or during dialysis, imaging applications such as cell-based assays or endoscopic tissue characterization, and biotech applications in bioreactor monitoring. To develop this technology, Spiden has assembled a multidisciplinary team of scientists and engineers with expertise in medicine, photonics, chip design, electrical engineering, biomedical engineering, microfluidics, system integration, and machine learning. The team has already created a proprietary concept demonstrator for biomarker monitoring, which is capable of measuring glucose through the skin. Spiden combines deep experience in entrepreneurship with MedTech product development and plans to launch a next-generation wearable for the transcutaneous monitoring of glucose, initially targeting health-aware consumers. The product portfolio will later include a monitoring device for diabetics and expand further by shipping over-air updates that unlock new markers to be monitored with this platform. www.spiden.com

SPIO
SYSTEMS

SPIO Systems has a new technology platform (SPIO) that enables guiding and processing of light in advanced, complex structures, applying a production technology that allows mass production of small-size optical devices with photonic integration by using Nano Imprint Lithography (NIL) processes - a cost effective method. SPIO is Stacked Planar Integrated Optics enabled by integrating optical structures, components and features on planar wave guiding wafers. Stacked together on wafer level, those wafer stacks consist of hundreds of optical modules that are separated into individual modules. Our technology cover true

integration of reflective, diffractive, refractive, filter optical features into single module. www.spiosystems.com

STENSBORG

Stensborg is a privately held company located in Roskilde, Denmark 30 minutes from Copenhagen Airport. We have served our clients for nearly 20 years producing Roll-to-Roll & Roll-to-Plate UV-nanoimprint lithography production equipment as well providing NIL production services, design mastering and volume production. Our skilled team excels in the full production cycle of nano and micro surface relief creations as well as imprinting production. We have our own range of proven machines, prepress materials and resin chemistry. www.stensborg.com

life.augmented

STMicroelectronics is a global semiconductor company with net revenues of US$ 9.66 billion in 2018. Offering one of the industry's broadest product portfolios, ST serves customers across the spectrum of electronics applications with innovative semiconductor solutions for Smart Driving and the Internet of Things. By getting more from technology to get more from life, ST stands for life.augmented. To keep its technology edge, ST maintains a strong commitment to innovation, with approximately 7,400 people working in R&D and product design and spending about 15 % of its revenue in R&D in 2018. Among the industry's global technology leaders, ST owns and continuously refreshes a substantial patent library (~18,000 patents; ~9,500 patent families and ~500 new patent filings in 2018). ST delivers specialized and differentiated imaging solutions for a variety of applications, leveraging extensive expertise in optical modules and image sensors and a continuously expanding portfolio of proprietary technologies. We provide access to advanced Imaging technologies through our CMOS Image Sensor (CIS) foundry services. www.st.com

SUPERLIGHT PHOTONICS

SuperLight Photonics, a leading innovator in laser technology, specializes in the development of supercontinuum generation lasers, also known as wideband lasers or white lasers. Emerging from Twente University, the Netherlands, and based in Enschede, the company is driven by a vision to become a market leader. With a focus on applications such as spectrometry, OCT, surface inspection, crop management, and pollution detection, SuperLight Photonics is at the forefront of creating transformative photon-IC (PIC) based solutions. By harnessing the momentum within the photonics sector, SuperLight Photonics is contributing to a technologically advanced and sustainable future. Join SuperLight Photonics as they shape the future of photonics, combining innovation and excellence to make a meaningful impact on our world. www.superlightphotonics.com

STRATOSYST

HAPS SERVICES FROM STRATOSPHERE

STRATOSYST is a young Czech start-up company that operates in the field of design, development, production and operation of HAPS systems and provision of HAPS services. The company develops stratospheric pseudo satellites (HAPS) for different applications and different payload sizes. As a HAPS operator, the company intends to provide services in various fields, most notably in Earth observation, navigation, telecommunication and testing. HAPS is a system that utilizes an unmanned vehicle, such as an aircraft, that flies or floats in the stratosphere as a base station. In doing so, HAPS is capable of providing communication, observation or navigation services over an extensive area. HAPS can be either high-altitude free-floating balloons and airships or powered fixed-wing aircraft that use either solar power or an on-board energy source in order to maneuver in stratosphere and power the on-board devices. www.stratosyst.com

SUPERLUM

SUPERLUM Diodes develops and manufactures low coherent light sources based on semiconductor superluminescent diodes (SLD) and driving electronics in 650-1620 nm spectral range, as well as semiconductor optical amplifiers (SOA) and tunable swept light sources (SS) in 750-1100 nm spectral range. SUPERLUM products are used by over 250 companies worldwide in various applications: Optical Coherence Tomography (OCT), Fiber-Optic Sensing and Metrology, Non-Destructive Testing (NDT), Fiber-Optic Gyros, Speckle Free Illumination and others. Our R&D group can design complete opto-electronic systems for your application. www.superlumdiodes.com

surrey nanosystems

Surrey NanoSystems is the developer of the Vantablack® range of ultra-black coatings. Recognised as the world's darkest material, Vantablack absorbs up to 99,96% of light across a wide spectral range from ultraviolet to far infrared, uniquely maintaining its ultra-low reflectance even when viewed at grazing angles. These attributes together with excellent thermal and mechanical shock and vibration performance have enabled clients to solve challenging stray light management problems across a host of aerospace, automotive and consumer electronics applications. Vantablack can eliminate unwanted stray light artefacts and ghost imaging in optical systems, and also improves image contrast and definition even in bright sunlight; leading to safer, more reliable systems within a smaller footprint and using simpler, lower cost baffle designs. Vantablack coatings are used in satellite baffles and calibration sources, medical and scientific instruments, cameras and lens assemblies, optical sensors, automotive head-up displays, headlights and many more. www.surreynanosystems.com

SÜSS MicroTec

SUSS MicroTec is a leading supplier of equipment and process solutions for microstructuring in the semiconductor industry and related markets. In close cooperation with research institutes and industry partners SUSS MicroTec contributes to the advancement of next-generation technologies such as 3D Integration and Nano Imprint Lithography as well as key processes for MEMS and LED manufacturing. With a global infrastructure for applications and service SUSS MicroTec supports more than 8,000 installed systems worldwide. www.suss.com

Swiss-FO's role is to provide to our partners quality telecom infrastructure deployment services and advice and resources to benefit from the innovative technological advances while promoting the best local actor. www.swiss-fo.com

Swissmem Photonics Industry sector is a network for developers, manufacturers and providers of photonics and optics systems and their components as well as for representatives from universities and research institutions. We bring together stakeholders from science, industry and society to find and boost product & process innovations. We are providing a platform for sharing experiences, organizing marketing activities and preparing industry-specific information. www.swissmem.ch

SWISSPHOTONICS is an association with the goal to support the innovation forces by bringing academic and industrial partners together in the field of photonics. Towards this goal we organize workshops and we are networked on Swiss and international level and we provide access to this network for our members. www.swissphotonics.net

Swiss Photonics Integration Center (Swiss PIC), provides precision assembly and packaging solutions for photonics systems. The complete packaging offering - including optical, electrical, thermal and mechanical technology - ensures a controlled interfacing of photonic systems with the environment. Building on a long history of precision engineering in Switzerland, Swiss PIC offers the highest standards in terms of quality and precision. It provides customers with packaging services covering prototyping as well as small-series production. The center will invest in qualified industrialized processes, high-tech machinery, and operate a qualified piloting line over time, located in Park Innovare in Villigen near Zürich. Established in 2023 Swiss PIC is very young but the people behind has decades of experience in Photonics and have previously collaborated in dozens of national and EU projects. www.swiss-pic.com

Switzerland Innovation Park Innovaare is currently creating a unique ecosystem and an ideal location for technology-driven companies. Our ecosystem will connect the high-tech industry with research and creates the best conditions by delivering access to knowledge and expertise, and research infrastructures such as laboratories, clean rooms, and vibration-controlled areas. Switzerland Innovation Park Innovaare is located directly next to the Paul Scherrer Institute PSI, a member of the ETH Domain and Switzerland's largest research institute for natural and engineering sciences. www.parkinnovaare.ch

Microsystem Technologies

Sy&Se is a start up from the Haute Ecole Arc Ingénierie (HE-Arc) specialized in joining technologies of micro and macro systems. In many manufacturing processes, assembling is an essential step and it contributes to obtaining a high-quality and efficient finished product. Since mastering the technology and the manufacturing costs of each step is imperative for companies, the SY&SE propose, building up on a major scientific discovery, a new ICB (*Impulse Current Bonding*) binding process, which combines cost-effective and robust assembly of glasses on various metals, glasses on silicon, silicon on fused silica, sapphire on silicon and glasses, and also stacks of these materials. High quality of the bond interface obtained with the innovative ICB technique is particularly well suited for photonic systems based on integration of optical compounds with cleanness, precision and stability (covalent bonds). Related to this aspect, hermeticity between adjacent surfaces or for device encapsulation required for efficient performance and moisture prevention is a serious advantage. Other assembly configurations with more common optical waveguide materials such as for example InP, GaAs, or GaN on glasses are also possible (by the use of intermediate evaporated thin layers). www.syandse.ch

FIBER OPTICS

SYLEX, a mid-size company founded in 1995, is a world-class original design manufacturer of high-quality optical interconnect solutions and fibre optic sensing/monitoring solutions. Main markets of fibre optic interconnection division SYLEX services are: Telecom, Datacom & LAN Business, On-Board Optics, General Industry, Defense, aerospace & Harsh environment.SYLEX offers automated monitoring solutions based on modernized FBG technology. These systems are used to monitor the structural health and operational conditions of infrastructure objects within many industries – civil, geotechnical, energy or transportation infrastructure chemical, oil & gas or process control and automation. We also

make OEM and custom build FBG sensors and cooperate with R&D entities as a SME partner.Our superb engineering and design capabilities, strong quality control systems and substantial manufacturing capacity allows us to deliver both high-volume and custom-tailored solutions extremely rapidly as clients or the market require. www.sylex.sk

