



EPIC Annual General Meeting 2023

29-30 March, 2023 | Helsinki, Finland



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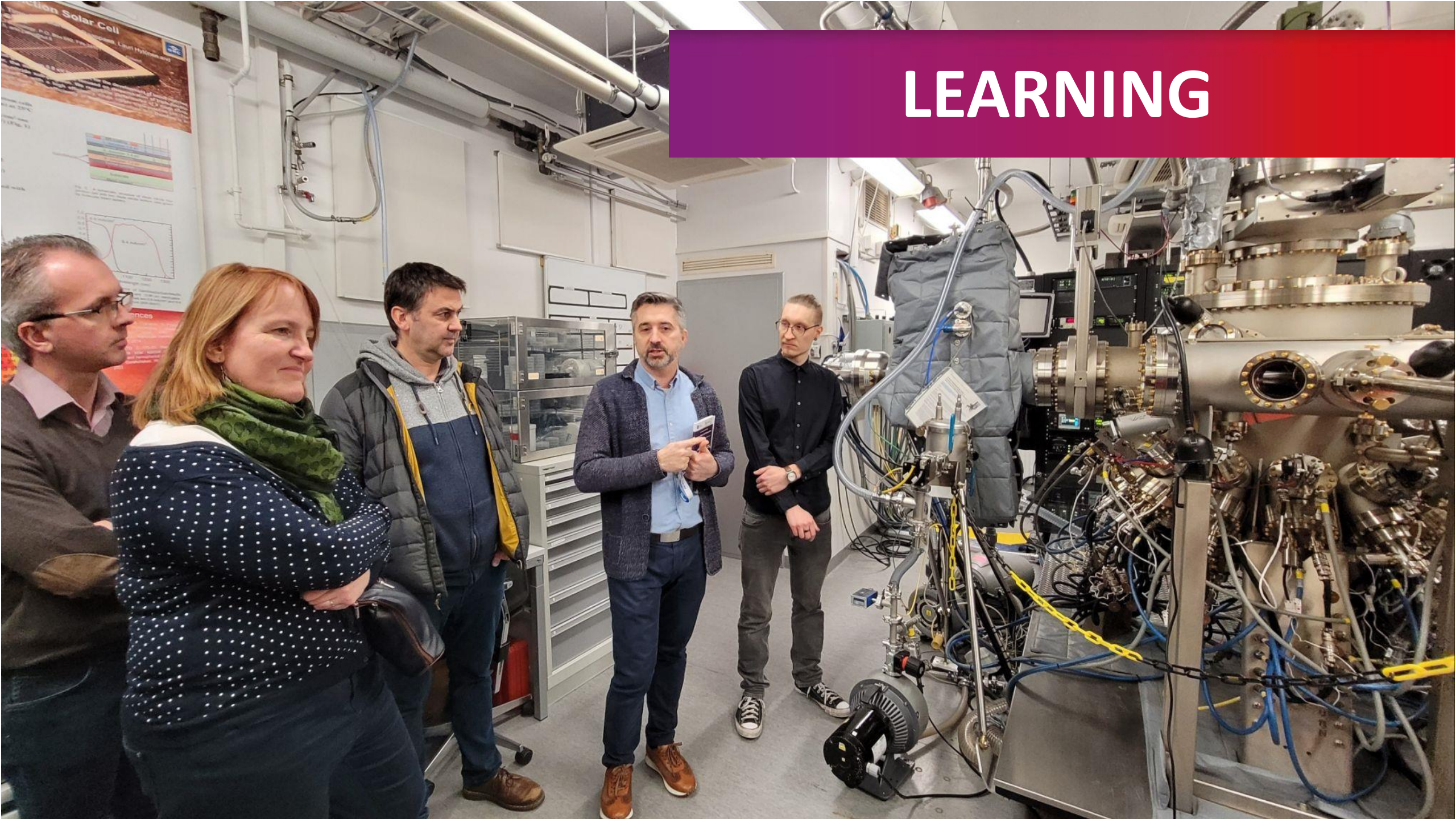


Carlos Lee

Director General

EPIC – European Photonics Industry Consortium

LEARNING



CONNECTING





ENJOYING



Activity Report 2022

EPIC Exhibitions

During 2022 we could finally meet physically again and EPIC took the opportunity to network with members and other companies during several exhibitions. Many members came by one of our booths to sit down with a cup of coffee and discuss the latest topics.



