

 EPIC

 European Photonics
Industry Consortium



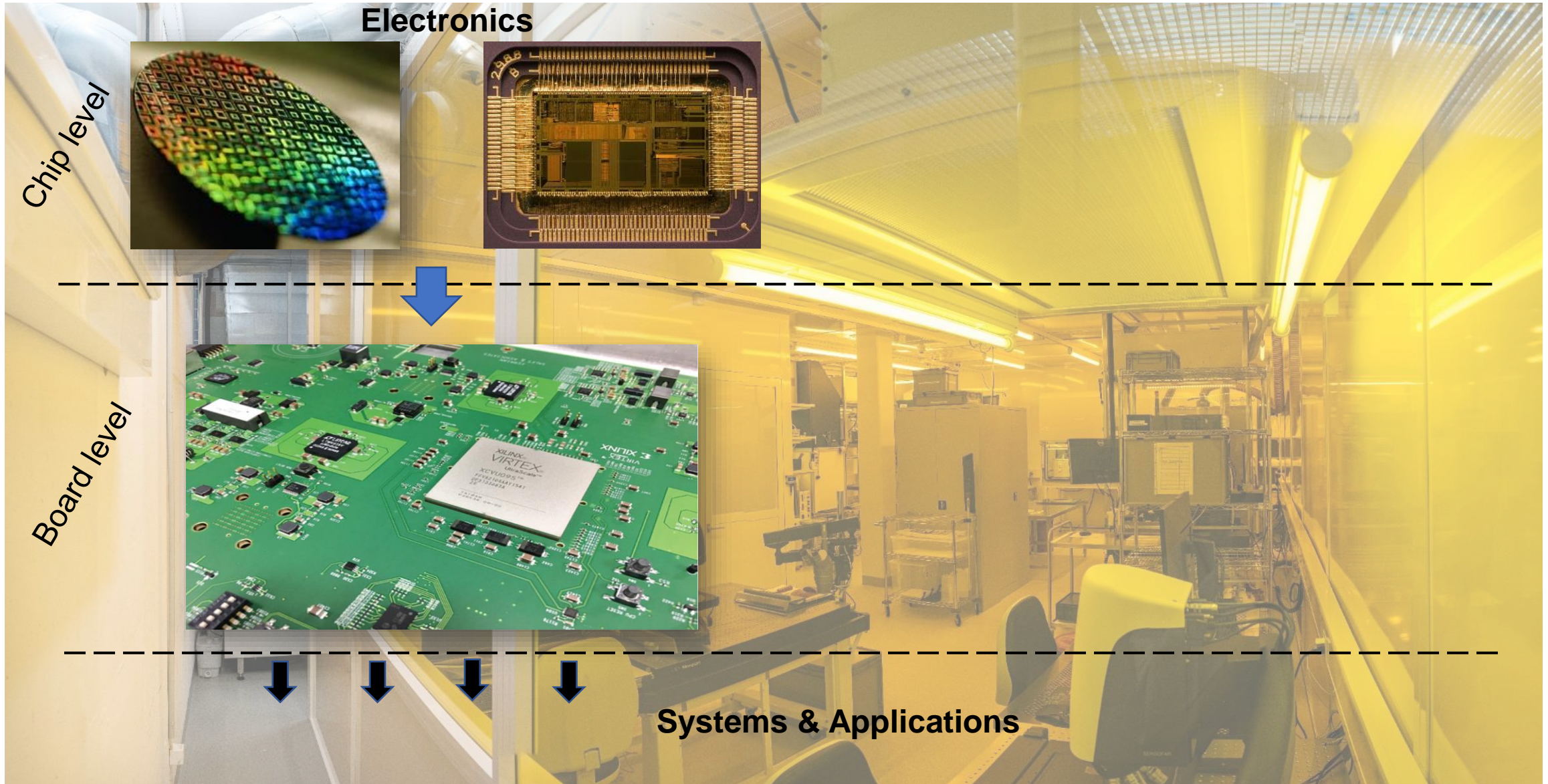
Monday, 21 November 2022, 15:00 - 17:00 CET
EPIC Online Technology Meeting on
PIC Packaging and Testing