Synopsys is accelerating the adoption of photonic and PIC technologies with software to design energy efficient, high-performance photonic devices, systems, and integrated circuits. Our Photonic Solutions portfolio includes the RSoft™ Photonic Device Tools, the Photonic System Tools, and the PIC Design Suite. Offering the industry's only seamless design flow, the Synopsys Photonic Solutions portfolio enables innovations in consumer and industrial communication, sensing, and imaging applications – from concept to manufacturing. www.synopsys.com

Synova is an experienced supplier of state-of-the-art laser solutions for industrial micro-machining applications, serving the semiconductor, electronic, energy and medical markets. As the inventor of laser dicing technology, Synova– through its proprietary Laser MicroJet® (water-jet-guided laser) technology– is fast emerging as the ideal provider for addressing the exacting manufacturing specifications and low cost of ownership requirements associated with the volume production of today's advanced electronic devices. With its headquarters in Duillier, Switzerland, Synova is a privately-owned company with subsidiaries in North America and in the Asia/Pacific region. www.synova.ch

Systematic Paris Region Deep Tech Ecosystem

DeepTech4Good

FOOD PACK LAB

Light your business

Systematic Paris-Region leads a Paris Region ecosystem with 900 members, including nearly 600 start-ups, SMEs and ISEs, 140 major industrial players, 140 academics, an investors group and a group of about 20 local authorities. Systematic is €3.18 billion for R&D, 625 innovation projects, over 620 listed products and services built on collaborative R&D. The cluster's innovation strategy is organized and conducted, throughout 2019-2022, around two strong and complementary themes: innovation in backbone technologies and the digital transformation. Innovation in backbone technologies, or Deep Tech, built on technological breakthroughs, inspired Systematic's creation of 6 hubs: Data Science & AI, Cyber & Security, Digital Infrastructure & IoT, Digital Engineering, Optics & Photonics, Open Source. More details about the European projects and the events dedicated to Photonics (FOODPACKLAB, DeepTech4Good, and Optics & Photonics Hub) can be found on our website. www.systematic-paris-region.org/fr/hub-optics-photonics

TANAKA

TANAKA Kikinzoku International Europe, based in Frankfurt Germany, provides Sales & Marketing support in Europe for the global business expansion of TANAKA PRECIOUS METALS, which has been a Japanese leading precious metals trader, refiner, and manufacturer since 1885. Precious metal materials in photonics are widely used in cutting-edge applications such as various plating materials, paste deposition materials, bonding materials, and encapsulation materials. Our mission is to contribute to these developments through precious metal technology. We are committed to providing products that incorporate advanced technological needs. www.tanaka.co.jp

Tampere University

Tampere University (TAU) was launched in January 2019 by the merger of Tampere University of Technology and the University of Tampere. TAU consists of seven faculties, about 4 200 staff, 281 professors, over 2 800 researchers and roughly 23 000 students. The university has an ambitious strategy called “Together for a sustainable world”, which emphasizes its role and responsibility in solving global problems. To this end, photonics has been defined as a core strategic research area at TAU. We unite complementary topics spanning from fundamental aspects in ultrafast- nonlinear- and quantum-optics, advanced photonic materials, photonic integration, laser technologies, to applications in sensing, spectroscopy, and medical technology. Our photonics community comprises about 150 researchers working in 11 research groups. We play a catalyst role at national level being the coordinator of the Flagship on Photonics Research and Innovation (PREIN), and of the national infrastructure photonics platform, FinnLight. Our infrastructure and related expertise are recognized at European level. Our comprehensive capabilities concerning molecular beam epitaxy and the development of III-V optoelectronic devices have a unique positioning in the European photonic technology ecosystem and have been the cradle of the dynamic laser industry in Tampere. www.tuni.fi

€ Funded Research Projects Experience

- RAMPLAS: Silicon-based, integrated Optical RAM enabling High-Speed Applications in Computing and Communications
- LIFT: Leadership In Fiber Technology

TARKAS

Tarkas catalyzes start-ups in technology and photonics. www.tarkas.net

tec5

MEMBER OF THE NYNOMIC GROUP

tec5 develops and manufactures industrial-grade spectrometer systems and components for process analytics since 1993. One focus are fully embedded sensor designs which have numerous applications even in highly regulated production environments. Our experienced staff of engineers, scientists, and application experts supports and assists our partners and customers throughout the entire implementation process, from the conceptual design, through adaptation, engineering, and application support. www.tec5.com

Technology Innovation Institute (TII) is the applied research pillar of Abu Dhabi's Advanced Technology Research Council (ATRC). TII is a pioneering global research and development hub that focuses on solving tomorrow's challenges, today. It has ten dedicated research centers in advanced materials, AI and digital science, autonomous robotics, biotechnology, cryptography, directed energy, propulsion and space, quantum, renewable and sustainable energy, and secure systems. TII is leading the efforts to shape research in photonics towards transformative technology outcomes in Abu Dhabi and the UAE. By working with exceptional talent, universities, research institutions, and industry partners from around the world, TII connects an intellectual community and contributes to building an R&D ecosystem that reinforces the status of Abu Dhabi and the UAE as a global hub for innovation. www.tii.ae

TechnoSpark is a professional venture-building company focused on material-based technologies. Created in 2012 by a group of private entrepreneurs Technospark has now launched more than 100 new high-tech companies. Key technology domains are – lasers, optics, industrial coatings, robotics, CVD-diamonds, flexible TFT-electronics, BIPV, energy storage, genomics, composites. It is operating in Troitsk-Moscow (HQ) and Academgorodok-Novosibirsk (Russia), as well as in Eindhoven (Netherlands) and Beijing (China). Photonics and its industrial applications is one of TechnoSpark technology priorities – with more than 20 start-ups developing products with lasers for manufacturing processes, lasers for ophthalmology, surgery and other medical purposes, optics and special coatings. TechnoSpark companies in photonics include Polarus (full-fiber picosecond laser with proven non-stop work of more than 10.000 hours), TEN Optics (contract manufacturing of custom made optical multilayer components including short bandwidths and dichroic colour filters, optical semi-transparent mirrors, IR-filters), CVD Spark (CVD growing, coating, grinding and fine polishing for contract manufacturing of heat sinks, laser optics and other industrial applications) and Laserspark (contract R&D for excimer and femtosecond lasers). www.technospark.ru

TechnoTeam Bildverarbeitung GmbH is a German company with headquarters in Ilmenau (Thuringia), a subsidiary, TechnoTeam Vision Inc. USA, and numerous distribution partners worldwide. Our products are used worldwide in a variety of different industries. TechnoTeam manufactures measurement systems for digital image processing and image-resolved light and color measurement technology. Our measurement systems are used in the development and production of luminous and illuminated devices, such as displays, AR/VR,

architectural lighting, luminaires, and have become the industry standard in the automotive industry and its suppliers. We contribute our experience and benefit from the experience of others through our participation in various national and international committees. www.technoteam.de

Tech Tour is the largest tech entrepreneurs and investor community in Europe. Every year, over 1,000 of the most promising tech companies are selected by some 1,000 investment, corporate and cluster experts actively engaged in 25 specialised Programmes culminating in annual events. All of Europe and all tech sectors are covered including digital, health and sustainability with a focus on growth companies and scale-ups with the best potential to generate returns and impact. With 25 years of experience, our entrepreneur alumni selected in the Tech Tours in the past 7 years alone reported well over EUR 20 Billion of investments raised. See impact data. The organisation is independent and does not take commissions nor investment stakes as it focusses on delivering effective and efficient facilitation services and benefits. www.techtour.com

Tecnottica Consonni is an optical manufacturing company being on the market since 1957 and specialized in the manufacturing of custom optical components (in glass and plastic materials) and in custom finished optical systems. The range of products offered to our customers is one of the most varied and complex of the optical and photonic markets: it involves applications in the field of machine vision, biophotonics, optoelectronics, defense and security, aerospace and lighting. Within our product portfolio we produce spherical and aspherical lenses, prisms, optical filters, optical mirrors, light guides, ball lenses with dimensions ranging from 2 mm up to 400 mm. Tecnottica offers also a wide range of complementary services, like the application of anti-reflective, high-reflective and dichroic coatings, thermal and chemical tempering of glassy substrates, engineering and modelling of imaging and lighting optical systems, construction of mechanical elements for the housing of the optics as well as assembly, testing and final certification of single and finished optical systems. www.tecnotticaconsonni.it

Teem Photonics offers advanced Microlasers for OEM and Scientific applications for wavelengths: 213, 266, 355, 532, 1064, 1535 nm. Extremely rugged and cost effective, these products bring unique solutions for LIDAR, Instrumentation and sensing as well as materials processing applications. From earth sciences to biology, from security to marking, they have demonstrated an excellent reliability and lifetime over 80 khours in the infra-red and tens of thousands of hours at other wavelengths. The Single Longitudinal Modes (SLM) versions combine short pulse duration with spectral purity. Teem Photonics waveguide product range is a series of high performance interposers for Silicon Photonics. Based on the ioNext technology platform, WAFTs devices help connect arrays of up to 256 fibers to more tightly confined waveguides with 3D tapers, bringing insertion loss under 1dB while significantly reducing Si Photonics chip dimension requirements. www.teemphotonics.com

Teledyne FLIR designs, develops, manufactures, markets, and distributes technologies that enhance perception and awareness. We bring innovative sensing solutions into daily life through our thermal imaging, visible-light imaging, video analytics, measurement and diagnostic, and advanced threat detection systems. Teledyne FLIR offers a diversified portfolio that serves a number of applications in government & defense, industrial, and commercial markets. Our products help first responders and military personnel protect and save lives, promote efficiency within the trades, and innovate consumer-facing technologies. Teledyne FLIR strives to strengthen public safety and well-being, increase energy and time efficiency, and contribute to healthy and intelligent communities. Teledyne FLIR Integrated Imaging Solutions division is a Global leader in the design and manufacture of innovative, high-performance digital Machine Vision cameras for semiconductor, electronics, photonics, industrial, medical and life-science, traffic, biometric, GIS, and people counting applications. www.flir.com