Exhibited at **12** international exhibitions



Served **623** cups of coffee



EPIC Networking



4

Runs



545 km

EPIC
Members ran



3

Breakfasts



2

Lunches



4

Receptions



2

Investor Meetings

EPIC builds a trusted photonics community by creating many networking opportunities among its members, customers, and VIPs from the photonics industry. In this way, companies get to know each other better and people build a long-lasting trustful relationship.

EPIC Events



6

General Events



4

Laser Events



1

Medical Event



2

Optics Events



2

PIC Events



1

Quantum Event



2

Sensor Events



2

Space & Defense
Events



1

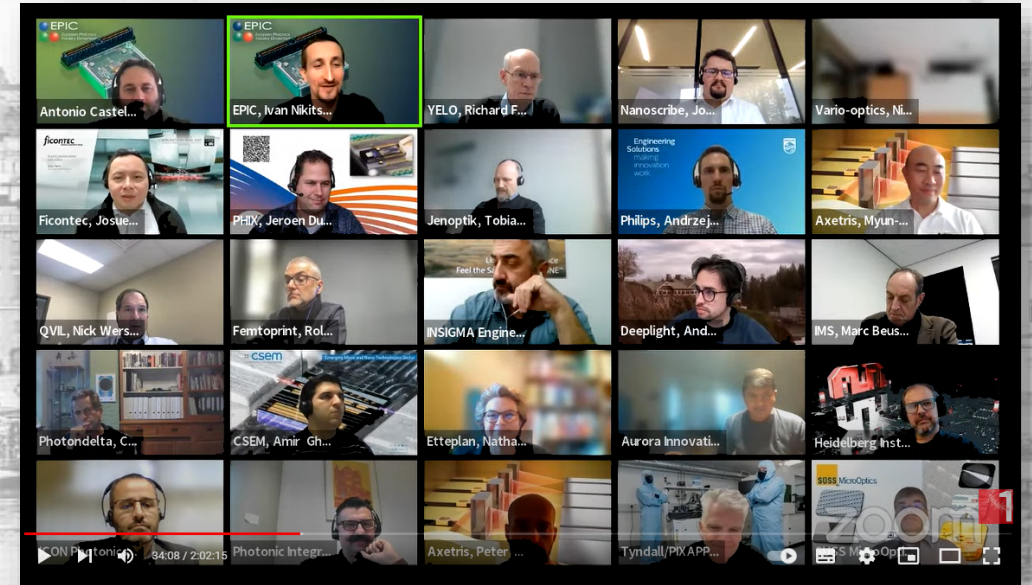
Vision Event



17

Attended
External Events

EPIC Online Technology Meetings



As an extended opportunity to network, hear the latest about new hot topics and get valuable insights from other members, EPIC continues to arrange online technology meetings. The online meetings also include non-technical topics that are of high interest to the members

- Alexey Gayoso, CEO, Maiman Electronics
- Amin M'Barki, CEO, Hummink
- Andris Anspoks, CEO, Materize
- Angelo Fasoli, CTO, Tecnottica
- Benoit Bataillou, CTO, Pi Lighting
- Boris Kobrin, CEO, Innovasonic
- Christian Bosshard, Managing Director, Swiss Photonics
- Daniel Schall, CEO, Black Semiconductors
- David Ruppel, President, IDEX Optical Technologies
- Dominik Rabus, CEO, Rabus Tech
- Dominique Lupinski, CEO & Founder, Cristal Laser



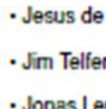
- Emmanuel Stratakis, CEO, Biomimetic
- Felix Grawert, CEO & President, Aixtron
- Gino Buccioli, CO-Founder & COO, Officina Stellare



- Gintas Jakubenas, CEO, QS Lasers
- Heikki Timonen, Director, GEHT International
- Hidetaka Fukuda, CEO, AIO Core



- Igor Nakonechniy, Founder, QustomDot
- James Regan, CEO, EFFECT Photonics
- Jan Mink, CEO, VTEC Lasers



