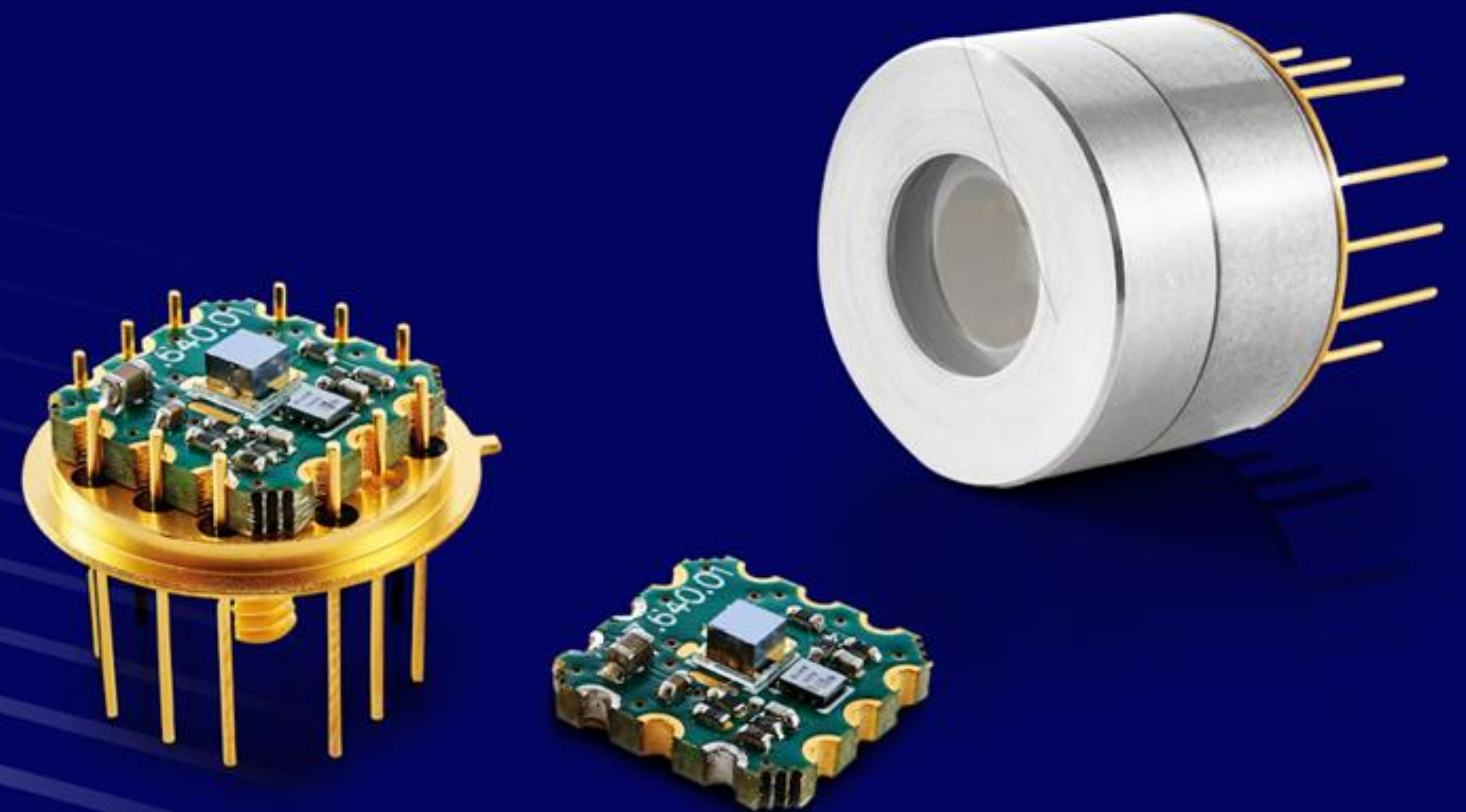


New opportunities for development of MID-IR applications

VIGO
PHOTONICS



PHOTONICS DEVICE MANUFACTURER FROM POLAND



Epiwafers

Infrared modules

Infrared photon detectors

CONSTANT GROWTH OF THE COMPANY'S VALUE.



CAPITALIZATION IN 2020 = 100 M EUR

WHO WE ARE?

VIGO Photonics. is a photonic semiconductors company. We are the sole European provider of photon mid infrared detectors, competing with Asian & US companies.

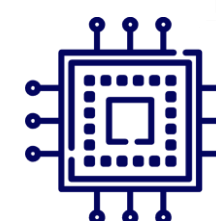
We produce the high-quality epiwafers for photonic and microelectronic applications based on advanced compound materials (III-V & II-VI).



34 YEARS on the market



6500 m² production area



UNIQUE TECHNOLOGY - Own independent technology developed in-house.



CUSTOM FIT SOLUTIONS - Flexibility to tailor and test solutions that respond to customer requirements.



6 Start-ups backed- Investment group supporting cutting edge R&D photonic teams and companies in technology development and commercialization.