Tematys provides a complete range of services to companies and public organizations in the fields of optics, photonics, sensors and material Engineering. Our clients are companies of any size, from international groups to SMEs and start-up. We have also developed a special expertise in R&D valorization and marketing of emerging technologies for Research Organizations and Laboratories. We provide strategic views on optics and photonics markets for publics for clusters and publics agencies. www.tematys.com

TEM Messtechnik is an innovative medium-sized company in Hannover. It was established in 1988 and changed to a GmbH (Ldt.) in 1998. The team of about 10 employees is headed by Dr. Thomas Müller-Wirts (CEO). TEM Messtechnik GmbH offers products and customer specific developments in the field of laser control engineering and opto-electronic measurement techniques. www.tem-messtechnik.de

TeraXion is a leader in the manufacturing of innovative photonic components that incorporate fiber Bragg gratings, low noise lasers and integrated photonics. FBGs have been the cornerstone of our offering for more than 20 years and TeraXion has successfully applied this technology in four different markets, reaffirming FBGs' potential in countless

highly advanced applications. Beyond our technology portfolio, our true strength stands in our ability to transform and evolve existing technology to meet our customers' changing needs. This unique expertise and market-orientation has led TeraXion to manufacture over 500 000 leading-edge photonic components. Our partnership approach to doing business and our team of over 65 researchers and engineers make us a prime designing and supplying partner for leading companies involved in light and heavy manufacturing, telecommunication, medical equipment, and aerospace and defense. www.teraxion.com

THALES

Thales provides smart technologies, electronic systems, software, space, ground transportation, services and equipment to the aerospace, defense, and security markets. It provides air traffic management systems, satellite navigation solutions, electric systems, flight avionics, electrical systems, and training solutions for the aerospace industry. Thales also offers maintenance, repair and training services. The company's business operations span across the Americas, Europe, Asia-Pacific, the Middle East and Africa. www.thalesgroup.com

THEON SENSORS
Advanced Optronics

THEON SENSORS is a highly flexible, medium-sized, European company specializing in the development and manufacture of Electro-Optic Night Vision Systems and Thermal Imaging devices. THEON is an Original Equipment Manufacturer (OEM) and consequently owns and controls every aspect of its product technology, including optics, mechanical and electronic assemblies. THEON Sensors demonstrates a worldwide presence and customer base supplying its systems to Armed Forces & Law Enforcement Agencies in many countries including several NATO member countries. Additionally, THEON cooperates with renowned vehicle manufacturers supplying Night Vision Driver Viewers for Armored vehicles and Main Battle Tanks. www.theon.com

The Right Street
DIGITAL

The Right Street is a brand new agency specialising in EU communications and advocacy. The Right Street helps clients from Brussels and across the EU to navigate the digital landscape by providing solutions for creative communications, advocacy & learning. www.therightstreet.digital

ThinkMade Engineering & Consulting Dr. Ruth Houbertz offers Consulting Services Technology and Knowledge Transfer, Sustainable Production, Processing and Photonics Technologies, Entrepreneurship along with Innovation and Disruption, and Matchmaking. Ruth Houbertz has more than 33 years experience in interdisciplinary areas of physics and chemistry, and she held engineering and management positions in R&D and industry. She has founded of several startups, among which is Multiphoton Optics GmbH. She developed Multiphoton to a global renowned leader for prototyping and application development in photonics and biomedical industries, after having built the know how for now 20 years to bring 3D Lithography to the cutting edge and to constantly building customer relationships. She has developed 3D Lithography to be used for waferscale, integrated photonics, and tooling for embossing processes, aside of its implementation in biomedical fields. She has strategically built the company towards a recognized leader for challenging device concepts with 3D Lithography being capable to be implemented in conventional semiconductor processing technologies. Through her company ThinkMade Engineering & Consulting Dr. Ruth Houbertz, she aims to provide services in photonics and biomedical as well as on hardware, also using her networks in different global photonics and microelectronic industries. Additionally, she offers Coaching of Entrepreneurs, Teams, and Individuals personally and professionally, and mentors persons after having them thoroughly selected. She also is willing to support her customers with Interim Management and Strategy Advice directly involved or in an advisory position in a Board.

Thorlabs**,** a vertically integrated photonics products manufacturer, was founded in 1989 to serve the laser and electro-optics research market. As that market has spawned a multitude of technical innovations, Thorlabs has extended its core competencies in an effort to play an ever-increasing role serving the Photonics Industry at the research end, as well as the industrial, life science, medical, and defense segments. The organization's highly integrated and diverse manufacturing assets include semiconductor fabrication of laser diodes, optical amplifiers, lithium niobate modulators, quantum cascade/interband cascade lasers, and VCSEL lasers; fiber towers for drawing glass optical fibers (silica, fluoride, tellurite, and hollow core); MBE/MOCVD epitaxial wafer growth reactors; extensive glass and metal fabrication facilities; advanced thin film deposition capabilities; and optomechanical and optoelectronic shops. www.thorlabs.com

TLD Photonics designs and manufactures high-end lasers and optical systems for industry and research. Our strong ties to leading swiss universities allow us to develop groundbreaking products and through the extensive industrial experience of our team, we ensure that the real-world applications remain at the core of our developments. TLD Photonics core competencies lie in the design and manufacturing of femtosecond lasers on Titanium Sapphire & Ytterbium basis, high performance Optical Coherence Tomography and industrial optical systems. The main applications of TLD Photonics products are laser micromachining, nonlinear microscopy, and spectroscopy, to name a few. www.tld-photonics.ch

TNO is an independent Dutch organisation for applied scientific research with approximately 5400 employees. Research themes include: Healthy Living, Industrial Innovation, Defence/Safety/Security, Energy, Transport and Mobility, Built Environment, Information Society. www.tno.nl

€ Funded Research Projects Experience

- FIREFLY: Multilayer Photonic Circuits made by Nano-Imprinting of Waveguides and Photonic Crystals
- PHOTOSENS: Large-area Nano-photonic Chemical Sensors
- Plat4M: Photonic Libraries And Technology for Manufacturing
- SSL-ERATE: Accelerate SSL Innovation for Europe

TOKYO ELECTRON

Tokyo Electron Limited [TEL] is a leading equipment supplier for the production of semiconductor chips across the world. The headquarters is based in Tokyo, Japan with the Equipment Productions Facilities, R&D Centers, Sales and Services offices based across the world. TEL is also a member of many R&D consortiums across Asia, Europe and Americas. www.tel.com

Tobii is the world leader in terms of overall market share, technology and patent portfolio. With eye tracking as a base, Tobii creates the conditions for new insights into human behavior and intuitive user interfaces. www.tobii.com

TOPPAN PHOTOMASK

Toppan Photomask is the world's largest merchant photomask provider serving customers in every region and market segment, including the rapidly growing Photonics segment. Photomasks from Toppan's advanced facilities satisfy the Semiconductor industry's most advanced requirements. Photonics products' requirement for high precision pattern feature rendering now can take advantage of Toppan's vast knowledge and experience in all areas of printing. Indeed, the rapid development of photonic integrated circuits (PICs) has already been accelerated with Toppan's high precision photomask products. Augmented and virtual reality (AR/VR) products are also taking advantage of Toppan's molds for nanoimprint lithography (NIL). All aspects of the Internet of Things (IoT) are positively impacted by Toppan's advanced printing technology products. www.photomask.com

TOPTICA develops and manufactures high-end laser systems for scientific and industrial applications. The portfolio includes diode lasers, ultrafast fiber lasers, terahertz systems and frequency combs. These systems are widely used in quantum optics and spectroscopy, biophotonics and microscopy, as well as test and measurement. www.toptica.com

Torbay Hi Tech Cluster is an internationally recognised centre for R&D, product design and manufacturing in hi-tech photonics & micro-electronics, Torbay has world-leading companies, highly motivated & experienced employees, excellent access to markets, a strong local supply chain and the kind of integrated business network that is only possible in a well-established cluster. Global leaders in technology like **Lumentum**, **Gooch & Housego**, **Spirent**, **Queensgate (Prior Scientific)**, **Effect Photonics** and **II–VI Photonics** are all located in Torbay. These companies are committed to major ongoing investment in the region. Alongside these are other specialised companies in photonics integrated circuits (PIC) packaging such as **Bay Photonics** as well as providers of software & firmware. This has cemented our reputation as one of the most important locations in the UK for advanced micro-electronics, and particularly photonics, capability and expertise. With headquarters at EPIC, the Torbay Hi-Tech Cluster is very proactive as an organisation promoting & advocating Torbay companies and regional expertise and is highly integrated in pursuing opportunities for collaboration, innovation and investment. Please visit https://epic-centre.co.uk/torbay-hi-tech-cluster/ for more information and more detail on our member companies. www.investintorbay.com

TriLite designs and builds the world's smallest projection displays and ensures that everyone can enjoy augmented vision as lightweight as the eyewear of today. TriLite's display solutions are based on proprietary, multi-parameter algorithms and deploy advanced machine learning algorithms to generate laser beam scanning devices with unprecedented size, weight and image quality. An outstanding team of multidisciplinary researchers and manufacturing experts stands behind TriLite's multiple-patented technology. TriLite enables its customers to accelerate the availability of leading-edge display solutions for mass market Augmented Reality applications. www.trilite-tech.com

trinamiX

A brand of
BASF – We create chemistry

trinamiX GmbH, with a team of 170 specialists develops cutting-edge 3D vision and IR sensing solutions for use in consumer electronics devices and industrial applications. trinamiX's IR solution portfolio includes high-performance IR detectors and ready-to-use Near-Infrared (NIR) Spectroscopy Solutions combining powerful hardware with advanced chemometrics and cloud-connected data analysis. Our IR detectors include PbS (covering 1 to 3 µm) and PbSe chips (1 to 5 µm) with a unique encapsulation technique that enables a small footprint for integration whilst offering full spectroscopy capabilities. As a leader in NIR spectroscopy, trinamiX has been pioneering the miniaturization of near-infrared (NIR) spectrometer modules for smartphones. trinamiX sensing technology is designed to empower smartphone users to identify the molecular composition of material, enhancing their decision-making in the near future. www.trinamix.de