Who we are

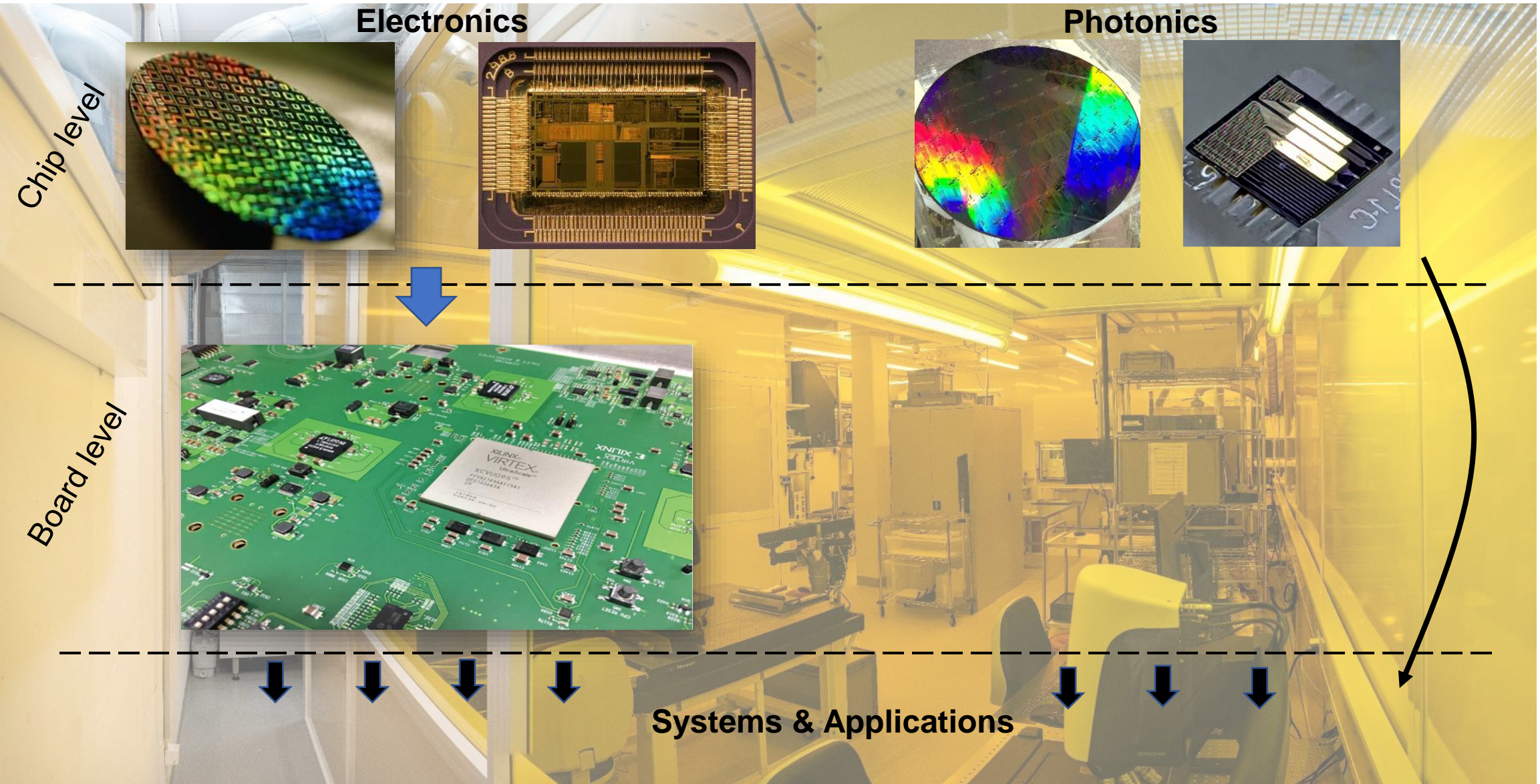
- SME based in Heiden, Switzerland
- Spin-off from Varioprint AG (PCB)
- Designer & Manufacturer of photonic boards
- Applications & Markets:
 - Photonic Sensing (Medical, Industrial, Environmental)
 - High-speed on-board communication (Telecom, Aerospace)
 - Photonic chip packaging (Telecom, Sensing,...)