MAIN IR DETECTORS APPLICATION TYPES

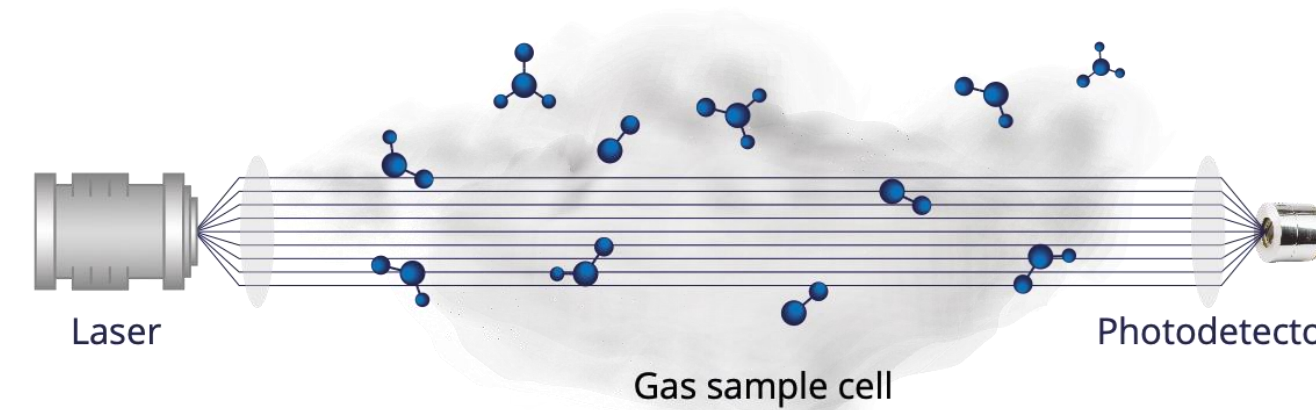
ACTIVE (BEAM SENSOR)

- MWIR and LWIR spectroscopy.

ADVANTAGE OVER OTHER SENSORS:

- strong absorption lines,
- long lifetime and stable response,
- resistance to external conditions.

THE CHEMICAL COMPOSITION ANALYSIS SYSTEM IS USUALLY BUILT FROM A MWIR RADIATION SOURCE AND A RECEIVER (DETECTOR)

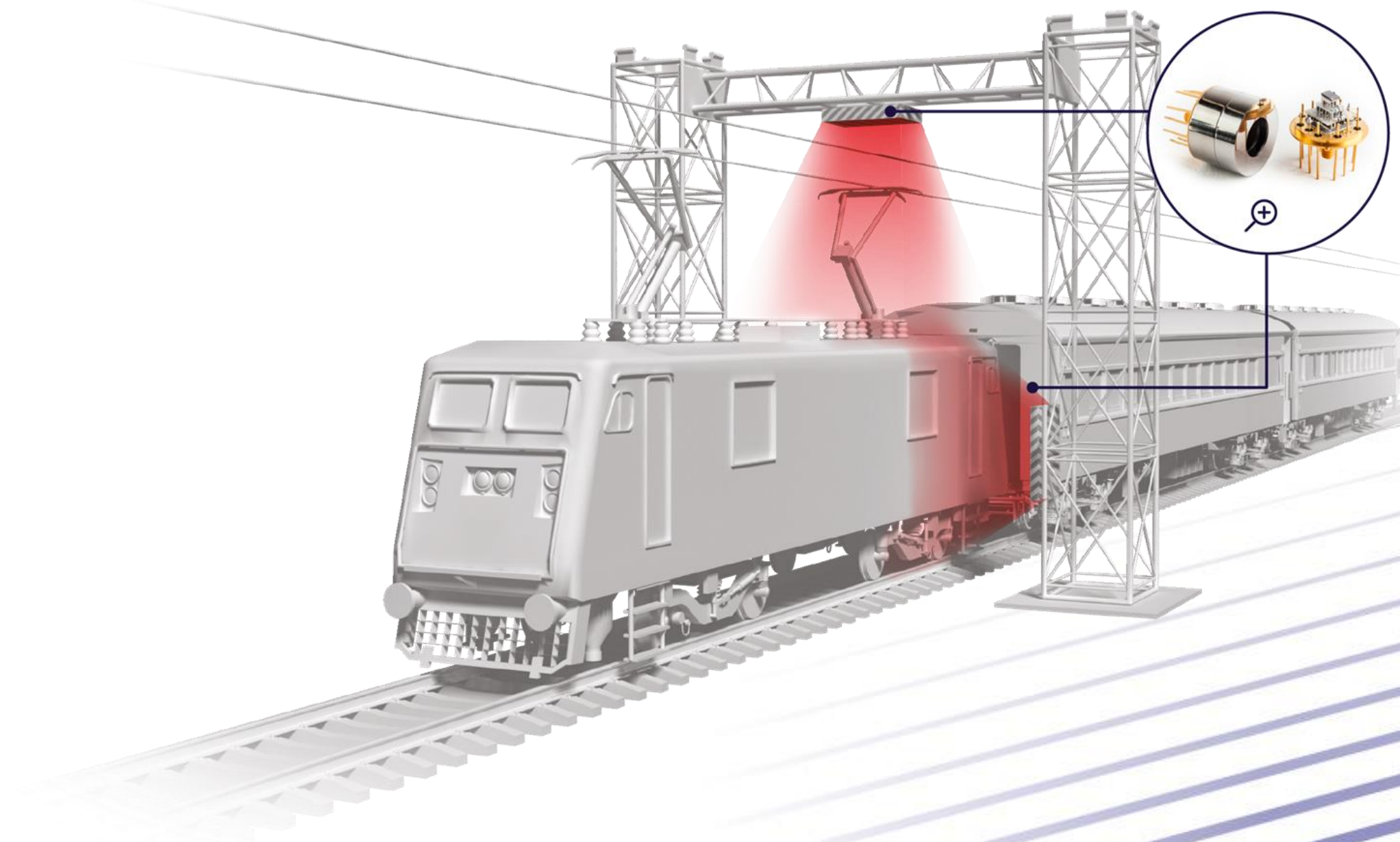
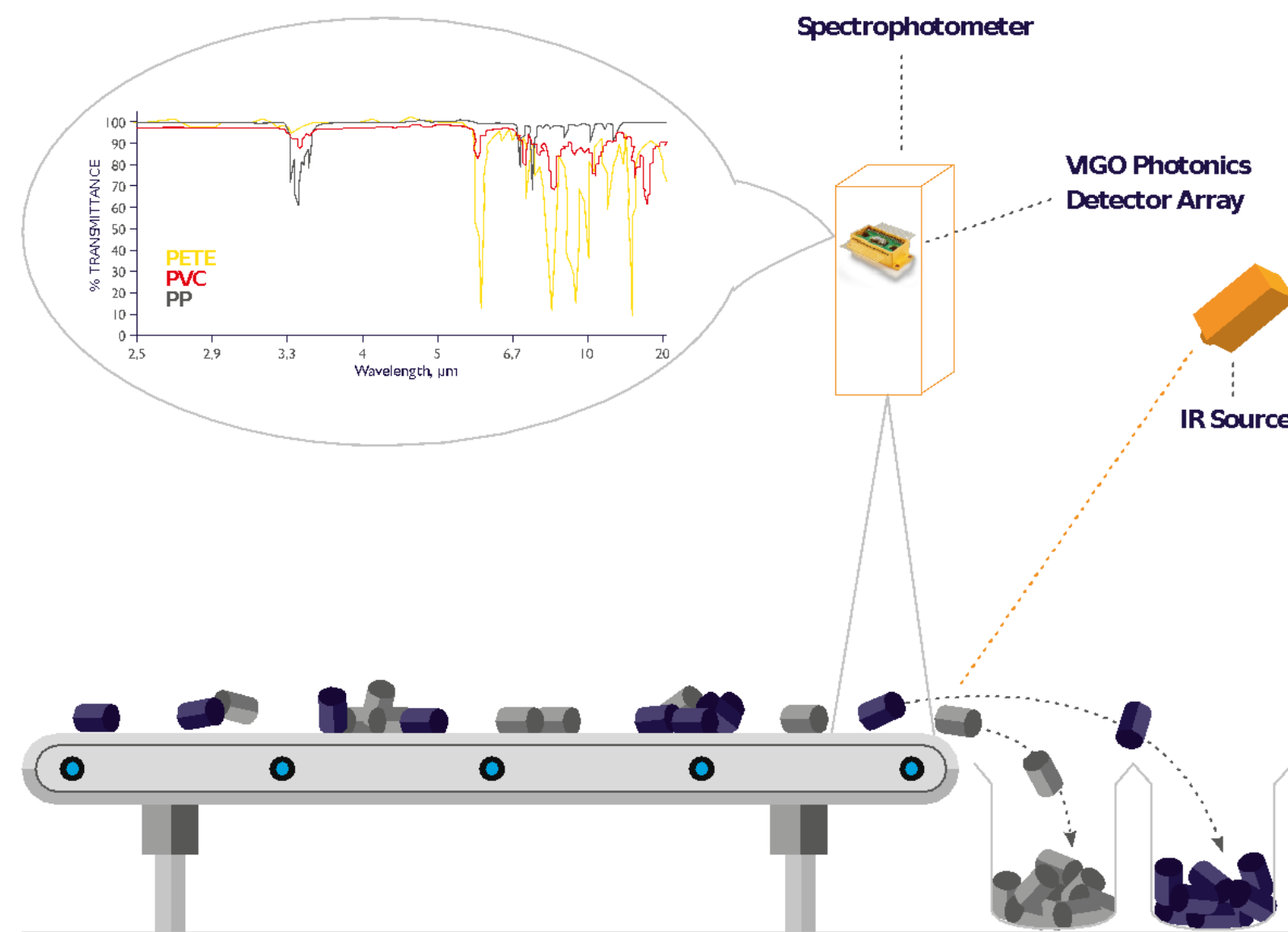