TRIOPTICS
See the Difference

TRIOPTICS optical measurement and manufacturing systems speed up and improve the development, production and quality control of lenses, optical lens systems and camera modules around the world. With our broad knowledge base in optical metrology systems, comprehensive product range and international focus, we create lasting customer value and benefits. The basis for our success and the continuous expansion of our technological and market leadership is the high level of investment in research and development. We offer customized solutions for industry, science, and the markets of the future – from basic products to special systems. www.trioptics.com

TRUMPF

TRUMPF is a family business. We think and act with a long-term perspective. Our core business is manufacturing solutions in the fields of machine tools and laser technology. These are used in the manufacture of the most diverse products, from vehicles, building technology and mobile devices to state-of-the-art power and data storage. Our consistent internationalization is one of our success factors. We are active with own subsidiaries in those markets, where our customers are. Our creative will fosters our promise for constant innovative power. www.trumpf.com

TRUMPF Laser UK Ltd. (previously SPI Lasers) is a leading designer and manufacturer of premium Pulsed & CW Fiber Lasers for industrial applications such as welding, cutting, marking, drilling, micro-machining and additive manufacturing. Operations can be carried out faster and more accurately with a TRUMPF Laser for better reliability, less waste and improved productivity. The product portfolio covers countless application process areas across a wide range of industries including automotive, electronics and the medical device sectors. TRUMPF Lasers' innovative technology solves manufacturing problems; it moves the boundaries of what is possible, making good products better and enabling new design and innovation. As core part of the global TRUMPF group, TRUMPF Laser UK Ltd. sells its products worldwide, with its major business operations and manufacturing based in the UK. Drawing on over 40 years expertise, TRUMPF Laser UK Ltd. also provides post-sales technical support, staff training and sample processing in our own specialist applications laboratories. www.trumpf.com

€ Funded Research Projects Experience

- LIFT: Leadership in Fibre Laser Technology
- Acted as a subcontractor to various EU programmes
- Involved with numerous collaborative programmes funded by the UK Technology Strategy Board

Eindhoven Hendrik Casimir Institute was established on April 25th 2016. It integrates all research areas crucial to photonics - materials and devices, components, circuits, systems ¬- and cooperates with initiatives that bring photonic research results to a higher Technology Readiness Level. The Institute for Photonic Integration is a leading R&D center in the field of photonics. The work of the institute ranges from fundamental scientific research to the development of prototypes that are taken on to the product stage by industry. The Institute for Photonic Integration continues the research of the TU/e research school COBRA, and therefore possesses an extensive staff of researchers along with a large cleanroom(800 m2) optimized for photonics R&D. The research school has been one of the world's leading proponents of photonics research for many years. Furthermore, there is intensive collaboration on photonics with the research groups of the University of Twente and Delft University of Technology. The institute covers three fields: photonics materials (III-V semiconductors), integrated circuits (photonic integrated circuits, PICs) and photonic systems. www.tue.nl/en/research/institutes/eindhoven-hendrik-casimir-institute

The Tyndall National Institute, University College Cork is one of Europe's leading centres for Information, Communications and Technology: ICT research and development. It is the largest facility of its kind in Ireland. Tyndall, formally known as the National Microelectonics Research Centre, was established in 2004 to provide a critical mass of researchers that would support the growth and development of a smart knowledge-based economy in Ireland. www.tyndall.ie

€ Funded Research Projects Experience

- FIREFLY: Multilayer Photonic Circuits made by Nano-Imprinting of Waveguides and Photonic Crystals
- Plat4M: Photonic Libraries And Technology for Manufacturing

UltraFast Innovations GmbH (UFI®) develops, manufactures and merchandises custom-made optics and optical devices for ultra-short pulse laser applications. Founded in 2009, it is a spin-off from the Ludwig-Maximilians-Universität München (LMU) and the Max Planck Institute of Quantum Optics (MPQ). Our optical components, from standard to tailor-made, cover from the UV-VIS-IR range to the XUV/soft X-ray-range including mirrors, beam splitters, filters, or anti-reflection coatings. Our experience in optics and ultrafast technology allows us to provide you with state-of-the-art devices and entire setups for generation, characterization and manipulation of ultrafast light, as well as characterization and quality control of optical components. It was the key ingredient in achieving some of the shortest light pulses ever created, at a duration of 80 attoseconds. Now, we are making this experience available to our customers. UltraFast Innovations participated in several successful European (e.g. Eurostars, ZIM, BayTP) funding projects. www.ultrafast-innovations.com

Umicore IR Glass provides innovative optical solutions in variety of applications such as automotive night vision, thermography and security and surveillance, firefighting and many others. We produce a high quality chalcogenide glass called GASIR®, unique to Umicore. Starting with our materials knowledge and working with our experienced design team, prototype team and high volume manufacturing facilities, we design and manufacture your lens assembly to be the ideal balance between cost and performance. www.eom.umicore.com

Umicore NV is a Belgium based global materials technology and recycling group with about 10,400 employees and revenues (excluding metal) of € 3.3 billion (turnover of € 13.7 billion) in 2018. Umicore generates the majority of its revenues and dedicates most of its R&D efforts to clean technologies, such as emission control catalysts, materials for rechargeable batteries and recycling. Umicore's overriding goal of sustainable value creation is based on an ambition to develop, produce and recycle materials in a way that fulfils its mission:

materials for a better life. Umicore's business unit Electro-Optic Materials (EOM) is creating material solutions for optical and electronic applications to customers around the world. The hyper-connectivity megatrend is at the center of our new product and services developments. This megatrend is a combination of ubiquitous communication networks, sensors and artificial intelligence and it will create exciting new possibilities and opportunities in our businesses and personal lives. www.umicore.com

UnitySC is a leader in advanced process control and delivers semiconductor metrology and inspection solutions that support the advancement of the semiconductor industry's heterogeneous integration roadmap. Specifically, our integrated systems target the semiconductor advanced packaging, power semiconductor and MEMS markets, focusing on applications, such as through silicon via (TSV) fabrication, fan-out wafer-level packaging, substrate control, hybrid bonding and chemical mechanical planarization (CMP) processes. We work in collaboration with our customers to develop and implement disruptive semiconductor metrology and inspection systems that provide industrialized solutions to process control problems, enabling them to better understand their processes, manage and improve their yields, and grow their businesses. Our customers include the largest foundries, integrated device manufacturers, outsourced semiconductor assembly and test service providers, and R&D centers. www.unity-sc.com

Universitat Politècnica de València - Photonics Research Labs have their origins in the former Optical and Quantum Communications Group, initially hosted from 1991 to 2005 at the Communications Department. From an optical telecom core, the group has evolved to the application of the photonic technology to a wide range of diverse applications where the optical and photonic technology together with microwave photonics brings its added value. The group is structured in different Research Labs that focus in different related technologies with different fields of applications, such as: antenna beamforming, surveillance radar systems, and optical sensors; photonic integrated circuits and micro-fabrication technologies; and biophotonic sensors, automobilism and robotics. Nowadays, the PRL is currently formed by more than 30 young telecom engineers and physicists and is part of the Institute of Telecommunications and Multimedia Applications (iTEAM) of the Universitat Politècnica de València. The mission is to produce high-quality scientific knowledge in the field of optics, quantum optics and photonics, through research projects, R&D contracts and collaboration agreements with the private sector. The PRL research activity is focused on several applications of photonics, mainly on optical communications of analog and digital signals, and radio-over-fiber systems. Part of the research is also performed in the field of fiber optic sensor and industrial photonics. www.prl.upv.es Since 2019, group members operate in a multi-disciplinary 500m2 class 10.000 micro-fabrication cleanroom (UPVfab, www.fab.upv.es).

The University of Applied Sciences of the Grisons with around 1500 students, is a regionally based university with national significance and international flair. Bachelor, Master and further education studies are offered in the faculties of civil engineering / architecture, information sciences / photonics, business administration, multimedia production, system technology and tourism. In all these subjects, the University of Applied Sciences of the Grisons is active in research and development and provides consultancy and other services. The University of Applied Sciences of the Grisons offers the first Swiss bachelor in photonics program and as such fulfils the demand of the Swiss photonics industry for photonics engineers. Chur is the perfect place for this program since it is located in the valley of the river Rhine. This region is also called "Photonics Valley" due to the presence of many photonics companies. The photonics bachelor of the University of Applied Sciences of the Grisons combines the theoretical fundamentals of photonics with practical trainings and projects with our industrial partners. www.fhgr.ch/photonics

University of Glasgow

The University of Glasgow leads world class programmes across a broad range of optics and photonics research and technology. These span quantum optics and the fabrication of integrated photonic devices, to image processing and data recovery. Key centres include the James Watt Nanofabrication Centre, a world-class, fully staffed cleanroom equipped with over £30M of tools, and QuantIC, one of the UK's four Quantum Technology Hubs, pioneering the translation of quantum techniques to imaging applications. Across the full range of activities, we work with dozens of companies to develop new products and services with consumer, healthcare, security and industrial markets. www.gla.ac.uk

UNIVERSITY OF LATVIA

University of Latvia is one of the largest comprehensive and leading research universities in the Baltic States. The University offers 150 state-accredited academic and professional study programmes. Scientific activity at the University of Latvia takes place both in faculties and scientific institutes. The University of Latvia conducts research in more than 50 research areas. Scientists from the University of Latvia have developed significant studies that have contributed to the competitiveness of the national economy and the improved quality of life. UL grows as a modern academic institution that provides an environment and infrastructure for outstanding achievements in research, studies and creative endeavours. The University of Latvia pays great attention to the development of international collaboration. www.lu.lv/en

UNIVERSIDAD DE MÁLAGA

University of Málaga (UMA, Universidad de Málaga) is a public university established in 1972. With more than 35,000 students and 2,500 lecturers / teachers, UMA offers 59 degree courses, 42 doctoral programmes, more than 50 master's Degrees, and more than 80 internal degrees and 100 courses throughout the academic year. Teaching takes place in 29

centres by appointed lecturers in 81 departments distributed over two campuses. About 278 research groups are actively involved in national and international research projects, and in public-private collaborative contracts. Up to 500 research agreements and contracts are signed every year with a variety of business and private organizations. In 2018, 31 patents have been filed, 12 of which were also protected internationally. Moreover, UMA has participated in more than 200 international research projects, of which it coordinated 15.

