

## III-V Summit

### Opening Remarks by Session Chair

C. Lee  
Director General  
EPIC Photonics, Berlin, Germany



### Abstract

Coming Soon

### Biography

Coming Soon

References

# From Recognition to Industrial Leadership: Scaling Integrated Photonics in Europe

E. Brinkhoff  
CEO  
PhotonDelta, Eindhoven, The Netherlands

## Abstract

Europe has built a world-leading position in integrated photonics, with strong capabilities across III-V technologies and complementary photonic integration platforms. The European Commission's proposed revision of the EU Chips Act marks an important milestone: Photonic Integrated Circuits (PICs) are explicitly recognised as a strategic semiconductor technology within Europe's future semiconductor strategy.

Recognition, however, is only the starting point. Europe's challenge is now to translate its technological leadership into industrial scale, market adoption and long-term global competitiveness.

This presentation will outline what is needed to make that transition: moving beyond research excellence towards industrialisation and commercial deployment; creating viable pathways to scalable manufacturing; expanding and upgrading existing European production capacity; and strengthening the complete value chain from materials and substrates to PIC manufacturing, electronic-photonic integration, advanced packaging, testing, components and systems.

The revised EU Chips Act provides an opportunity to turn decades of European research, investment and innovation into lasting industrial leadership. The next phase is not simply about making more photonic chips in Europe, but about building a globally competitive European industry around them.

## Biography

**Eelko Brinkhoff (CEO)** is CEO of PhotonDelta, where he leads the mission to accelerate the growth and maturity of the integrated photonics industry in the Netherlands and Europe. With more than 25 years of experience in economic development, internationalisation and foreign direct investment, he brings a strong network across business, government, knowledge institutes and universities.

Before joining PhotonDelta in February 2024, Eelko was Managing Director Internationalisation at the Brabant Development Agency (BOM). He is committed to building a globally recognised photonic chip ecosystem that turns Dutch and European innovation into scalable applications in areas such as datacom, telecom, healthcare, quantum technology, robotics, sustainable agriculture and autonomous mobility.

References

## Coming Soon

F. J. Díaz-Otero  
CEO  
Ardora III-V, Vigo, Spain



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## **Enabling scalable III-V technology for RF and photonics applications at IMEC: Opportunities and challenges**

A. Vais

Principal member of technical staff

Imec, Leuven, Belgium

### **Abstract**

**III-V semiconductor-based devices, in particular InP Heterojunction Bipolar Transistors (HBTs), are a strong contender for next generation high speed communication systems. In this presentation, motivation for the upscaling of III-V technology on to 200/300mm Si platforms is presented. A comparison of various options for such III-V on Si technology are described. The challenges in the way to achieve its integration into existing CMOS platform and possibilities to overcome them are shown. IMEC's path to enable a CMOS compatible III-V-on-300mm Si technology with the most recent results are demonstrated.**

### **Biography**

**Abhitosh Vais** received the Ph.D. degree in applied physics from the KULeuven, Belgium in 2016 for his work on III-V MOS devices and defect characterization. He was an Erasmus-mundus scholar during 2010-2012, working on MSc in nanoscience and nanotechnology at KULeuven, Belgium and Chalmers Technology, Sweden. He joined IMEC, Belgium, in 2016, where he is a principal member of technical staff and leads the development of III-V on Si technology for advanced RF applications. Dr. Vais has authored or co-authored 60+ technical journal papers and conference publications and several patents.

References

## Topic Coming Soon

M. Bourke  
Mng Dir, Specialty Technologies and Strategic  
Marketing  
Lam Research, Remote, United Kingdom



## Abstract

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## Biography

Michelle Bourke received her B.Sc. degree in Optoelectronics and Laser Engineering from Heriot-Watt University in Scotland, UK. Subsequently she joined the Defence Evaluation and Research Agency (DERA), where she worked on advanced processing methods for GaAs/AlGaAs optoelectronic devices. In 1997 she entered the semiconductor capital equipment industry as a technologist and has since accrued more than 25 years of experience in semiconductor technology, strategy, and new product development. She is a specialist in fabrication technologies for MEMS, Power Devices, RF Electronics and Optoelectronics.

Michelle is a frequent presenter at leading industry forums and also serves on many committees and industry councils. In November of 2018, she was inducted into the Semi MEMS and Sensors Industry Group Hall of Fame and in 2020 she was a Silicon Valley YWCA Tribute to Women Honoree. Michelle is currently Chair of the Semi MEMS Manufacturing Working Group, Co-chair of the Semi MEMs Standards Committee and a Director on the Transducers Research Foundation Board where she is the Chair of Fund Raising and Development Committee.

Michelle joined Lam Research in 2015 and is currently Managing Director of Specialty Technologies and Strategic Marketing in Lam's Corporate Strategy Group.

References

## **Coming Soon**

R. Barnett  
Director Etch Product Management  
KLA, Wales, United Kingdom



## **Abstract**

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## **Biography**

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References

# **Beyond Silicon Photonics: Next-Generation Multi-Material Integration through Photonic Heterogeneous Integration (PHI)**

X. Luo  
Senior Principal Scientist  
National Semiconductor Translation and  
Innovation Centre, Singapore, Singapore,  
Singapore

## **Abstract**

As demand for higher bandwidth, faster data movement, and greater computing performance continues to grow, silicon photonics alone is becoming insufficient to meet the requirements of future AI, data-center, communication, and sensing systems. Photonic Heterogeneous Integration (PHI) addresses these challenges by combining the strengths of multiple material platforms, including III-V semiconductors for efficient light generation, silicon nitride (SiN) for ultra-low-loss routing, lithium niobate for high-speed modulation, and silicon for large-scale integration and manufacturing.

By leveraging the unique advantages of each material within a unified platform, PHI enables photonic integrated circuits that deliver higher performance, enhanced functionality, and improved scalability beyond what is achievable with silicon alone. This presentation will highlight recent breakthroughs in PHI technologies, key device demonstrations, and semiconductor-compatible manufacturing pathways that are accelerating the deployment of next-generation optical interconnects, AI infrastructure, and advanced sensing systems. The talk will also discuss how multi-material integration is shaping the future of photonic integrated circuits and enabling the transition toward 400 Gb/s-per-lane and beyond.

## **Biography**

Dr. Luo received his Ph.D. in Electrical and Computer Engineering from The Hong Kong University of Science and Technology in 2010, specializing in silicon photonics. He began his career at A\*STAR Institute of Microelectronics, focusing on silicon photonic integrated circuits (Si-PICs) and heterogeneous optoelectronic integration. In 2017, he co-founded Advanced Micro Foundry, leading the development of silicon photonics integration platforms and Process Design Kits (PDKs). He returned to IME in 2023 as Principal Scientist and, in 2024, was appointed Head of the Photonics & Sensors Department at IME and Vice President of Silicon Photonics Platform Technology at National Semiconductor Translation and Innovation Centre, where he leads next-generation silicon photonics heterogeneous integration.

Dr. Luo is a Fellow of Optica, Senior Member of IEEE, Lifetime Member of SPIE, and member of PMI. He serves on the editorial boards of leading photonics journals and has previously held editorial positions across both academic and industry-focused publications. He is also actively involved in the international photonics community through conference leadership, technical program committees, and peer-review activities. Dr. Luo has authored or co-authored more than 200 publications, contributed to 5 book chapters, and holds over 30 patents in photonics and optoelectronics.

## **References**

## **Closing Remarks by Session Chair**

C. Lee  
Director General  
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