PASSIVE (MOTION SENSOR)

- Temperature control in fast moving objects.

ADVANTAGE OVER OTHER SENSORS:

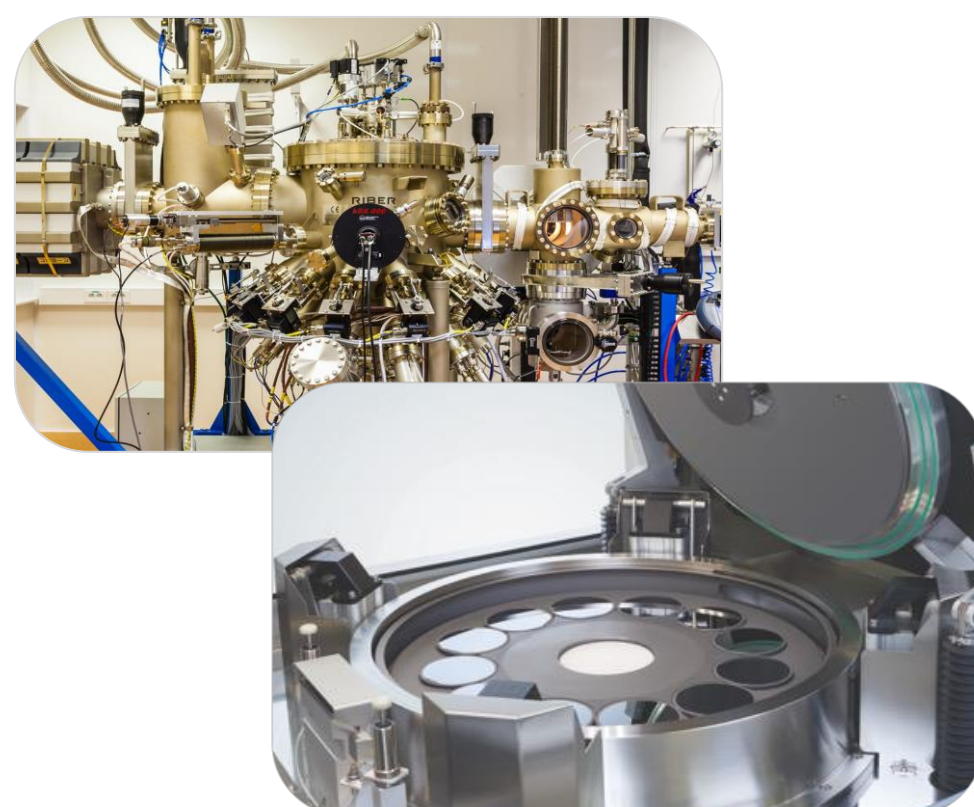
- terms of response time,
- detectability,
- resistance to external conditions