The Photonics and Radiofrequency Research Laboratory at Málaga University is a leading silicon-photonics group in Spain, and a renowned expert in integrated subwavelength metamaterials. The group consists of 6 full-time staff members, with a decade-long track-record of collaboration. The group activity has been continuously financed since 1996 by the Spanish National Research Plan and has been collaborating with the National Research Council Canada (NRC)since 2015. Currently this activity is conducted through a Collaborative R&D Grant Award funded from its National Program Office. Between 2007 and 2013 the group participated with leading European industrial partners (Fraunhofer HHI, Alcatel-Thales III-V, Alcatel Lucent Bell Labs France, u2t Photonics AG (later Finisair)) in the EU VII framework Project MIRTHE "Monolithic InP-based Dual Polarization QPSK Integrated Receiver and Transmitter for CoHerent 100-400Gb Ethernet" and in the awarded Eureka Celtic Action “100Gbit/s Carrier-Grade Ethernet Transport Technologies”, where advanced coherent receivers for optical communications were successfully developed. www.photonics-rf.uma.es

Light UNIVERSITY OF Southampton

The University of Southampton’s Optoelectronics Research Center is a world leading research organisation with roots going back to the invention of the optical fibre in the 1960's. Many of the major developments in today’s global technology were pioneered by our researchers including the optical fibres and amplifiers that power the internet and the fibre laser which is used for a variety of applications ranging from manufacturing to defence. Led by leading figures in photonics, our vibrant research community is a constant hive of activity with over 170 staff and students working on cutting-edge research to provide innovative solutions for real life problems in health care, manufacturing, communication, technology, defence, renewable energy and the environment. www.orc.soton.ac.uk

€ Funded Research Projects Experience

- PHOTOSENS: Large-area Nano-photonic Chemical Sensors
- CHARMING aims at developing compact and fully fibred visible lasers for fluorescence spectroscopy and high resolution confocal microscopy systems

University of Stuttgart
Germany

The University of Stuttgart is one of the leading technically oriented universities in Germany with global significance. The Stuttgart Way stands for the interdisciplinary integration of engineering, natural, cultural and social sciences on a foundation of top-flight disciplinary research. Simulation science, production technologies, quantum technologies, digital humanities as well as the topic of adaptive building stand out as particular highlights in the University of Stuttgart's research program. The University of Stuttgart is among the leading German universities participating in Horizon 2020. Currently, the university participates in 124 projects. www.uni-stuttgart.de Among other research institutes of the University of

Stuttgart who are focusing on photonics (e.g. Institut fur Technische Optik (ITO), one can cite the Institut für Strahlwerkzeuge (IFSW) is one of the leading research institute in laser technology and optics. Within the last few years the IFSW has been involved in and coordinated several FP7 (Ultrafast_RAZipol, TiSa-TD), H2020 (Hiperdias, Tresclean, kW-Flexiburst) and Marie-Curie ITN (GREAT) projects. www.uni-stuttgart.de

ITME (The Institute of Electronic Materials Technology) is a research, development and consultancy institution offering a unique combination of scientific and technological capabilities. It is one of Europe's most established and respected centres of crystal growth. The research and development work on materials carried out at ITME is integrated with research on applications, design and technology and with experimental production of electronic and optoelectronic products and components. Activities include processing of advanced materials (e.g. graphene, semiconductors, oxides, single crystals, thick-films, glass and ceramic products, etc.) and devices based on these materials. www.itme.edu.pl

Univet **-** Established in 1997, Univet is the Italian leader and a world leading manufacturer of several eyewear protection categories: Safety, Laser, Clean Room and Loupes. Univet counts on several branch offices worldwide, in Germany, France, North America, Brazil and Russia, as well as many field offices. An in-house laboratory is dedicated to the development of technologies, materials and coatings, some of which patented, in order to supply original and innovative solutions, for a complete range of laser protective devices in the industrial, medical and scientific applications. Whatever the laser source and the specific need, Univet is able to offer the best solution in terms of technology, quality, protection and comfort. Since the early days Univet is dedicated to the design, proudly Made in Italy, having won, among the others, three Red Dot Design Awards running, one iF Design Award, two German Design Awards and the international award "Technology Leadership in the Eye Protection Industry" from the Frost & Sullivan Association. Laser Univet frames are exclusive and recognizable for technology and design: a very low weight, complete stability, adjustable and user friendly, multiple terminal settings, total adherence, patented devices and material for high levels of protection and higher resistance to direct irradiation. www.univet.it

UpNano is a system provider for high-resolution 3D printing. In addition to the development, production and manufacturing of printing systems and the corresponding operating software, UpNano offers printing materials and accessories optimized for the process. The lead product NanoOne is the fastest high-resolution 3D printing system on the market. It is based on multiphoton lithography and combines the precision of 2-photon polymerization (2PP) with an unmatched throughput of up to 200 mm^3 per hour. This makes the system suitable not only for scientific research approaches and multi-user facilities but also for the batch and small series production of industrially applied microparts.With UpNano's cutting-edge

technology it is possible to print objects with sizes ranging from the sub-micrometer to the centimeter range and up to 42 mm in height – within times never achieved before. Thus, we can offer customers a technology that not only provides the renowned fine resolution of 2PP, but also for the first time closes the gap between established 2PP and micro SLA methods. Thanks to the innovative edge of our technology, we can count research institutes and industrial customers from the fields of optics, consumer electronics and material development as well as medical engineering and cell/tissue research among our customers. Thanks to this high variety of projects and the diversity of our team, we are able to provide customers with advice and support from the very first idea to the implementation of the technology. www.upnano.at

€ Funded Research Projects Experience

- INCITE – Immune Niches for Cancer Immuno Therapy Enhancement

USHIO

Applying Light to Life

Ushio has garnered a worldwide reputation as the leading manufacturer of speciality industrial light sources. Spanning the complete spectrum of wavelengths, from the extremities of UV and visible light right through to infrared and SWIR, USHIO solutions can be found in a diverse range of products. Next to lamps and devices Ushio offers a wide range of high-quality Laser Diodes and LEDs - all wavelengths in the UV, visible and IR spectra between 365nm and 1,750nm – for all applications. www.ushio.eu

uvmedico

UV Medico is a high-tech company developing cutting edge solutions in the Far UV-C field. We strive to fight the spread of infectious diseases by inactivating viruses, bacteria, and other pathogens. We are revolutionising the integration of Far UV-C light in daily businesses' activities to provide safer environments. Our signature filtered excimer lamp, UV222™, is now distributed in more than 20 countries for the disinfection of occupied spaces. We are supported by the Danish government through the Innovation Fund and are in active collaboration with Danish and European organisations for the development of our pipeline portfolio. www.uvmedico.com

V&A-PHOTONICS

V&A Photonics co-develops and markets photonics integrated solutions for telecom, data communications and sensing applications. We also, offer R&D services for customers who would like to develop their own products. Operating from offices in Eindhoven in the Netherlands and Wuxi in China we link photonic integrated systems end users with technology developers. If you are a product supplier searching for co-developer V&A-Photonics is your ideal partner. www.va-photonics.com

V-Optics offers unique vision systems for surface inspection. The reliable, repeatable, and accurate, non-destructive testing machines and sensors are adapted either to manufacturing or laboratory environments. They can automate the inspection process and bring objectivity to the verdicts: detection and measurement of scratches, tooling marks, union lines, shrink marks, waviness, and paint defects (orange peel, drips). www.v-optics.fr

VALO Innovations offers innovative fiber-based, ultrashort pulse laser systems with durations below 50 fs at a range of power levels. The simple, user-friendly, turnkey laser systems are controlled by "intelligent" electronics. Our systems can be used for various applications in biophotonics (e.g. multiphoton microscopy), micro- and nanomaterial processing, scientific applications and many more. With more than 12 years of experience in fiber lasers and amplifiers we create innovative solutions, tailored for our customers. www.valo-innovations.com

Vanguard Automation offers automated photonics assembly processes and machines for 3D nano-printing in the field of photonic multi-chip integration and packaging. The solution covers the full range from small-scale prototyping to fully automated mass production. Vanguard Automation GmbH was founded in 2017 as a joint venture of Vanguard Photonics GmbH and ficonTEC Service GmbH. Vanguard Automation's scalable manufacturing solutions and our customers are taking advantage of ficonTECs advanced manufacturing and global support capabilities. Vanguard Automation builds upon an internationally unique and proprietary technology portfolio that was built up by Christian Koos and his research groups at Karlsruhe Institute of Technology (KIT). This technology portfolio exploits additive nanofabrication techniques for packaging and assembly of photonic integrated circuits and photonic multi-chip modules, thereby serving a wide range of applications in information and communication technology, in medical applications and life sciences, as well as in industrial metrology and sensing. www.vanguard-automation.com

vario-optics, founded in 2009 as a spinoff of Varioprint AG, located in Heiden (Switzerland) is a leading supplier of Electro Optical Circuit Boards (EOCB). With this new technology, vario-optics ag has made significant investments, not only in the product technology but also in the development of the production process technology and the necessary infrastructure. The

products are sold globally, to all major markets, such as telecom, industry, medical, automotive, military and aerospace. www.vario-optics.ch

Vector Photonics is a spin-out company from the University of Glasgow and is based in Glasgow, Scotland, one of the UK and world's Optical and Photonics centres of excellence. Vector Photonics has proven its revolutionary, proprietary, PCSEL technology in both an R&D, laboratory environment and in commercial fabs. The company is now transferring key design and process knowledge into an industrial environment, for high-volume manufacture. Vector Photonics operates a 'Fabless' production model, outsourcing fabrication to semiconductor foundry partners. This is a high-volume, fully scalable approach enabling rapid expansion by utilising existing photonics equipment and capacity. www.vectorphotonics.co.uk