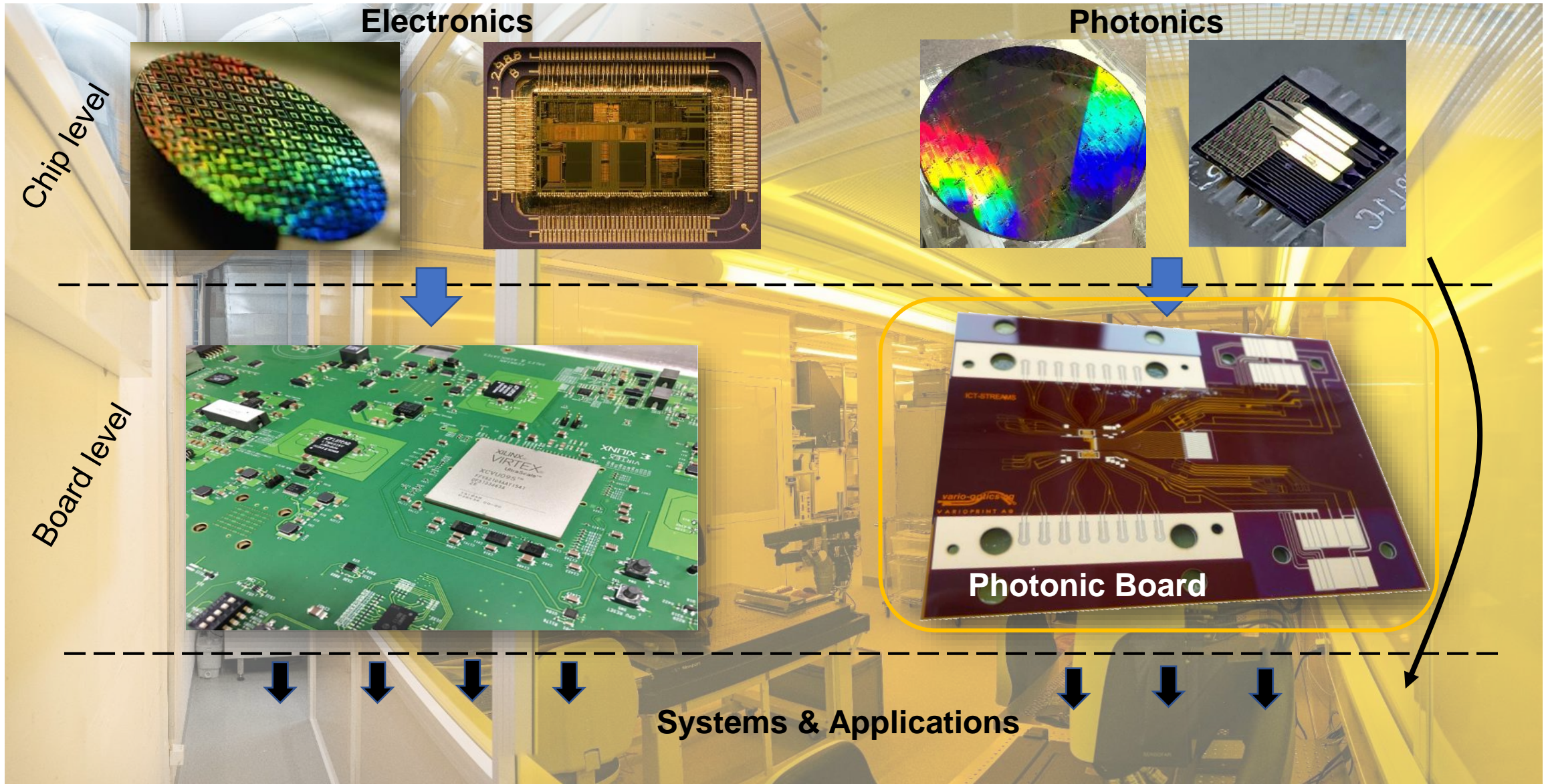
Photonic Boards?



Photonic Boards?