PRODUCTION CAPACITY – COMPLETE IN-HOUSE VALUE CHAIN

COMPLETE FRONT-END AND BACK-END PRODUCTION LINE FOR INFRARED PHOTONIC DEVICES (Near IR to Long Wavelength IR)

1. EPITAXY



II-VI and III-V epiwafers for photonic and microelectronic devices (QCL and VCSEL lasers, diodes, quantum dots, microelectronics)



2. PROCESSING



MCT and III-V detector chips
VCSEL chips



3. DETECTORS PACKAGING



Automated assembly, packaging and characterisation of complete infrared detectors.



4. INTEGRATION WITH ELECTRONICS



Detection modules with application specific electronics.

NEW PRODUCTS BASED ON III-V MATERIALS

TECHNOLOGIES:

Thanks to the investments in infrastructure realised in the years 2014-2020 (MBE laboratory, high-volume MOCVD in the III-V epitaxy department), VIGO Photonics has remarkably extended its offer to include products meeting the needs resulting from market change.



InAs/InAsSb detectors

- MWIR detectors (3,4µm and 5 µm) (MBE)
- Compliant with RoHS
- Detectivity comparable or better than our competitors' products



Superlattice T2SL detectors

- MWIR and LWIR detectors (MBE)
- Compliant with RoHS
- Detectivity better than our competitors' products (for LWIR – significantly better)
- Parameters comparable with MCT



InGaAs detectors

- InGaAs detectors for SWIR range (new MOCVD)
- Compliant with ROHS
- Significantly better than those available on the market
- For mass applications



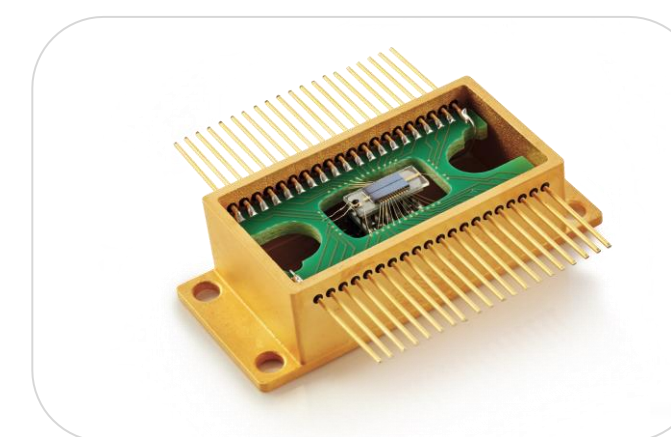
III-V semiconductor materials

- Based on GaAs and InP, compliant with RoHS
- Wide range of products: surface-emitting laser, detectors, quantum dots, Bragg reflectors



VCSEL structures

- First VCSEL chips in Poland
- Mass applications (LIDARS, 3D scanning, optical communication)



Array detectors

- 8, 16, and 32-elements arrays
- Industrial and military applications

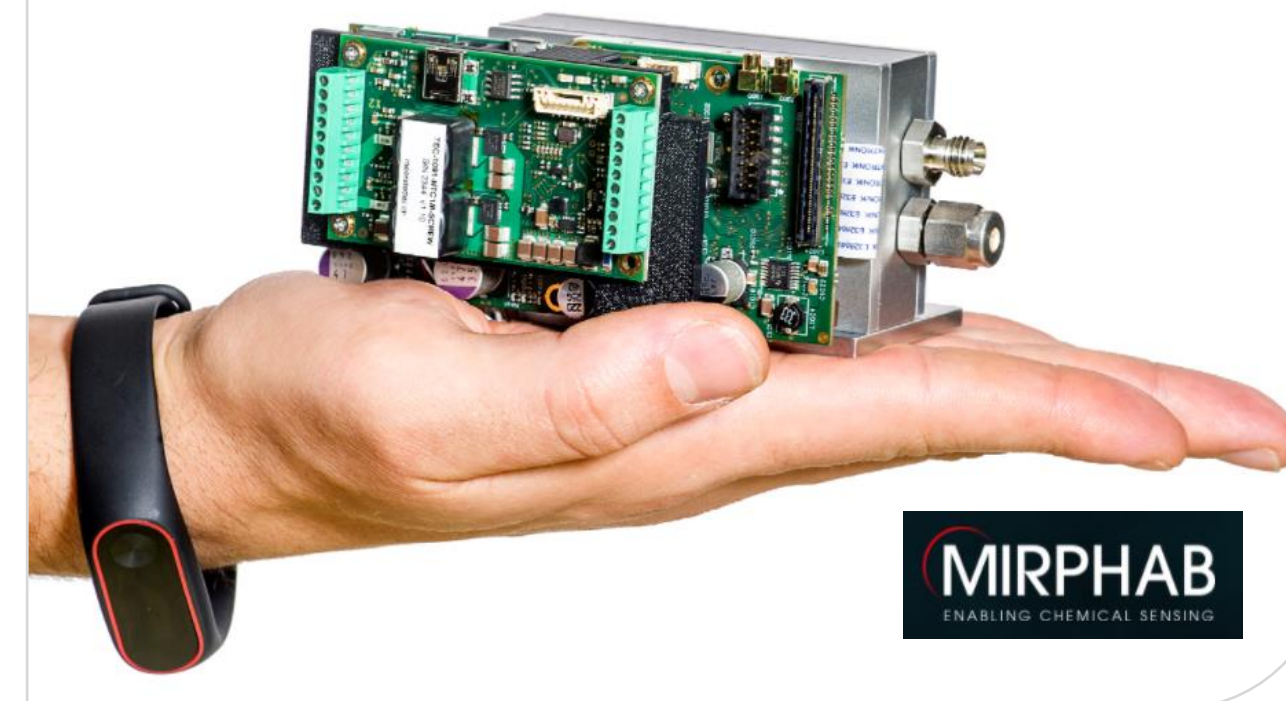
MOVING TOWARDS PHOTONIC INTEGRATED CIRCUITS for MIR