Veoneer is a world leader in automotive safety focused on active safety and restraint control systems. Veoneer is a Tier-1 hardware supplier and system integrator with products being part of more than 125 scheduled vehicle launches for 2022. We are around 6,100 people working as a team with cutting-edge technologies developed to prevent traffic incidents from happening and mitigate the effect when accidents are unavoidable. www.veoneer.com

VERTILAS develops and manufactures innovative laser diodes for gas sensing (TDLAS - Tunable Diode Laser Absorption Spectroscopy), optical communications and customer specific applications in the NIR (near infrared) range. VERTILAS long wavelength VCSELs (Vertical Cavity Surface Emitting Laser) are available from 1270nm to 2360nm with a wide range of packaging options, incl. cooled and uncooled TO packages, as well as LC-TOSAs and pigtails. VERTILAS VCSELs are specifically designed and manufactured to offer excellent single mode performance. For sensing and spectroscopy markets, Vertilas can offer single mode VCSELs in 15 standard wavelengths and additional wavelengths can be manufactured on demand. They offer a wide and fast tuning range to enable rapid and precise measurements for ppm and ppb sensitivity levels. For communications applications, Vertilas VCSELs achieve 10.3 Gbps and up to 40Gbps transmission performance. Furthermore, for customer specific applications, Vertilas can offer 1D and 2D VCSEL arrays. Vertilas VCSEL technology enables system designers to reduce power consumption by 50% and more compared with other lasers technologies. www.vertilas.com

€ Funded Research Projects Experience

- NEMIS: New mid-infrared sources for photonic sensors
- Subtune: Widely Tunable VCSEL using Sub Wavelength Gratings
- Gigawam: Giga Bit Access Passive Optical Network Using Wavelength Division Multiplexing
- Firefly: Multilayer Photonic Circuits made by Nano-Imprinting of Waveguides and Photonic Crystals

- Phoxtrot: Photonics for High-Performance, Low-Cost & Low-Energy Data Centers, High Performance Computing Systems:Terabit/s Optical Interconnect Technologies for On-Board, Board-to-Board, Rack-to-Rack data links
- RAPIDO: Revolutionary Advances in Photonics Integration Being Applied for Optical Communication

VEXLUM addresses the need for affordable laser systems with high brightness, narrow linewidth, application tailored wavelength, and compact footprint. We capitalize on leading expertise in the area of Vertical-External-Cavity Surface-Emitting Lasers (VECSELs), having key competences in epitaxy of optoelectronics materials, advanced semiconductor processing techniques, laser physics and engineering. Our vision is to bring VECSEL technology to high impact applications, e.g. in quantum technology and medicine, where we can deliver unique benefits in performance, cost and usability. www.vexlum.com

VIAVI Solutions, created from JDSU, was founded in 1923 as Wandel and Goltermann, a European company that grew from two technicians building and selling radios, to one of the world's largest suppliers of electronic test and measurement equipment. VIAVI empowers Service Providers and IT organizations to manage the network lifecycle for complex 5G and Fiber networks with intuitive instruments, systems and technologies; and our expertise in light management and optical coatings help protect the world's bank notes from counterfeiters, enhance the colors you see, and enable advanced technology such as 3D sensing. www.viavisolutions.com

Videology is a global leader in the design, engineering and manufacturing of industrial-grade embedded cameras. Founded in 1995, Videology has been providing performance excellence in a broad spectrum of applications including medical and life sciences, transportation and traffic management, pipe and environmental inspections, aerospace and defence. We specialize in meeting customized specification requirements of OEMs and integrators which have resulted in the delivery of over 1 million embedded cameras worldwide. We take great pride in our ability to customize and modify our existing cameras to perfectly align with your changing requirements. Our team of engineers, based both in the USA and Europe, are experts in their fields, adding new technology and techniques to capitalize on the advancements of the most recent imaging technologies. www.videologyinc.com

VIGO Photonics is a European manufacturer of semiconducting materials and instruments for photonic and microelectronic, specialized in MWIR and LWIR detectors and modules, produced with the use of internally-developed technology. The mission of VIGO Photonics is to provide fast and convenient, easy to use IR detectors at any wavelength from 2 to 16 µm, reaching fundamental BLIP limits without cryocooling. Modules are available with different spectral response ranges, time response characteristics and gains. VIGO Photonics has a complete front – end and back- end production line for semiconductor high capacity instruments – from epitaxy of II-IV and III-V groups, through detector chips, lasers and their assembly and integration with electronics. The company is constantly expanding its market reach and now has its subsidiaries in Taiwan and the USA. www.vigophotonics.com

VIGO Ventures - shedding light on the future by investing in photonics. VIGO Ventures is an early-stage (pre-round A) investor for photonic and deep tech companies that brings hands-on business approach and possible follow-on investment up to €10mln We have a global technology leader and an experienced private equity investment group backing us up. Our two strategic partners are VIGO Photonics and Warsaw Equity Group. VIGO Photonics (https://www.vigo.com.pl/en) - a world leader in high-tech solutions - the most advanced mid-infrared photonic detectors, modules dedicated to these detectors and semiconductor materials. Warsaw Equity Group (https://warsawequity.com/) - a privately held investment company with over 20 years track record of successfully supporting business ventures both by investing their own capital, as well as by providing ongoing operational and strategic support for active investment projects.
www.vigo.ventures

VISION, the world's leading machine vision trade fair, is not just the marketplace for component manufacturers, it is also a platform for system suppliers and integrators. VISION is where OEMs, mechanical engineering companies and system houses learn about the latest innovations from the world of machine vision components, and where they initiate their investments. At the same time, it is where end users searching for specific machine vision solutions meet numerous system integrators. This is the only place in the world where the complete spectrum of the machine vision technology is staged in this way. Find out all about machine vision in Stuttgart. www.vision-fair.de

Vision Markets, founded in 2014 by Ronald Müller, is the leading Business Consulting Company exclusively dedicated to the global Machine Vision, Imaging, and Photonics industry. Vision Markets have already supported over 70 SMEs, as well as multi-billion dollar companies from Japan, China, Vietnam, Europe, Canada, and USA, and enabled its clients to grow with strategic consulting services in Marketing, Sales, Product Management, and Corporate Acquisitions. Vision Markets customers further benefit from their capabilities by outsourcing various tasks to them, like recruiting, public relations management, creation of marketing content, and all aspects of digital marketing. www.markets.vision

VISION VENTURES

Vision Ventures is the expert in corporate transactions in the field of vision tech, one of the most exciting and fastest-growing business areas in automation technology and the key technology of the 21st century. The interest in corporate transactions in this area is correspondingly sizeable and diverse. The basis of every successful transaction is a well-defined M&A strategy with a clearly specified success scenario. This demands an experienced industry expert in a dynamic market like ours. Vision Ventures puts you a decisive step ahead. What distinguishes us as an M&A boutique is our unique expertise in the field of vision. We know every facet of the vision markets. We combine solid experience and expertise in vision technologies with a network that has naturally evolved over many years, with strong contacts in Europe, North America, and Asia. www.vision-ventures.eu

VIS
Vertically Integrated Systems

VI Systems (VIS), founded in 2006, is a fabless developer and producer of optical engines for data transmission at ultrahigh bit rates and the related electro-optic components for applications in datacommunications, access networks and sensing. VIS offers integrated circuits, optical components, such as vertical cavity surface-emitting lasers (VCSELs) and PIN photodiodes. VIS executes technology transfer projects and has a portfolio of 20 VCSEL and PIN-related patent families. www.v-i-systems.com. www.v-i-systems.com

€ Funded Research Projects Experience

- ADDAPT: Adaptive Data and Power Aware Transceivers for Optical Communications

Vital 3D Technologies

Vital3D Technologies is a leading provider of laser-based 3D bioprinting solutions to produce functional human organs. Our innovative technology uses lasers to precisely deposit living cells and biomaterials in 3D patterns, allowing us to create functional, scalable, and reproducible tissue constructs. Our focus is on developing 3D bio-printed kidneys, which have the potential to revolutionize the treatment of kidney disease and other related conditions. By partnering with leading researchers and medical institutions, we aim to bring

our cutting-edge technology to the forefront of the bioprinting industry and make a meaningful impact on patient care. www.vital3d.eu

VitreaLab is a photonics start-up, shaped by top-level engineers who work in a fully equipped laboratory facility in Vienna. Inspired by quantum technology, they provide integrated optics solutions, ranging from simple lighting to visionary display products.VitreaLab creates innovative products by writing waveguides (light micro-channels) in glass, based on a unique laser-writing technology. VitreaLab's innovative laser-lit chip will strongly improve standard LCDs and will unlock world-first full holographic display. By replacing the standard backlight unit of an LCD with VitreaLab´s technology, each sub-pixel is supplied by a dedicated light source with correct color, polarization and angular distribution. This significantly enhances the LCD's performance in terms of energy efficiency, brightness, contrast ratio, and color rendering. www.vitrealab.com

Vixar is a wholly owned subsidiary of Osram Opto Semiconductors and is located in Plymouth, Minnesota, USA. Vixar was acquired by Osram Opto Semiconductors in 2018 and was founded in 2005 to develop VCSEL device and subassembly technology for the consumer, industrial and medical industries. OSRAM Opto Semiconductors is a global high-tech company and photonics leader. Primarily focused on semiconductor-based technologies, OSRAM's products are used in highly diverse applications ranging from virtual reality to autonomous driving and from smartphones to networked, intelligent lighting solutions in buildings and cities. The product portfolio is comprised of high-performance light-emitting diodes (LEDs); infrared LEDs (IREDs); semiconductor lasers, including VCSELs, and detectors. OSRAM utilizes the infinite possibilities of light to improve the quality of life for individuals and communities. OSRAM's innovations will enable people all over the world not only to see better, but also to communicate, travel, work, and live better. www.osram-os.com www.vixarinc.com