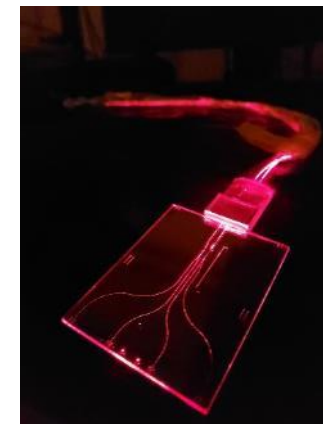
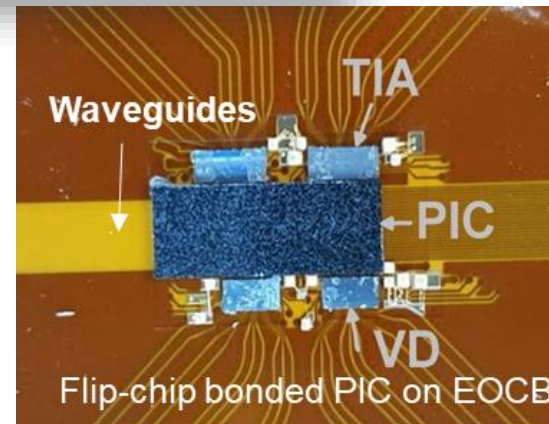
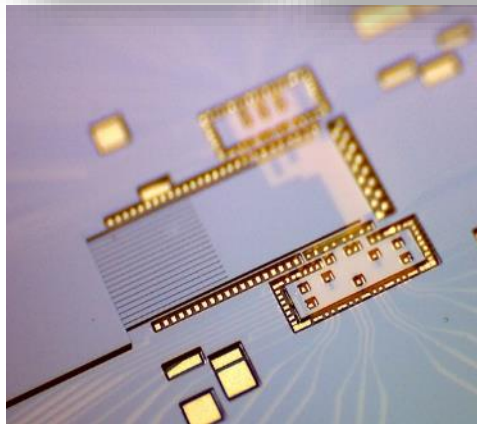
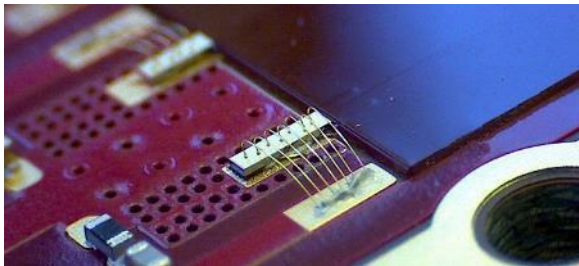
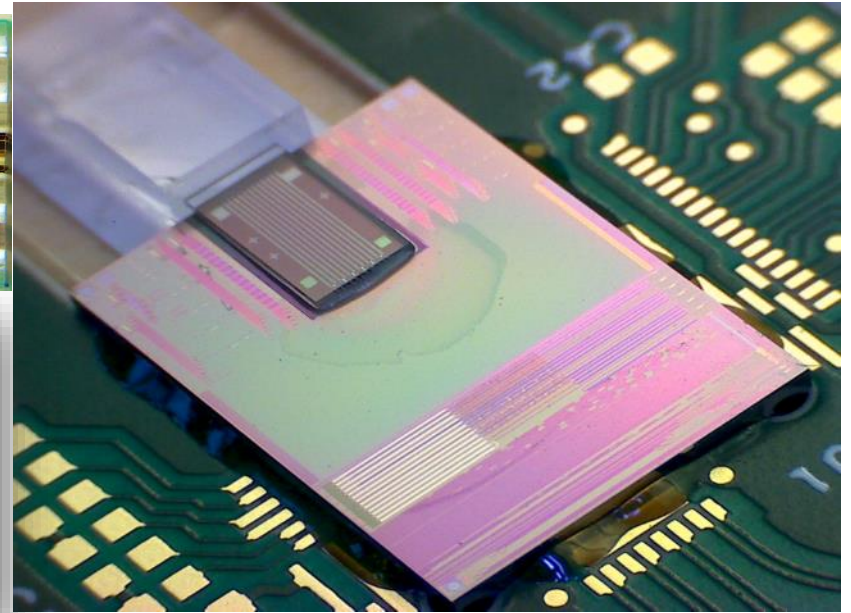
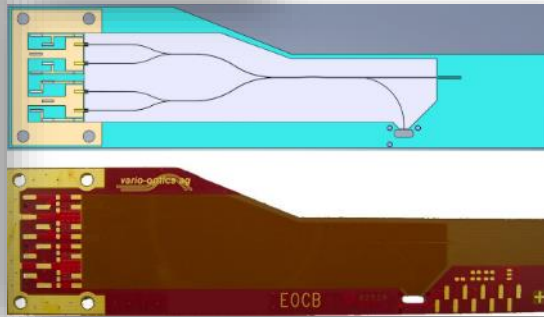
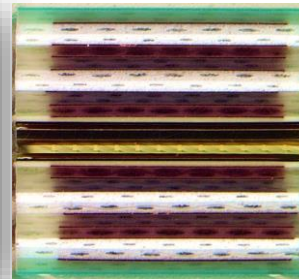
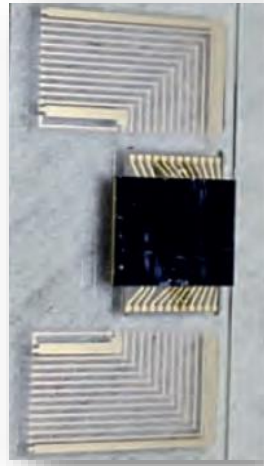
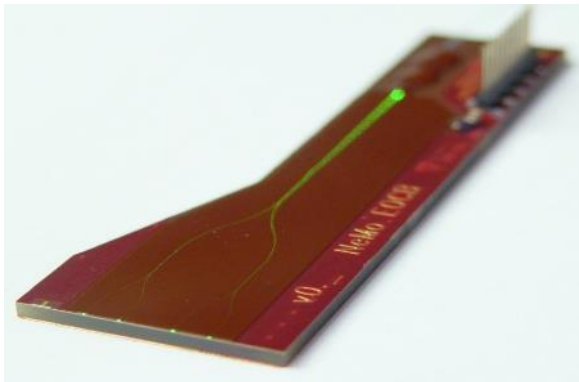


Photonic Boards?