SECURED CAPITAL TO FINANCE THE DEVELOPMENT PROJECT OF THE WORLD'S FIRST MID-IR PIC!

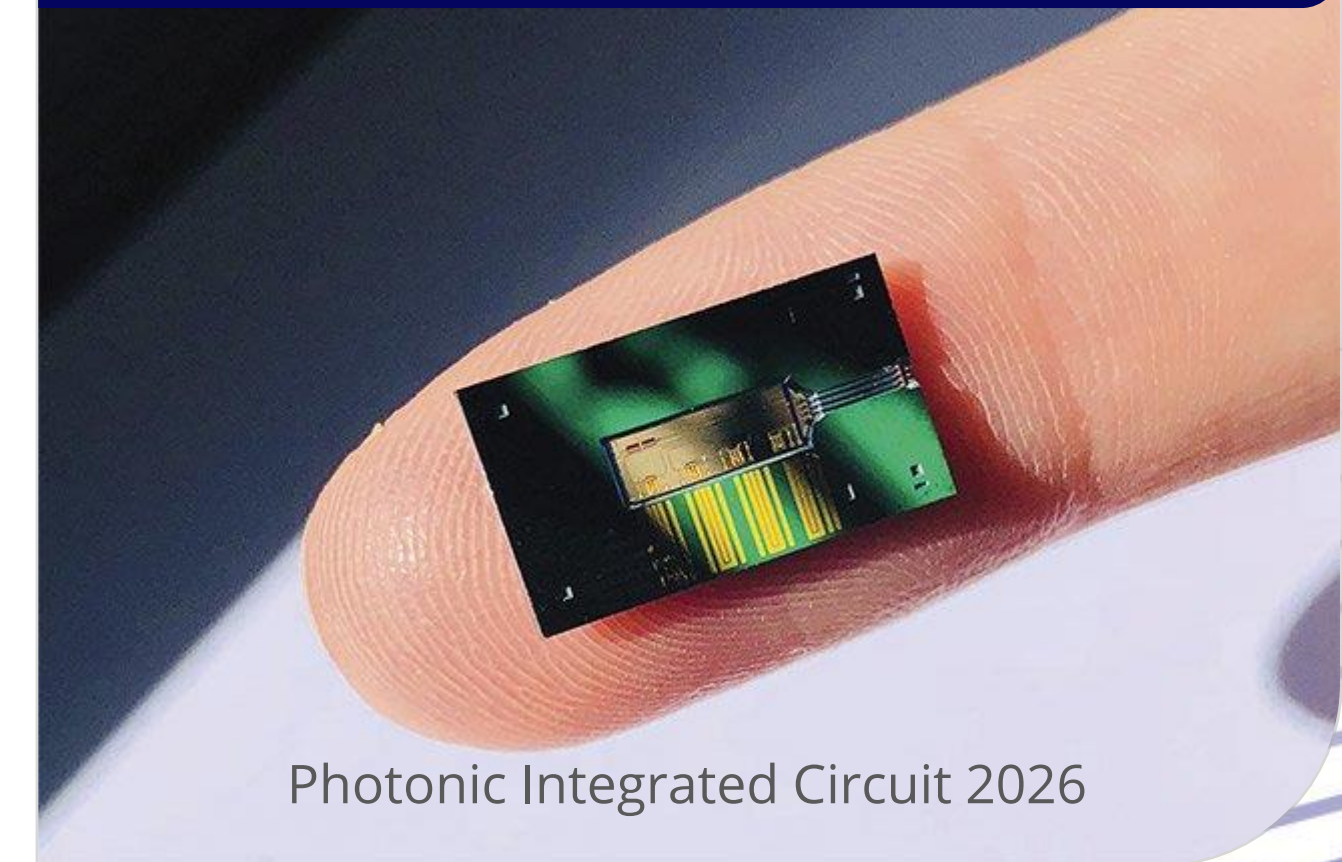
GAS DETECTOR – YESTERDAY



GAS DETECTOR – TODAY



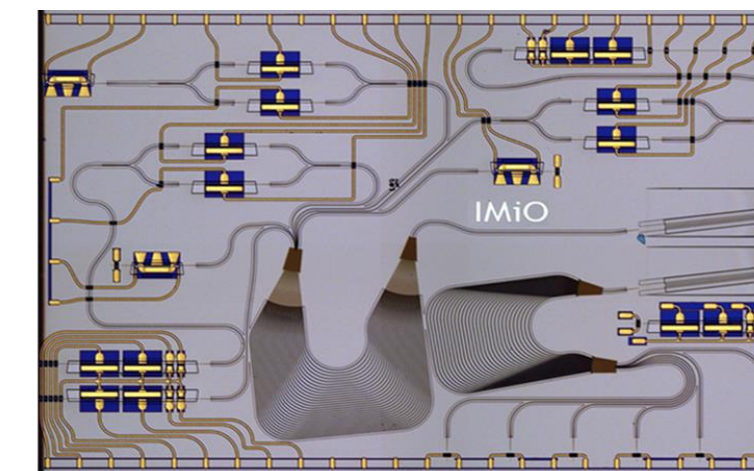
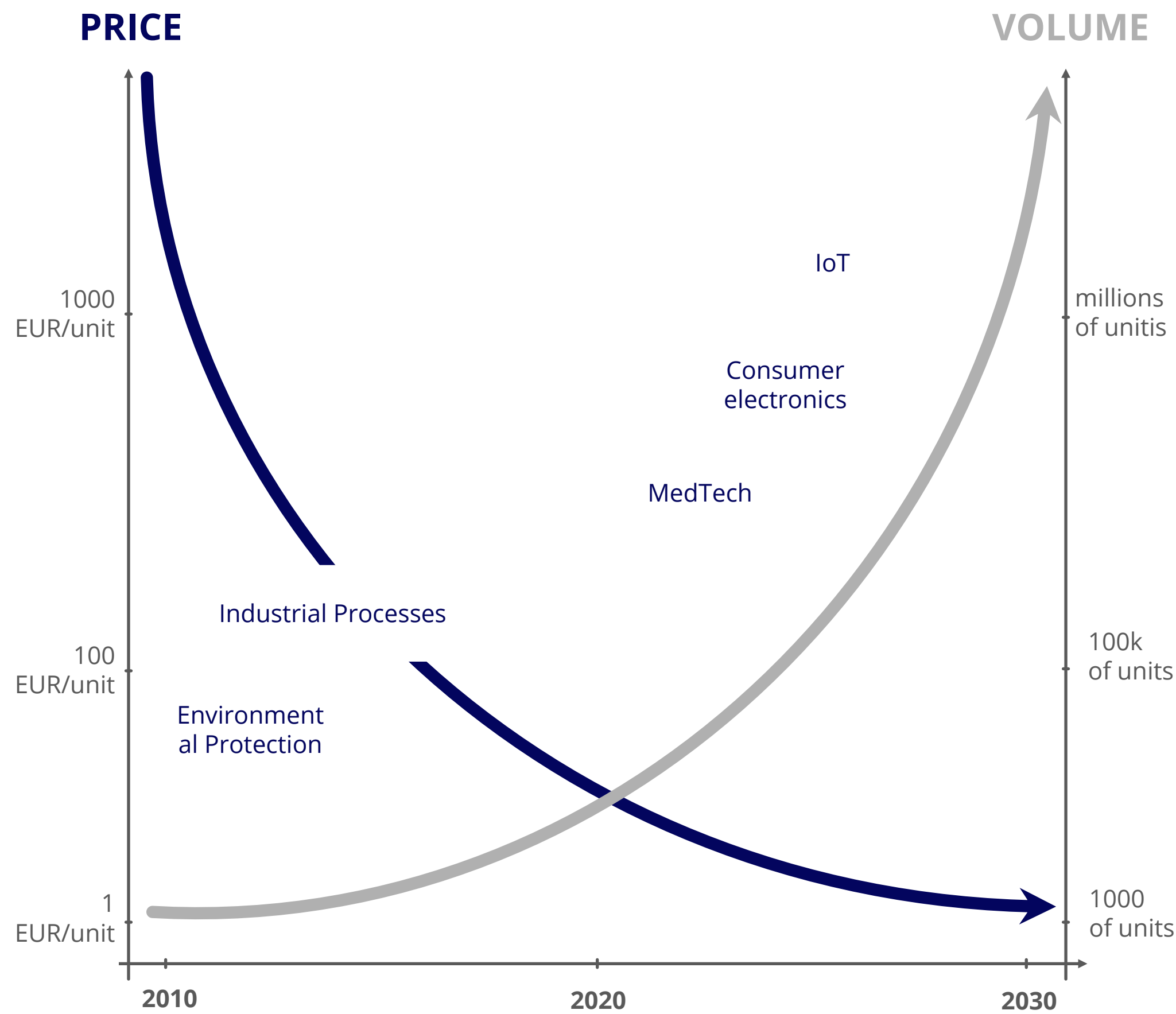