VLC Photonics is a Spanish company, part of the Hitachi High-Tech group, devoted to providing services and solutions related to the development and introduction to market of systems based on photonic integrated circuits (PICs). Key focus areas are techno-economic feasibility studies and consultancy, in-house PIC design, characterization and test, and full PIC prototyping through external manufacturing and packaging/assembly partners. VLC Photonics, as a fabless design house, works with multiple foundries embracing the generic integration model, and makes use of these fabrication platforms to always chose the most suited process (Silicon-on-insulator, Silica/PLC, SiN/TripleX, InP/GaAs) for the application at hand. VLC Photonics also works closely with foundries to contribute in the building of their

Process Design Kits (PDKs), which enables access to state of art technologies. www.vlcphotonics.com

€ Funded Research Projects Experience

- ePIXnet: European network of excellence on photonic integrated components and circuits
- PARADIGM: Photonic Advanced Research And Development for Integrated Generic Manufacturing

VON.JAN TECHNOLOGY

VONJAN Technology is a one-stop-supplier for industrial laser system integrators and research facilities. We have specialised in the essential core components of today's laser systems, such as MOPA and CW fiber lasers, DPSS and CO2 lasers, 2-axis and 3-axis scan heads, optics and control electronics with intuitive software. We consult our customers on individual products and application-specific product combinations. Especially the optimal combination and the resulting interaction enable outstanding performance and highest reliability. Due to a constant stock, we guarantee fast delivery. Customer-specific product adaptations, customized developments and application tests are part of our daily business. With more than 25 years of experience in the laser market, we provide outstanding service and individual solutions for micro and macro material processing. We support our customers in national and international competition. www.vonjan-tech.de

Vortex Optical Coatings Ltd

Vortex Optical Coatings Ltd is in the middle of the UK in Hinckley near Leicester. We design and manufacture optical coatings and filters for scientific instruments and sensing. A particular area of expertise is infra-red filters for applications such as gas detection, process monitoring in the food drink and chemical industries, plastics separation and an almost daily growing list of applications! The company also has a 'rapid prototype shop' where it can design and manufacture brand new filters in consultation with its customers, in as little as 2 weeks. State of the Art deposition technologies are used in production. The company also makes dichroic filters and beam-splitters, anti-reflection coated windows in volume and a range of infra-red Linear Variable Filters (LVF). www.vortexopticalcoatings.co.uk

VoxelSensors

VoxelSensors is at the forefront of 3D perception, providing cutting-edge sensors and solutions for seamless integration of the physical and digital worlds. Our patented Switching Pixels® Active Event Sensor (SPAES) technology represents a novel category of efficient 3D perception systems, delivering exceptionally low latency with ultra-low power

consumption by capturing a new Voxel with fewer than 10 photons. SPAES is a game-changing innovation that unlocks the true potential of fully immersive experiences for both consumer electronics and enterprise AR/VR/MR wearables. www.voxelsensors.com

VOYAGE 81

Voyage 81 provides scalable, low-cost hyperspectral computer vision solutions. Its patented, software-only solution recovers hyperspectral information from existing cameras providing a unique and low cost solution for material sensing based object detection. Its technology additionally offers a novel avenue for improving low-light capabilities, which can increase the combined performance of existing sensors, optics, and even software post-processing by over 100% in low-light conditions. www.81.voyage

VPIphotonics
DESIGN AUTOMATION

VPIphotonics provides professional simulation software and design services for optical component and subsystem manufacturers, as well as system and network integrators. VPIphotonics offers a suite of software environments supporting design, analysis and optimization applications for integrated photonics, optoelectronics, fiber optics, transmission systems and networks. VPIphotonics off-the-shelf and customized solutions are valued for their powerful and comprehensive simulation capabilities and high degree of flexibility. They are applied in research and development, product design and marketing by hundreds of companies, and for teaching and research at over 160 academic institutions worldwide. www.VPIphotonics.com

v research
Industrial Research and Development

V-Research, since its founding in 2004, has viewed research and innovation as increasingly important for the high-tech as well as for the manufacturing industry. V-Research aims for bringing the newest research results to the industry and translate it into commercial applications. The industrial use of this knowledge is carried out with the aim of achieving rapidly useable results for the best possible benefit and success of the customers. The Product portfolio includes: Photonics, fundamental research for lighting applications, construction of assemblies, plant configuration and commissioning, tribological optimization, and failure analysis. www.v-research.at

VTEC
LASERS & SENSORS

VTEC Lasers & Sensors, located in Eindhoven, The Netherlands, was founded in 2011 and is experience dates to 1980s at the time of the invention and first production of the 780 nm Compact Disk lasers. We are and independent organic growing company developing,

manufacturing and selling high tech products. Our purpose “Improving Quality of Life” is our guiding principle that motivates us all to come to work every day. VTEC Lasers & Sensors develops and manufactures technology for creating and transporting data to return intelligence. We create data by developing sensors for enhancing the fitness experience, improving and monitoring the work and living conditions. We transport data by developing and producing high speed photonic devices and photonic integrated circuits to accelerate the online and social platform access. The intelligence we return helps people to grow their fitness level and creates insight in the environmental air pollution and working conditions to enable improvement activities. www.vtec-ls.nl

VTT Technical Research Centre of Finland is a non-profit government organisation operating under the auspices of the Finnish Ministry of Employment and Economy. In photonics, VTT's technology offering covers the whole value-chain from devices to modules and systems. VTT aims towards developing wafer-level, sheet-level and large-area packaging and integration technologies by combining mature processes with novel fabrication methods. VTT's strength is in system level integration. Applications include optical and electrical sensors, photonic and electronic components and modules, large-area electronics and optical sensors and instruments for process control. www.vtt.fi

€ Funded Research Projects Experience

- FIREFLY: Multilayer Photonic Circuits made by Nano-Imprinting of Waveguides and Photonic Crystals
- PHOTOSENS: Large-area Nano-photonic Chemical Sensors
- RAMPLAS: Silicon-based, integrated Optical RAM enabling High-Speed Applications in Computing and Communications
- VIAMOS: Early Detection of Skin Pathologies
- FOSTERNAV: Flash Optical Sensor for Terrain Relative Robotic Navigation

The W3+ Fair is a cross industry networking trade fair for the fields of optics, photonics, electronics and mechanics. In cooperation with EPIC, Wetzlar Network, Swissphotonics, Photonics Austria and key industry partners it provides these high-tech sectors with a new, multidisciplinary plattform in the traditional optics location of Wetzlar (February 26 + 27, 2020) in Germany and - new - in the Rheintal region (D/A/CH/LI, September 23 + 24, 2020). The W3+ Fair promotes information, innovation and contact among experts and paves the way for innovative solutions e.g. for MedTech, Life Science, Tools & Machinery, Automotive and therewith new business - a real model for success. www.w3-fair.com/en/

Wasatch Photonics, founded in 2002, designs, manufactures and markets high-sensitivity compact spectrometers and systems for Raman spectroscopy based on its own patented

high efficiency volume phase holographic (VPH) gratings. The company also offers VPH gratings for pulse compression, astronomy, spectral imaging, and optical coherence tomography (OCT), as well as spectrometers for OCT. Our high-performance VPH gratings, spectrometers, and systems are used in research labs around the world. We also work extensively with OEM partners spanning a diverse range of industries, including defense and security, chemical manufacturing, pharmaceutical, medical, energy, education, computer, and electronics sectors. www.wasatchphotonics.com

Wavelength Opto-Electronic (WOE) is your one-stop centre, strategic partner and collaborator for Photonics since 2002. We have a strong R&D team who specialize in design and customization of optics related solutions for customers. We have capability to provide a complete supply chain from raw material, machining, coating, inspection up to delivery to customer destination worldwide. Distribution of Photonics products from worldwide. By adding our knowledge and experience in distribution products over the years, we are able to provide a complete solution, by combining our optics products and distribution products to meet the customer requirements and specifications. www.wavelength-oe.com

WaveOptics is a world leading designer and manufacturer of revolutionary Augmented Reality (AR) Glass Lenses and Light Engines – two key optical components of any AR headset. Our Glass Lenses are based on diffractive waveguides and have a balance of attributes that deliver a superior display to the widest range of users. Our Light Engines are specifically designed to meet requirements of AR applications and paired with our Glass Lenses to deliver best in class experience for the end user. www.enhancedworld.com

Wave Photonics, founded in 2021 and headquartered in Cambridge, is taking a computational approach to integrated photonics design and is currently in the technology development stage. We are combining process and variation modelling with optimisation techniques to make fabrication-tolerant and high-performance designs. This will accelerate the development of integrated photonics products by reducing the number of iterations needed and facilitating the move from research to high-volume fabrication. We aim to accelerate development of integrated photonics products in applications such as transceivers, LIDAR, biosensing, quantum computing and quantum key distribution (QKD). www.wavephotonics.com

€ Funded Research Projects Experience

Wave Photonics is leading a £470k project, funded by the UK's innovation agency, Innovate UK, alongside consortium partners Cardiff University, the Compound Semiconductors Applications Catapult and KETS Quantum Security. The project aims to develop a quantum

photonics specific PDK, to provide better resources and tools to integrated photonics companies and research groups.
In 2021/2022, Wave Photonics also led a £50K Innovate UK germinator project focused on chip design to develop an approach to integrated QKD suitable for disaggregation.

