ITF IMEC

Welcome

K. Marent
EVP & Chief Marketing and Communications Officer
imec, Leuven, Belgium

Abstract
Coming Soon

Biography
Katrien Marent has an engineering degree in microelectronics. She joined imec in 1992 as analog design engineer and specialized in design of low-noise readout electronics for high-energy physics. In 1999, she became press responsible and scientific editor at imec's business development division and was responsible for authoring and editing the research organization's numerous company technical documents and publications. In 2001, she was appointed corporate communications director at imec. Her responsibilities expanded in August 2007, when she got the position of external communications director including corporate, marketing and outreach communications. In October 2016, she became VP corporate, marketing and outreach communication. Since April 2020 she is Executive Vice President & Chief Marketing and Communications Officer and member of the executive board of imec.

References

Opening Keynote

L. Van den hove
President & CEO
imec, Leuven, Belgium

Abstract
The AI field is evolving at an incredibly fast pace, with major models and updates being released almost every month. As these models evolve beyond Large Language Models towards next-gen AI with advanced reasoning capabilities, compute systems struggle to handle the heterogeneous workloads in a performant and sustainable way. However, developing new, AI-optimized compute architectures and the enabling semiconductor technologies takes much more time than writing algorithms. To prevent bottlenecks slowing down AI-based advancements, we must reinvent compute architectures and semiconductor technology platforms.
The presentation will shed light on the need for flexible, versatile compute architectures implemented in flexible, versatile technology platforms while addressing the increasing challenges of density, power and memory. To speed up both advanced semiconductor technology R&D and full stack innovation for future AI applications, imec is expanding its pilot line infrastructure under the EU Chips Act. Next to new infrastructure, imec aims to boost innovation through intensified collaborations with complementary knowledge partners and through further internationalization, attracting global talent and building strong, local ecosystems for diverse application domains, like health and automotive.
Transformative innovations for humankind hinge on the innovation pace of the semiconductor industry. It's time to supercharge our innovation engine, it's time to futureproof our prosperity.

Biography
Luc Van den hove is President and CEO of imec since July 1, 2009. Before he was executive vice president and chief operating officer. He joined imec in 1984, starting his research career in the field of silicide and interconnect technologies.
In 1988, he became manager of imec's micro-patterning group (lithography, dry etching); in 1996, department director of unit process step R&D; and in 1998, vice president of the silicon process and device technology division. In January 2007, he was appointed as imec's EVP & COO. Luc Van den hove received his PhD in electrical engineering from the KU Leuven, Belgium.
In 2023, he was honored with the Robert N. Noyce medal for his leadership in creating a worldwide research ecosystem in nanoelectronics technology with applications ranging from high-performance computing to health.
He has authored or co-authored more than 200 publications and conference contributions.

References

Nanopores in Health: Where Silicon Meets Biology

S. Lenci
Principal Member of Technical Staf
imec, Leuven, Belgium

Abstract
The convergence of semiconductor innovation and biomedical science is unlocking a variety of opportunities in healthcare diagnostics and therapeutics. Solid-state nanopores—nanoscale apertures fabricated in silicon-based membranes—represent a compelling frontier where advanced logic, integration, and materials engineering intersect with molecular biology. These devices enable label-free, single-molecule detection with high throughput. Unlike biological nanopores, solid-state variants benefit from CMOS-compatible fabrication, tunable geometry, and integration with photonic and electronic readout systems. Recent advances in nanofabrication, surface functionalization, and machine learning-driven signal processing have significantly enhanced their sensitivity, selectivity, and robustness. Imec's leadership in semiconductor process innovation and integrated photonics provides a strategic advantage in accelerating the deployment of solid-state nanopore technologies across healthcare ecosystems. By leveraging its existing infrastructure for advanced logic nodes and heterogeneous integration, imec is pioneering scalable, cost-effective biosensing platforms that address global challenges including early disease detection, antimicrobial resistance, and pandemic preparedness.
This presentation will showcase how imec's semiconductor R&D ecosystem—traditionally focused on computing and mobility—is now catalyzing innovation in health. By leveraging imec's strengths in chip manufacturing and system integration, solid-state nanopores exemplify how deep-tech can be harnessed to address global healthcare challenges. The talk aims to inspire cross-sector collaboration and highlight pathways for industrial deployment of silicon-based biosensing technologies.