GAS DETECTOR – TOMORROW



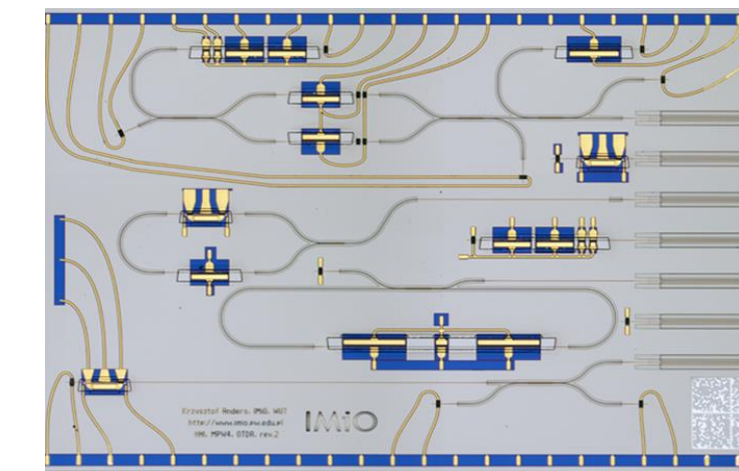
MOVING TOWARDS PHOTONIC INTEGRATED CIRCUITS

OUR TECHNOLOGY ROADMAP PAVES THE WAY FROM DISCRETE-COMPONENT ARCHITECTURE OF DEVICES TO INTEGRATED ARCHITECTURE DEVICES.