Photonic Boards

- optical
- electrical
- mechanical
- thermal



vario-optics Waveguide Technology Portfolio

> 15 years of Waveguide R&D Know-How

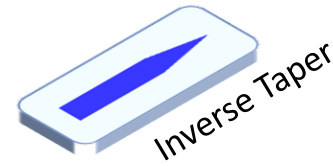
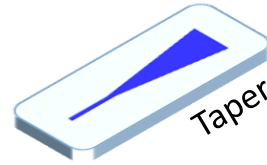


Process / Technology

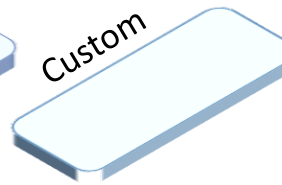
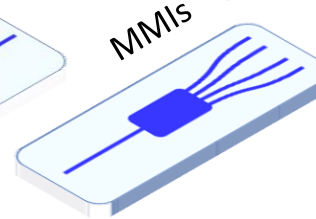
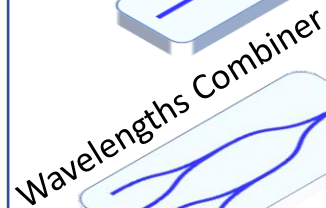
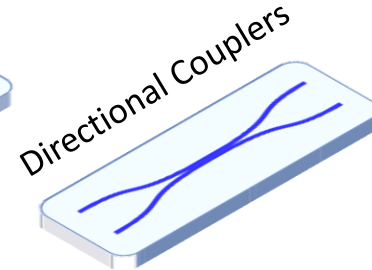
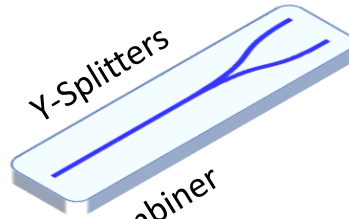
| | | |
|-------------------|---------------------------------------|--|
| Polymer | Multimode | 30 – 500 μm |
| | • 500 μm | |
| | • 250 μm | |
| | • 50 μm | |
| Singlemode | 2 – 8 μm | |
| • 3 μm | | |
| • 5 μm | | |
| Glass | Singlemode | |
| | ~ 5 μm | |

Functionality

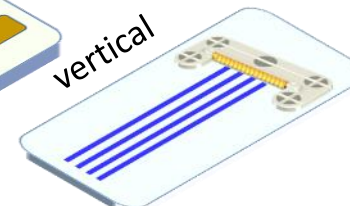
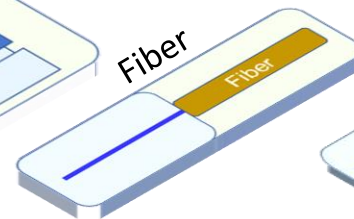
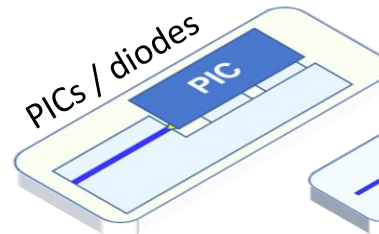
Modefield / NA Adjustment