EPIC Members in the Spotlight



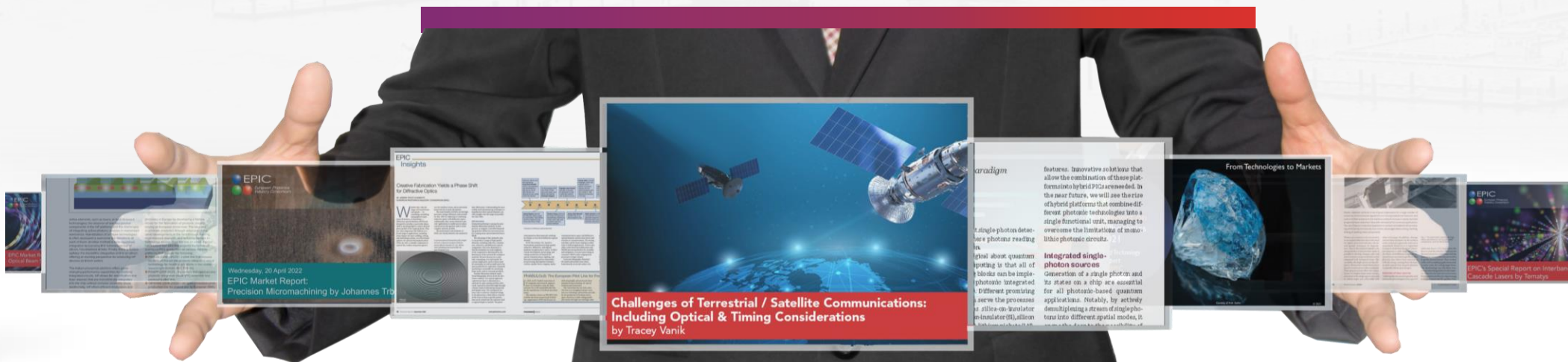
- Juergen Zosel, Div. Mgr. Engineering, Orafol Fresnel Optics
- Juha Purmonen, Cluster Manager, Photonics Finland
- Klaus Loeffler, Managing Director, Precitec
- Luis Ferreira, Director of Optical Business, HBK FiberSensing
- Martin Roth, CEO, innoFSPEC Potsdam
- Martin Hovestadt, CEO, Juke
- Matteo Negro, CTO, Cambridge Raman Imaging
- Michael Hornung, Managing Director, AMO
- Michal Muniak, CEO, Solaris Optics
- Mike Powell, Managing Director & Partner, Renevo Capital Limited
- Mostafa Afgani, CTO, Pure Lifi
- Nicolas Volet, CTO, UV Medico
- Nicolas Compère, VP Business Development & Innovation, Manutech USD
- Niek Rijnveld, CEO, Optics 11
- Oded Raz, CO-Founder & CEO, PhotonX
- Per Karlsson, CEO, NorthLab Photonics
- Peter Weigand, CEO, TriLite Technologies
- Pierre Jenouvrier, CTO, Lynred
- Ralf Leutz, General Manager, LEOPIL
- Rick Mannello, CEO, Boston Electronics
- Ronald Mueller, CEO, Market Vision
- Steven Goetstouwers, CEO, Admesy
- Thomas Graf, Professor & Director, University of Stuttgart
- Trond Loke, CEO, Norsk Elektro Optikk
- Ursula Keller, Professor, ETH Zurich
- Xiao Tang, Sales & R&D Manager, Mintres



EPIC Market Reports

Every employee of an EPIC member company has free access to the EPIC library on the extranet where you can find hundreds of technology presentations and numerous market reports to download.

9 Market Reports Released



EPIC Outreach 2022

EPIC continues to build a global network of decision-makers and experts. By interacting with the industry, we learn about the latest technology developments, understand manufacturing challenges and explore business and collaboration opportunities for our members. During 2022 we visited **145** members.



EPIC Virtual Tours & Product Releases

EPIC systematically promotes the members of the association and continuously explores additional means to increase awareness of their products and services. With our thousands of social media followers and subscribers, the online environment has proven to be an effective platform for those engaging with us. The following members took the opportunity to show their facilities and new products.



4
Virtual
Company
Tours



45
Company
Product
Releases

EPIC Delegation Trips



As part of EPIC's membership services, we help members access international markets by organizing international delegation trips. These trips are organized by having members attend an exhibition or conference where they have networking lunch or dinner with local players and stakeholders – such as, distributors, industry associations, and, sometimes, government officials.

- Delegation Trip to Singapore
- Delegation Trip to Israel

EPIC Job Walls, Jobs & Mentors in Photonics

Life is too short, work for a great company and join one of our members! Currently there are more than 7000 open positions that can be found on the biggest database of jobs in photonics.

The EPIC website includes a section about Mentors in Photonics. Here EPIC members can find inspiring leaders in photonics who are willing to share their expertise and knowledge with colleagues in the industry exploring new applications or perhaps looking to expand their territories. This is a unique platform to connect and learn from industry experts!