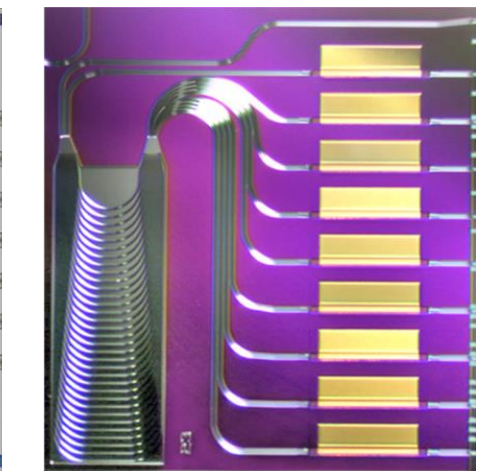
OVER 10-YEAR EXPERIENCE OF NEW VIGO TEAM IN DESIGNING PHOTONIC INTEGRATED CIRCUITS. OVER 80 COMPLETED PIC PROJECTS.



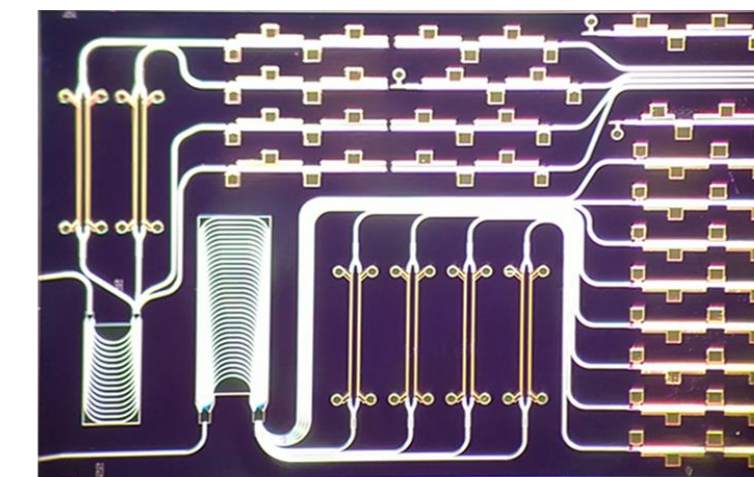
Multi-channel transceiver for free space optics



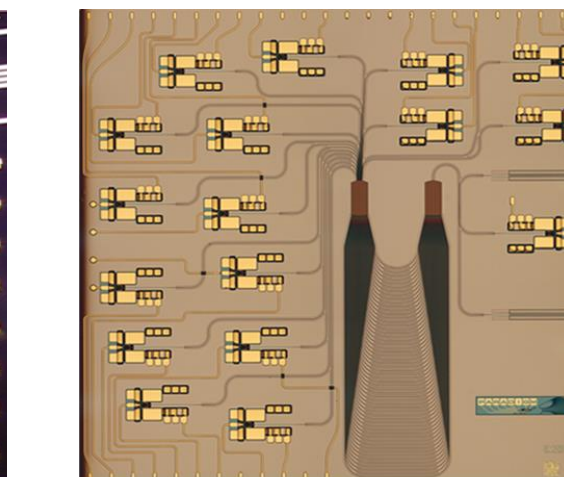
Optical time domain reflectometer



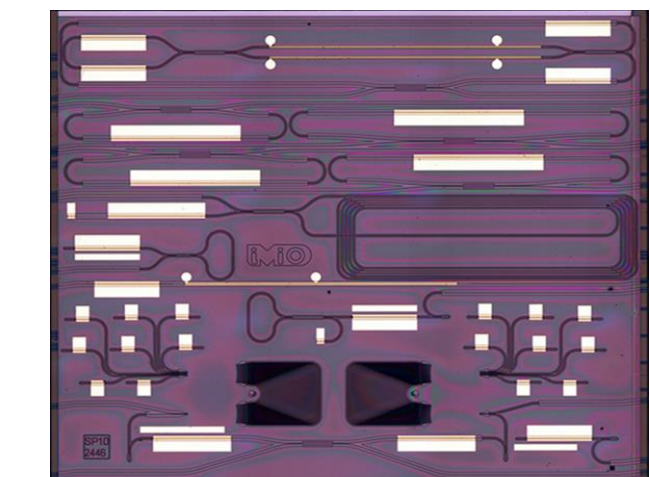
Multi-wavelength laser



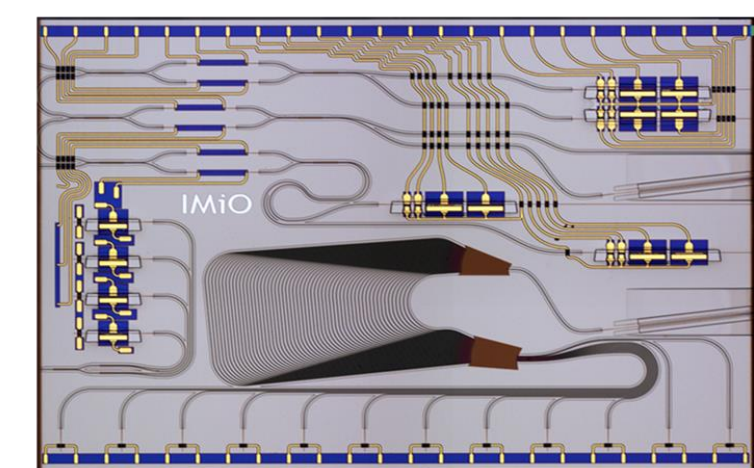
Multi-channel transmitter for FTTH networks