Splitters & Combiners



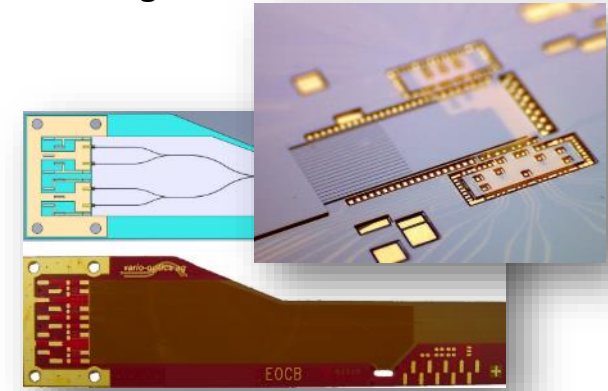
Connectivity



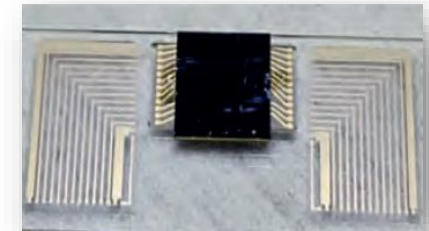
Integration & Assembly

Optical Electrical Mechanical

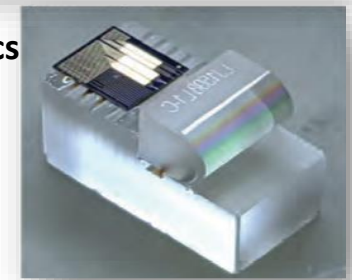
PCB Integration



Glass Interposer



Free-Space optics

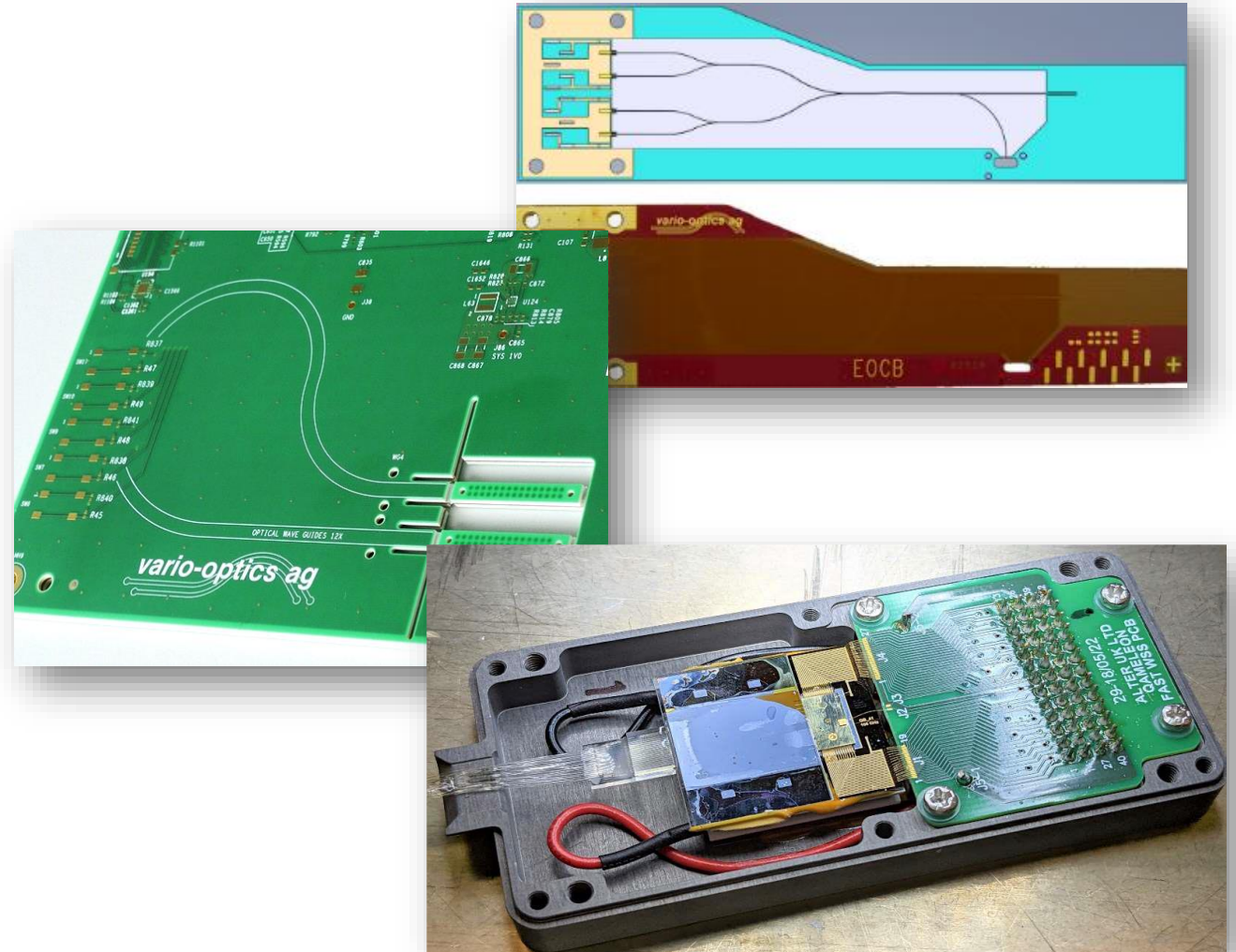


Requirements for good/advanced PIC packaging

- Co-engineering!
 - Consider packaging before PIC fabrication

- Multi-disciplinary approach
 - Many PICs also have high electrical & thermal requirements (RF etc)

- Scalable approach
 - Packaging effort should not increase with port count (e.g. minimize use of fibers)



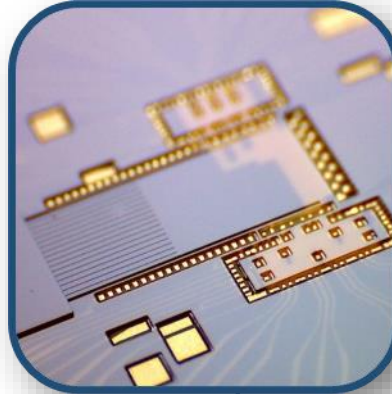
Vario-optic's PIC Packaging Platform

based on EOCBs



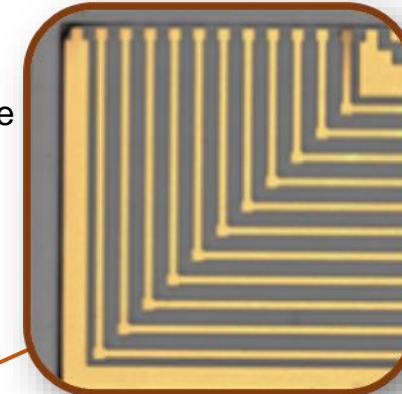
Planar Waveguides

- High I/O number optical Fan-outs
- On-chip mode conversion
- Polarization maintaining Waveguides