21 October 2022

DAY OF PHOTONICS

European Initiatives & Pilot Lines



JePPIX
Pilot Line

JePPIX Pilot Line. Manufacturing pilot line for Indium Phosphide PICs offering design, manufacturing and testing services.
www.jeppix.eu



LAMPAS. Project to develop the first laser system for high throughput low-cost production of surfaces with controlled topographical characteristics.
www.lampas.eu



MedPhab Pilot Line. Pilot line dedicated to manufacturing, testing, validating and upscaling new photonics technologies for medical diagnostics.
www.medphab.eu



MULTIPLE. Project to develop cost-effective multi-modal monitoring solutions with a breakthrough impact on production quality and efficiency.
www.multipleproject.eu



MICRO-OPTICS IS...
Phabulous

PHABULOUS Pilot Line. European Pilot Line for the manufacturing of free-form micro-optics offering accelerated innovation & production cycles from prototypes to piloting and large volume production.
www.phabulous.eu



PhotonHub Europe. Single pan-EU Photonics Innovation Hub offering a comprehensive range of supports to industry for the accelerated uptake and deployment of photonics.
www.photonhub.eu



PULSATE. The PAN-European network for empowering SMEs digital competences in laser-based advance and additive manufacturing (LBAAM).
www.pulsate.eu

Activity Report 2022





Thank you for your trust



Upcoming activities – Technology Team

European Photonics Industry Consortium



TECHNOLOGY



MARKET REPORTS



NETWORKING



**ACCESS TO
MARKETS**



MENTORSHIP



HR SUPPORT



INVESTMENT

European Photonics Industry Consortium



TECHNOLOGY



MARKET REPORTS



NETWORKING



**ACCESS TO
MARKETS**



MENTORSHIP



HR SUPPORT



INVESTMENT

EPIC Technology Team



Dr. Antonio Castelo
Technology manager
Laser technologies
Medical market



Dr. Ivan Nikitski
Technology manager
PICs technologies
Quantum market



Dr. Jeremy Picot-Clemente
Technology manager
Optics and micro optics
Green photonics

EPIC Technology Team



Available to support
you in any
technological issues
you may have !

**Do not hesitate to
contact us**

Support example we can provide:
Introduction to companies
Support to solve technological issues
Support to explore new markets
Giving visibility ...

EPIC Technology Team

15 online technology meetings

13 technology magazine articles

12 offline technology meetings

30 technology exhibitions

Upcoming activities

EPIC Technology Meeting on Photonics for AR/VR/MR : from design to system integration and mass production at JABIL OPTICS
11-12 May 2023. Jena, Germany

4 sessions – 22 speakers – 4 Keynotes

Session 1: Integration and mass manufacturing challenges
Session 2: Applications and Next challenges of XR markets
Session 3: Design, Software and Simulations
Session 4: Emerging technologies for XR markets

REGISTRATION FOR THIS
EVENT IS ALREADY CLOSED

NEXT TECHNOLOGICAL
MEETING ON AR/VR IN 2024 !



11-12 May 2023. Jena, Germany

EPIC Meeting on Photonics for AR/VR/MR:
from Design to System Integration and
Mass Production at Jabil Optics



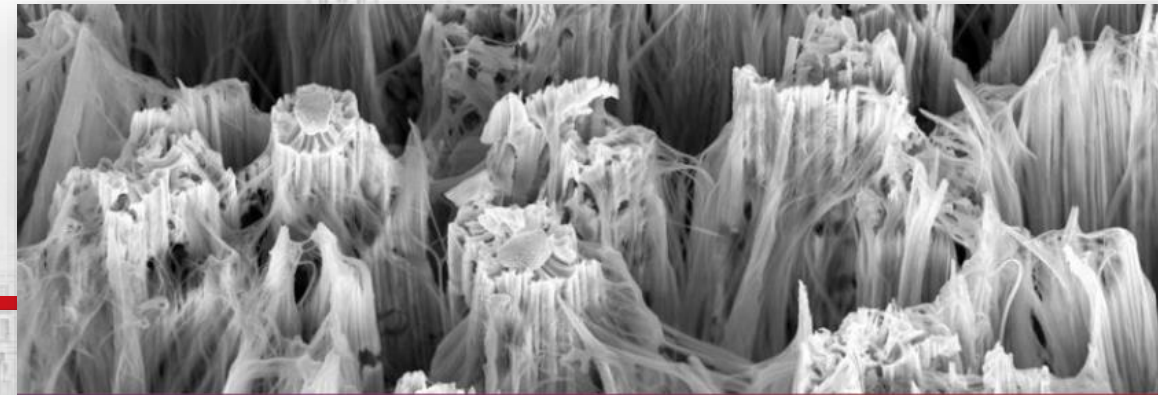
Upcoming activities

EPIC Technology Meeting on Micro-optics at the
Laser World of Photonics
27 June 2023. Munich, Germany

1 session - 6 Speakers – 1 Keynote

Viavi Solutions – Georg Ockenfuss, Director, R&D, Product Development
PHABULOuS – Jessica van Heck, Managing Director
FISBA – Andreas Kunz, Business Director
SCIL Nanoimprint Solutions – Rob Voorkamp, General Manager

Free slots!