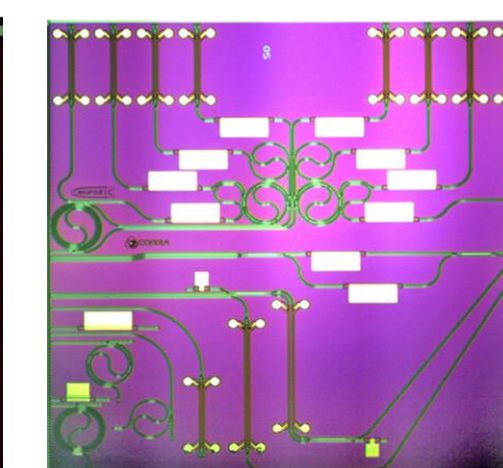
Spectrometer for FBG sensor interrogator



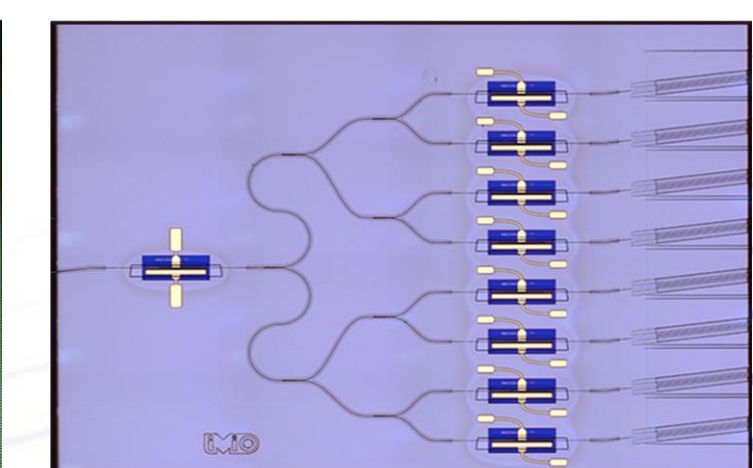
Discretely tunable laser



FBG interrogator unit



Optical time division multiplexer



Lossless power splitter

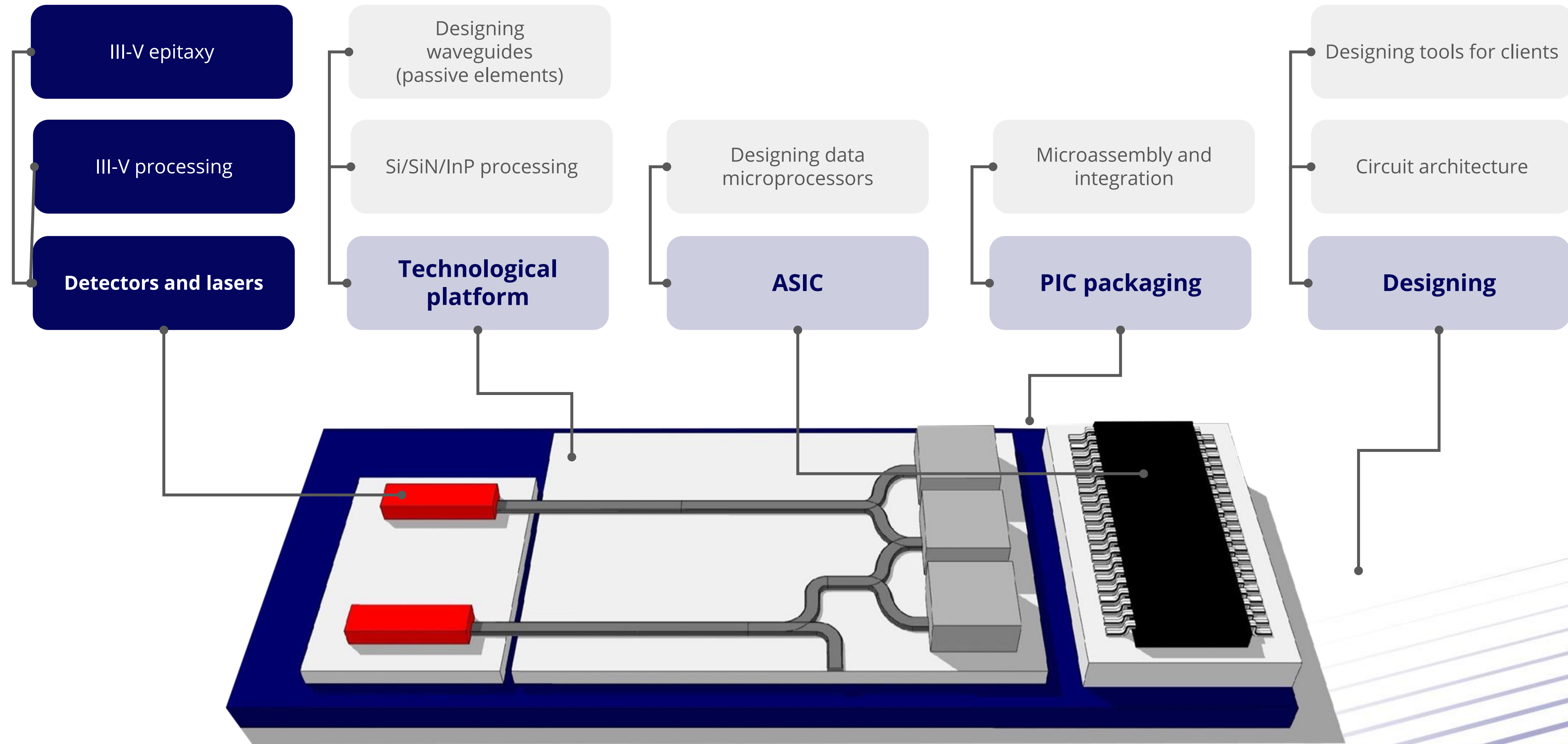


LET'S CREATE
THE FUTURE TOGETHER!

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PHOTONIC INTEGRATED CIRCUIT SERVICE STACK



PHOTONIC INTEGRATED CIRCUIT for MIR – current status