Optical Interfaces

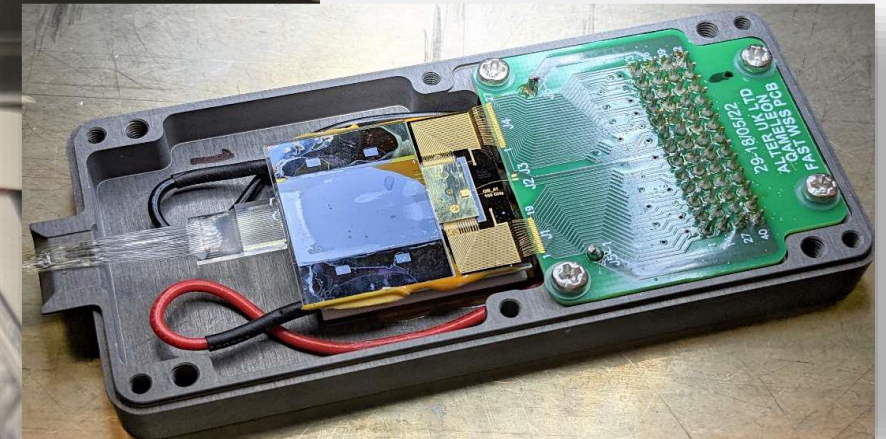
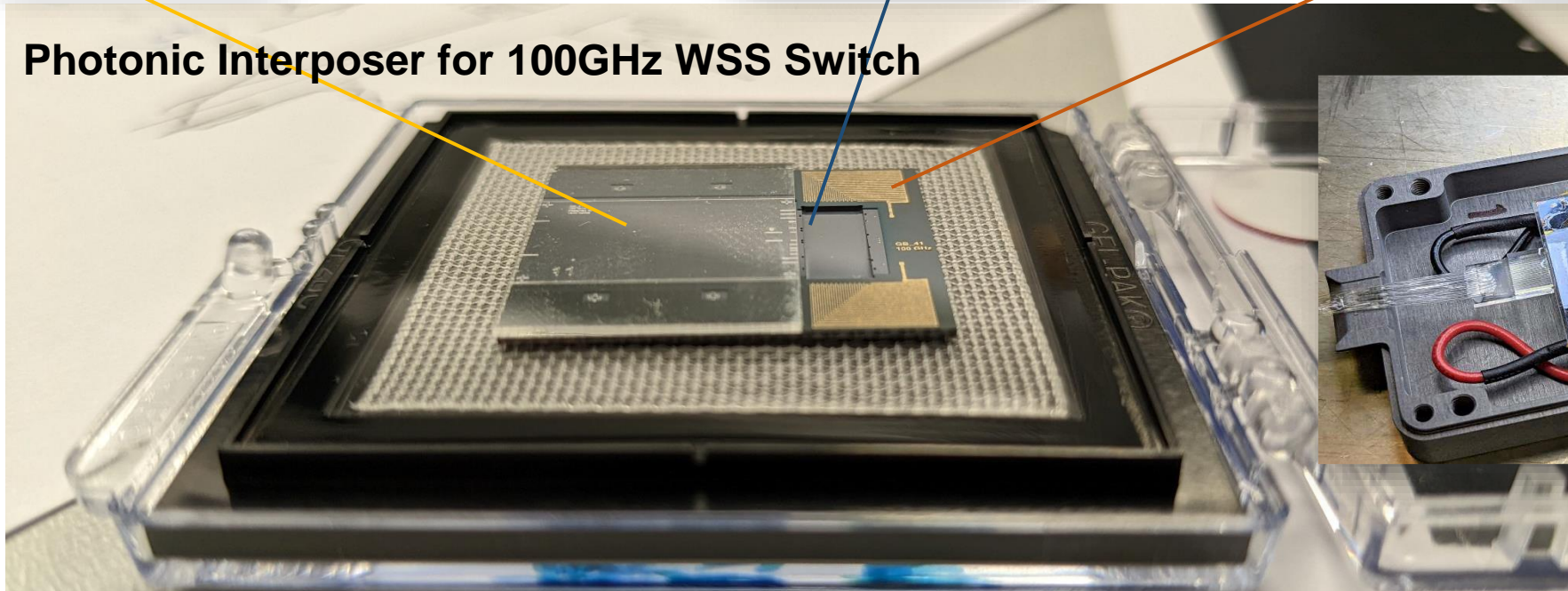
- Efficient PIC-Waveguide Coupling
- (Adiabatic or Butt-Coupling)
- Fiber-Interface & Connectors



Electrical Interface

- Metallization & PCB Integration
- Fine-Pitch, Flip-Chip Bonding
- RF (> 100 GHz)