27 June 2023. 10:00 - 12:00 CEST. Munich, Germany

EPIC Meeting on Micro-Optics
at the Laser World of Photonics



Upcoming activities

EPIC Technology Meeting on Photonics for Defense, MSPO

6-7 September 2023. Kielce, Poland

3 sessions - 20 Speakers – 3 Keynotes

Session 1: Emerging imaging and sensing technologies for Defense
topics: Imaging technologies, tracking systems, quantum sensing, coating, sensors, metrology, ...

Session 2: Secure optical communication for Defense
topics: free space optical communication, QKD, optical comm packaging, ...

Session 3: Use-cases and challenges of photonics technologies in military platform
topics: End-users requirements and challenges



Upcoming activities

EPIC Technology Meeting on Photonics for Space:
Opening New Horizons at EXAIL
21-22 September 2023. Paris, France

4 sessions - 20 Speakers – 4 Keynotes

Session 1: Space optical communication technologies and challenges

topics: Laser communication, QKD, intra and inter satellite communications, etc.

Session 2: PICs for Space applications

topics: Packaging, PICs for telecommunication, large array antennas, etc.

Session 3: New technologies for earth and planetary monitoring

topics: Hyperspectral, meta optics, optomechanics, quantum sensing, grating, filters...

Session 4: To the moon and beyond – Space exploration

topics: Health monitoring, navigation, JWST, ...



21-22 September 2023. Paris, France

EPIC Meeting on Photonics for Space:
Opening New Horizons, at Exail



Upcoming activities

Besides offline meetings...

Online meetings

- 24 April 2023: OTM on Photonics for climate change monitoring
- 12 June 2023: OTM on Photonics for Agriculture and Laser weeding
- 06 November 2023: OTM on Optical Design and Simulations
- 11 December 2023: OTM on Photonics for Food and beverages

Technology magazine articles

- February 2023 – laser Focus World : Hyperspectral technologies
- September 2023 - Photonics View: Micro-optics for optical communication
- October 2023 - Photonics Spectra : photonics technologies for water monitoring



Upcoming activities

EPIC Technology Meeting on Fiber Sensors at
HBK FiberSensing
19-20 April 2023. Porto, Portugal

4 sessions – 26 speakers – 4 Keynotes

Session 1: Fiber optics sensors status and
new developments – single and multipoint

Session 2: Fiber optic sensors status and new developments - distributed

Session 3: Structural health monitoring, solutions and applications

Session 4: Fiber sensors for harsh environments, medical and emerging applications



Upcoming activities

EPIC Technology Meeting on Ultrafast laser processing at the Laser World of Photonics
27 June 2023. Munich, Germany

1 session - 6 Speakers – 1 Keynote

Cailabs – Gwenn Pallier, Product Line Manager



28 June 2023. 10:00 - 12:00 CEST. Munich, Germany

EPIC Meeting on Ultrafast Laser Processing
at the Laser World of Photonics



Upcoming activities

EPIC Technology Meeting on Photonics for Bio and Life Science applications at PARK INNOVARE
26-27 September 2023. Baden, Switzerland

4 sessions

Session 1: Bio-printing and other fabrication technologies for

Session 2: New developments on bioimaging

Session 3: Novel spectroscopy and analytical techniques

Session 4: Laser tissue interaction: mechanisms and applications

Company Tour @ Park Innovaare



SWITZERLAND INNOVATION PARK INNOVARE

NEW Swiss PIC - Photonics Integration Center

PAUL SCHERRER INSTITUT PSI

SLS Swiss light source

SINQ Neutron source

ESI-Platform Energy system integration

SwissFEL X-ray free electron laser

Clean Rooms

Labs, Offices

Prototype Workshops

Quantum Computing Hub

ANAXAM Technology Transfer Center

26-27 September 2023. Baden, Switzerland

EPIC Technology Meeting on Photonics for Bio and Life Science Applications at PARK INNOVARE