WEINERT group is a leading provider of ultrapure Fused Silica, preforms, and rods as well as optical fibers, cables, assemblies, and special components. Our extensive knowledge and passion for photonics – that stems from over 20 years of experience in the development, design, and production of fiber optic products – allows us to use this enabling technology to best provide effective and innovative problem-solving solutions for our customers. Moreover, by handling the entire value creation process in-house, from the production of preforms through to custom-manufactured optical components WEINERT has the capability to deliver on every aspect of a project from conception to final product – ensuring efficiency and generating the highest possible value add for our customers. www.weinert-industries.com

Wielandts UPMT is a Belgian start-up company incorporated in 2013 developing innovative technologies related to lens arrays. Using its patented technology called DPI™, the company proposes ultra-precision machining services for MLA masters and monolithic multi-cavity molds to customer specifications for a wide range of applications: wafer level optics, R2R, R2P injection molding inserts, … Wielandts UPMT is also developing an iso-thermal molding technology called HiFiOptics™, taking profit of the advantages of DPI™. www.upmt.be

WiredSense is a technology start-up specializing in highly sensitive and fast detection of infrared and terahertz radiation. Founded in 2018 on the DESY research campus in Hamburg, Germany and with roots at the Max-Planck-Institute for Structure and Dynamics of Matter, WiredSense builds detectors that help scientists and engineers worldwide characterize light with highest precision. Our pyroelectric sensors are significantly faster than the industry standard while keeping maximum detectivity and a broad range of detection wavelengths. Based on these detectors we develop Sweeb, a cost-effective mid-infrared spectrometer for analysis of solids and liquids within seconds. Chemical material analysis is performed via our cloud-based platform, which combines a database of reference spectra with problem specific algorithms. Our mission is to simplify material analysis by making infrared spectroscopy more accessible. www.wiredsense.com

WISTA Management GmbH (WISTA) is a state-run company and is an experienced developer, service provider, and business promoter. As an initiator and economic catalyst, WISTA contributes to strengthening the basis of Berlin's regional economy by bringing together scientists and entrepreneurs. Its tasks include the establishment, operation and letting out of modern technology centres as well as the sale of properties. WISTA also supports the founding of new businesses, supports companies, connects science and business and fosters national and international co-operations. WISTA operates the Science and Technology Park Berlin Adlershof and the Charlottenburg Innovation Centre (CHIC) in Berlin's City West. It is active in managing the Berlin economic development of Berlin's southeast district and in setting up a technology and start-up centre near Freie Universität campus in Berlin Dahlem (FUBIC). Finally, WISTA is operating the business office for Berlin's high-technology areas ("Zukunftsorte", places of future innovation) on behalf of Berlin's Senate Department for Economics, Energy and Public Enterprises. www.wista.de/en/

workfloor bv offers affordable browser-based tools that help you with your manufacturing processes. Streamline operator inputs, have full track and trace capability for parts, batches, equipment. WorkFloor provides an extensive Application Programming Interface that can be addressed through a web service. Many of their customers use this to integrate WorkFloor with equipment or ERP software. WorkFloor has a large library for sample applications including Android applications that can be used in the field. www.workfloor.com

Workshop of Photonics (WOP) is a privately-owned company having the biggest femtosecond laser micromachining laboratory in Europe. It is dedicated to developing instruments and solutions for femtosecond laser micromachining tasks. WOP provides contract manufacturing services with exceptional expertise in glass micro processing, including feasibility studies. Also, delivers special optical elements and customized femtosecond laser micromachining machines for industry and science needs. Since the beginning in 2003, WOP has been involved in projects connecting scientific inventions with the market needs. Company's growth is fueled by a culture of open innovation and partnership with the local laser sector companies and worldwide partners. The clients range from research centers and laboratories to industrial companies - semiconductor, medical, automotive, telecommunication and other industry players. www.wophotonics.com

WZWOPTICAG has designed and manufactured high-end, quality optics solutions for a global customer base for more than 54 years. Specializing in 'build to print' manufacturing,

from start to finish, WZWOPTICAG has the unique capability of offering customers an integrated 'one-stop' source for all their optical requirements. ‘Super-polished’ or laser quality polished substrates are ideal for use as low-loss laser mirrors, where thermal stability, surface scatter and high laser damage thresholds are key requirements. Magnetorheological Finishing (MRF) - Obtain high-precision surfaces (lambda/50) and Correction of transmitted wavefront (windows, phase plates, entire system correction on one surface). WZWOPTICAG provides opto-mechanical engineering and system prototyping services. WZWOPTICAG offers a high level of specialized expertise to all phases of assembly fabrication, from opto-mechanical concept and design, through component construction, final assembly and testing. www.wzw.ch

X-Celeprint is developing and licensing patented Micro-Transfer-Printing (µTP) technology. µTP is a cost-effective and scalable manufacturing platform for integrating microscale devices such as lasers, LEDs or integrated circuits onto non-native substrates. A wholly owned subsidiary of XTRION N.V., X-Celeprint works globally with partners to adapt its µTP technology for their specific applications. X-Celeprint is headquartered in Cork, Ireland, with facilities within the Tyndall National Institute. www.x-celeprint.com

€ Funded Research Projects Experience
‘’TOPHIT’’ : Transfer-print operations for heterogeneous integration

X-FAB is one of the world’s leading specialty foundry groups for analog/mixed-signal semiconductor technologies with a clear focus on automotive, industrial, and medical applications. As a pure-play foundry, we provide manufacturing and strong design support services to our customers that design analog/mixed-signal integrated circuits (ICs) and other semiconductor devices (inc. MEMS, power semiconductors and photonics) for use in their own products or the products of their customers. www.xfab.com

Xenics part of Exosens group, is a leading European manufacturer and designer. Since 2000, Xenics has been delivering state-of-the-art solutions and designs of infrared imagers, cores and cameras to improve business results. The complete portfolio of products for the VisNIR, SWIR and LWIR ranges are developed to support machine vision, scientific & advanced research, transportation, process monitoring, safety & security and medical applications. Xenics ensures its commitment of doing good to the world by developing solutions for enhancing quality of life and sustainability. With a worldwide sales and service network, a pioneer of infrared technology and with a proven track record spanning the last twenty years, Xenics also exists to support its customers with simplified export procedures. www.xenics.com

XPANCEO, founded in 2021, is working on eXtended Computing (XC), a next generation computing category. XC helps you create a better version of yourself and rethink human limitations using cutting-edge technologies including advanced optics and photonics, novel materials, neurotech, and quantum technologies. At XPANCEO we dream big, execute, and never settle. www.xpanceo.com

XRnanotech is the leading Swiss manufacturer of highest-quality nanostructured optical elements. Our mission is to develop and fabricate the most innovative nano-optics that perform best in terms of resolution, efficiency, stability and design. We offer optical components such as precise and high aspect-ratio Fresnel zone plates, nanostructured test targets for microscopy as well as 2D and 3D computed tomography (CT), customized diffractive optical elements (DOEs), flat optics and silicon nitride (SiN) membranes. Incorporated in 2020 as a Spin-Off company from the X-ray optics and applications group at the Paul Scherrer Institut, we have a long-standing experience in designing and nanostructuring optical components. In order to meet our customers' needs, we offer a variety of tailored solutions ranging from one-off items to serial production and fab services. www.xrnanotech.com

Yelo, founded in 1983, specialise in the design and manufacture of burn-in and life test equipment for optoelectronic devices. With an experienced team of 50, Yelo has grown to become one of the industry's leading and most trusted names for burn-in equipment. The company is vertically integrated and possesses full design and manufacturing capabilities. One of Yelo's biggest strengths is its in-house mechanical design capability which looks after device fixturing and probing for many different types of devices (bare chip, laser bar, chip on carrier, chip on substrate and packaged devices). Another key strength is its Research and Development division which provides solutions for complex issues such as thermal management. By having early discussions in the design phase of a new photonics device, Yelo can advise a suitable approach needed to enable safe, repeatable device testing. www.yelo.co.uk

Yole Développement (Yole) has grown to become a group of companies providing marketing, technology and strategy consulting, corporate finance services, reverse engineering and costing services and well as IP and patent analysis. With a strong focus on emerging applications using silicon and/or micro manufacturing, Yole Group of Companies has expanded to include more than 80 collaborators worldwide covering MEMS and image sensors, Compound Semiconductors, RF Electronics, Solid-state lighting, Displays, Software, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing,

Nanomaterials, Power Electronics, Batteries & Energy Management and Memory. Yole, along with its partners System Plus Consulting, PISEO, Knowmade and Blumorpho, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business. www.yole.fr

ZABOLIS PARTNERS

Zabolis Partners is an investment group driven by the goal of enriching local economies through investments in high-tech, digital transformation, clean tech, and urban development. Our company's portfolio consists of more than €525 million. Long-term partnership is one of our fundamental values. We are actively involved and invested in the Vilnius photonics ecosystem. www.zabolis.com

ZEISS

ZEISS is an internationally leading technology enterprise operating in the fields of optics and optoelectronics. For its customers, ZEISS develops, produces and distributes highly innovative solutions for industrial metrology and quality assurance, microscopy solutions for the life sciences and materials research, and medical technology solutions for diagnostics and treatment in ophthalmology and microsurgery. The name ZEISS is also synonymous with the world's leading lithography optics, which are used by the chip industry to manufacture semiconductor components. There is global demand for trendsetting ZEISS brand products such as eyeglass lenses, camera lenses and binoculars. With over 31,000 employees, ZEISS is active globally in almost 50 countries with around 60 sales and service companies, 30 production sites and 25 development sites. www.zeiss.com

ZENIT
Smart Polycrystals

Zenit Smart Polycrystals aims to develop and produce transparent polycrystals that allow for exceptional laser performance. Zenit polycrystals are offered as an alternative to traditional and less performing single crystals. Zenit Smart Polycrystals is a start-up founded in the ceramic district of Faenza (Italy) by a team of researchers from the Italian National Research Council (CNR). Supported by national and international funds, the group has patented a process that allows the creation of transparent polycrystalline components with complex shapes and geometries and chemical composition that can vary in three dimensions. www.zenitpolycrystals.it

zero point motion

Zero Point Motion brings GPS positioning accuracy indoors through innovative photonic inertial sensors. Our chipscale accelerometers and gyroscopes are low noise and low drift, providing longer durations of positioning accuracy in any environment; indoors, outdoors or underground. Founded in the UK in 2020, Zero Point Motion is an early stage start-up developing micro-optical-electro-mechanical system devices in a fabless model, based on proven technology demonstrated in the lab and on field-trials. Our vision is to bring the sub-centimetre performance of navigation grade sensors to industrial and consumer applications such as drones, Industry 4.0 and indoor navigation. www.zeropointmotion.com

ZÜND
precision optics

Zünd precision optics, founded in 1968, specializes in the production of plano optical components and kitting systems that meet the exact needs of our customers. In the service of science and technology, we participate in the development and production of optical components of the very highest precision. Our supporting role begins with the design and development of prototypes and samples and extends to the series production. www.zuendoptics.com