Photonic Interposer for 100GHz WSS Switch



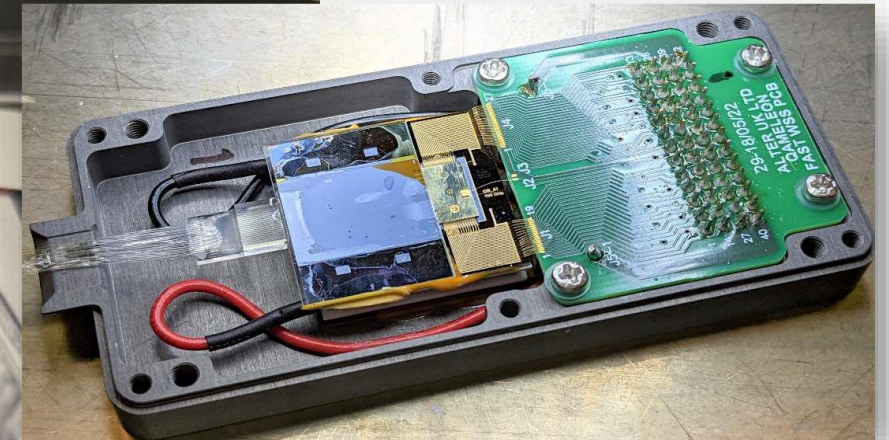
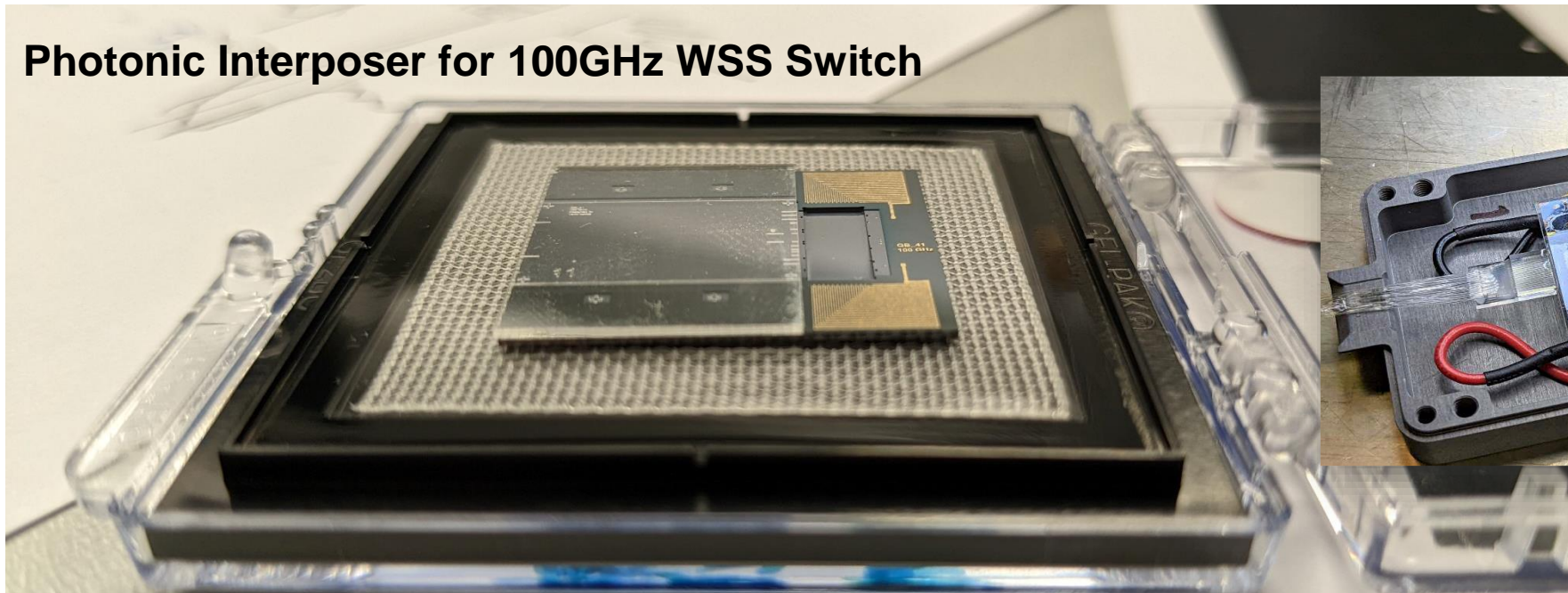
Vario-optic`s PIC Packaging Platform based on EOCBs

We are always looking for **partners/collaborations** which can make use of an advanced **PIC packaging platform**.

We can provide (optical/electrical/mechanical) subsystems, which can enable **high-speed, high port-count & scalable** photonic applications.

Get in contact -> n.floery@vario-optics.ch

Photonic Interposer for 100GHz WSS Switch





The Future is
Bright !

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