EPIC EUROPEAN PHOTONICS INDUSTRY CONSORTIUM

Upcoming activities

EPIC Technology Meeting on Laser applications
along battery manufacturing process at ARENA2036
24-25 October 2023. Stuttgart, Germany

4 sessions

Session 1: Photonic applications in Cathode/Anode Manufacturing
Session 2: Photonic applications in Battery Cell Manufacturing
Session 3: Photonic applications in Battery Module Manufacturing
Session 4: Photonic applications in Fuel Cell Manufacturing

Visit @ IFSW/ARENA2036



Upcoming activities

EPIC Technology Meeting on Photonics assisted cancer pathology and surgery at University Hospital Antwerp
29-30 November 2023. Antwerp, Belgium

4 sessions

Session 1: Diagnostics using imaging techniques

Session 2: Photonics technologies for diagnostics

Session 3: Photonics (guided) therapy

Session 4: Fastlane to the clinic: Regulatory aspects and documentation and certification requirements



Upcoming activities

Besides offline meetings...

Online meetings

- 15 May 2023: OTM on Additive manufacturing
- 10 July 2023: OTM on photonics for wearables
- 09 October 2023: OTM on Optical metrology solutions for the industry
- 20 November 2023: OTM on New mid-IR developments for novel industrial manufacturing

Technology magazine articles

- April 2023 – Photonics Views: The future of optical measurement technology (on press)
- June 2023 - Photonics Spectra: article on Laser Texturing and Surface Functionalization
- September 2023 – LFW: article on Laser Beam Characterization
- October 2023 – Medical Devices Development: article on Endoscopy and other fiber optics related technologies for medical diagnosis



Optical metrology is one of the key technologies in today's manufacturing industry. It can be generally defined as the science of measuring with light, and it is widely used to evaluate the physical properties of products (or some of their parts or components) and to monitor large infrastructures and facilities. In this article we will review some of the current technologies for optical measurement in different manufacturing industries, the new developments and the trends related to the continuous demand for high-precision and high-efficiency solutions.

Upcoming activities

EPIC Technology Meeting on PIC post processing & packaging at the Laser World of Photonics
29 June 2023. Munich, Germany

1 session - 6 Speakers – 1 Keynote

Jean-Luc Polleaux, ICON Photonics
Ian Shannan, Luna Innovations
Mario Bacak, AMS Technologies AG
Georg Ockenfuss, Viavi Solutions



29 June 2023. 10:00 - 12:00 CEST. Munich, Germany

EPIC Technology Workshop on PIC Post-Processing
& Packaging at the Laser World of Photonics



EPIC
EUROPEAN PHOTONICS
INDUSTRY CONSORTIUM

Upcoming activities

EPIC Technology Meeting on industrial quantum
photonics technology at TOPTICA
11-12 October 2023. Munich, Germany

4 session - 20 Speakers – 4 Keynotes

Session 1: Quantum network

Session 2: Quantum computing

Session 3: Quantum synchronization

Session 4: Quantum sensing



11-12 October 2023. Munich, Germany

EPIC Technology Meeting on Industrial
Quantum Photonics Technology at TOPTICA



Upcoming activities

EPIC Technology Meeting on Microelectronics & Photonics – Two sides of one coin
13-14 November 2023. Munich, Germany

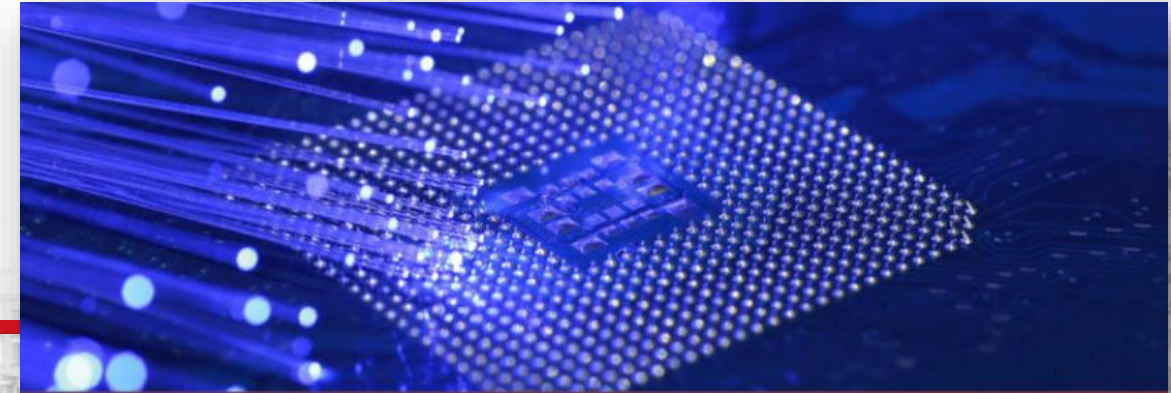
4 session - 20 Speakers – 4 Keynotes

Session 1: Production – Photonics in Volume

Session 2: Design and Metrology - News

Session 3: Materials – Heterogeneous integration

Session 4: Equipment



13-14 November 2023. Munich, Germany

EPIC Technology Meeting on Microelectronics
& Photonics – Two Sides of One Coin



Upcoming activities

Besides offline meetings...

Online meetings

- 27 February - Quantum Metrology and Quantum Sensors
- 18 September 2023: OTM on Hybrid photonics integration
- 23 October 2023: OTM on LIDARs on chips

Technology magazine articles

- January - Photonics Spectra: The Integration of Materials in Photonic Chips
- April - Photonics Views: Quantum Technologies
- May - Laser Focus World: Advances in Integrated Photonics
- August – Photonics Views: Photonics in Semiconductor Manufacturing

EPIC Insights

Europe Develops Multimodal Hyperspectral Quality Control Systems

BY IVAN NIKITSKIY
EUROPEAN PHOTONICS INDUSTRY CONSORTIUM (EPIC)

Despite rising geopolitical and economic tensions, the global economy is still an intertwined patchwork of competing and complementary regional markets, each with its own unique strengths and challenges. The strengths and successes of these regional economies depend, in part, on their ability to maintain a unified vision and unified goals regarding how they source materials, manufacture products, and innovate technologies.

It was with this unified vision in mind that a consortium of 16 European organizations launched the MULTIPLE project in December 2019 with €3.7 million (€9.9 million) in European Union (EU) funding under the European Commission's Horizon 2020 program.



Spain could prioritize PIC manufacturing to lead in EU photonics

BY IVAN NIKITSKIY, PROGRAM MANAGER, PHOTONICS TECHNOLOGIES, EUROPEAN PHOTONICS INDUSTRY CONSORTIUM (EPIC)

With its unique optical and electrical properties, strength, lightness, and thinness, graphene is seen as an ideal material to produce the next-generation of faster and more efficient electronic and photonic devices required to support the exponential growth in global data traffic for datacom and 5G industries.

In this article, we look at the development and commercialization of graphene optoelectronics in Europe and the challenges that need to be addressed to realize the large-scale integration of graphene into photonic integrated circuits.



Spain is working to create an infrastructure for semiconductor chip fabrication, but despite subsidies of just over €12 billion, Spain has found it challenging to attract manufacturers. The European Photonics Industry Consortium (EPIC) looks at the challenges involved and opportunities for alternative investment in Spain's vibrant of Photonic Integrated Circuits (PICs) ecosystem.

BY DR. IVAN NIKITSKIY, PHOTONICS TECHNOLOGY MANAGER, EUROPEAN PHOTONICS INDUSTRY CONSORTIUM (EPIC)

Atomic monolayer materials have been known only as an integral part of larger 3D structures, usually grown epitaxially on top of monocrystals with matching crystal lattices. 2D materials were presumed not to exist in the free state, being described as purely academic models. However, in 2004, these academic models were suddenly turned into reality, when free-standing graphene was unexpectedly discovered by two Russian physicists, Andre Geim and Kostya Novoselov, who were the first to study its unique material properties experimentally, along with demonstrating the possibility to obtain a variety of other materials in their free-standing 2D form. In 2010 they were awarded the Nobel prize in physics, and the rise of graphene had begun.

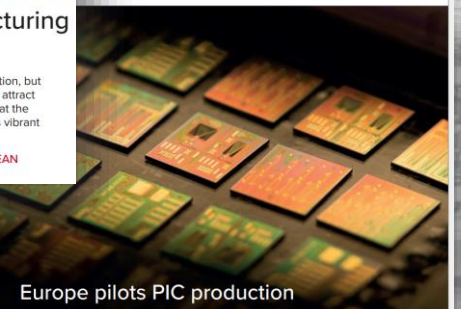
Pure graphene is the thinnest, lightest, and strongest material yet discovered that is also flexible, almost transparent, and possesses ultra-high electrical and thermal conductivity. For this reason, graphene was heralded as a wonder material for applications in composites and coatings, transparent and flexible electronics, solar panels



Integrated optics for hyperscale centres

Enterprises to meet ever-increasing service demands is bringing SIP and PIC together into hybrid co-packaged optic (CPO) modules, an approach that engineers and researchers to meld the technologies without performance or cost penalties. EPIC explores ways major manufacturers are working to keep the pace of microelectronic and photonic innovation.

BY IVAN NIKITSKIY, PROGRAM MANAGER, PHOTONICS TECHNOLOGIES, EUROPEAN PHOTONICS INDUSTRY CONSORTIUM (EPIC)



Europe pilots PIC production

Producing photonic integrated circuits (PICs) at industrial scale is a growing capability across the EU thanks to multiple EC-funded programmes that seek to create a complete PIC ecosystem within Europe's borders. Taking a new product to the pilot line stage is one of the last major steps toward commercialization. EPIC details recent advances and the important role Indium Phosphide technologies will play in this growing industry.

BY IVAN NIKITSKIY, PROGRAM MANAGER, PHOTONICS TECHNOLOGIES, EUROPEAN PHOTONICS INDUSTRY CONSORTIUM (EPIC)

PHOTONIC INTEGRATED CIRCUITS (PICs) can be built on several material platforms that are complementary in many ways, but are also currently competing. The silicon platform is very promising as it allows the integration of active photonic components on the chip, but until recently, European SMEs have been hampered in developing PIC-related technologies due to the lack of access to a mature, fast-turnaround, predictable, high-performance production infrastructure. Over the last six years, Europe has created several pilot line projects to empower users to scale up their photonic integrated circuit ideas and validate them for commercial production to meet these challenges.

The market of photonic integrated circuits (PICs) is facing exponential growth. Several material platforms are being developed in parallel to serve all the needs in photonic integration: silica, silicon nitride (SiN), silicon-on-insulator, and indium phosphide (InP). Some of these platforms can

Upcoming activities

- **EPIC Members Next Product Release**
 - April, September, November
- **EPIC Market Report**
 - Modulation Approaches for high speed optical communications (February)
 - Emerging non-telecom VCSEL Applications and 3D imaging utilizing VCSELs (April)
- **EPIC Delegation**
 - Japan (April), Canada (June), Korea (July), Taiwan (August), China (September), India (September), Taiwan (October), Malaysia/Singapore (November)
- **EPIC Virtual Tour**
 - Messe Munich (May)



18 May 2023. 16:00 – 17:00 CEST

EPIC Virtual Company Tour
at Messe München



Monday, 17 April 2023. 15:00 – 17:00 CEST

Emerging Non-Telecom VCSEL Applications and 3D
Imaging utilizing VCSELs by Bruce Bateman

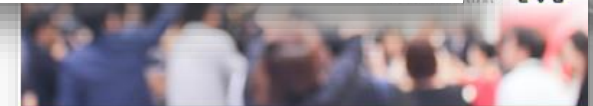


OnSite



17-21 April 2023. Yokohama, Japan

EPIC Members Delegation to Japan



4 April 2023. 16:00 - 17:00 CEST

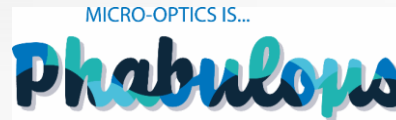
EPIC Members
New product release



Upcoming Activities – Technology Team



- Manufacturing pilot line for Indium Phosphide PICs offering design, manufacturing and testing services.
www.jeppix.eu



European Pilot Line for the manufacturing of free-form micro-optics offering accelerated innovation & production cycles from prototypes to piloting and large volume production.
www.phabulous.eu



Pilot line dedicated to manufacturing, testing, validating and upscaling new photonics technologies for medical diagnostics.
www.medphab.eu



Single pan-EU Photonics Innovation Hub offering a comprehensive range of supports to industry for the accelerated uptake and deployment of photonics.
www.photonhub.eu



Project to develop cost-effective multi-modal monitoring solutions with a breakthrough impact on production quality and efficiency.
www.multipleproject.eu



The PAN-European network for empowering SMEs digital competences in laser-based advance and additive manufacturing (LBAAM).
www.pulsate.eu



Basil Garabet
CEO at NKT Photonics
President of EPIC



EPIC CEO Award 2023



EPIC CEO Award 2023

Håkan Karlsson

Head of Hübner & CEO of COBOLT



Basil Garabet
CEO at NKT Photonics
President of EPIC



EPIC Lifetime Achievement Award 2023



EPIC Lifetime Achievement 2023 Award

Kestutis Jasiunas
Chairman of the board EKSPLA



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