Biography
Silvia Lenci graduated in Electronic Engineering at the University of Pisa (Italy) with a Master Degree in 2006, and a PhD in 2010, focusing on MEMS and bioMEMS. After her PhD, she started her career in imec Leuven as device and process engineer in GaN power electronics and sensors. She continued as integration engineer and project manager in the field of microfluidics, photonics, optics and MEMS, fabricated in the CMOS-compatible imec fabs. She is today project manager in solid state nanopore technology, focusing on the chip fabrication in fab. Bringing technology to life is her passion. Multidisciplinary interaction with processing, design, tape out and characterization teams is the core of her daily work.

References

Microelectronic solutions for ultra low current – low noise - high bandwidth nanopore sensing

F. Thei
CEO & Founder
Elements srl, Milan, Italy

Abstract

Solid-state nanopores, nanoscale apertures fabricated in silicon-based membranes, represent a promising breakthrough in next-generation biosensing technology. As analytes pass through nanopores, they generate weak electrical signals—unique current fingerprints that can be used for precise molecular identification. Capturing these signals without sacrificing sensitivity or bandwidth presents a significant microelectronic challenge.

ELEMENTS SRL, an Italian company specializing in ASIC design for ultra-low current sensing, addresses this challenge by developing high-precision electronic systems capable of measuring currents in the sub-nanoampere and picoampere range. Their portfolio includes both turnkey instruments and OEM solutions tailored to demanding sensing applications.

As a technology partner for **imec's solid-state nanopore system development**, ELEMENTS provides the electronic infrastructure enabling high-throughput, high-bandwidth current sensing and real-time data processing for single-molecule protein sequencing.

This presentation will explore the key design strategies and challenges in CMOS microelectronics for nanopore applications, focusing on low-noise analog front-ends, wide-bandwidth performance in the MHz range, and scalable data acquisition systems. We will highlight how optimized electronic design can unlock the full potential of nanopore technology for early disease detection and proteomic applications, paving the way for faster, more accurate molecular diagnostics.

Biography

Dr. Federico Thei is CEO and Founder at Elements srl (Italy) since 2014, responsible for strategic business development, new products concept design and industrial partnerships building, focusing on enabling nanopore technology to industrial applications.

Graduated in Telecommunication Engineering in 2007, he received the Ph.D. in Information and Communication Technologies in 2011 at the University of Bologna, Italy, with a research activity focused on low noise microelectronics systems for nanopore and biosensors readout.

He was visitor Ph.D. student at the University of Southampton (UK), University of Twente (NL) and several EU Companies in the electrophysiology field. For four years he was assistant professor for the electronic engineering course "Electronic digital systems" at the University of Bologna.

He attended in 2015 the Technology Venture Launch Program Express in Menlo Park, Silicon Valley, winning the final pitch competition. In 2018 he attended The Business side of Biomedical Start-ups course at the University of Bocconi, Milan. In 2025 he received the American Innovation prize from the Italian – USA foundation.

Coauthor of patents and papers in the microelectronic and nanopore field, he builds strong partnerships with Companies and research centers across the world, like EPFL, IMEC, Stanford NF, Bosch, offering the most advanced microelectronic solution for low noise and high bandwidth nanopore readout.

References

Driving European Semiconductor Leadership: A Chiplet-Based Approach for the Automotive Sector

D. Hoffend
Business Director Automotive Sector
imec, Leuven, Belgium

Abstract
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Biography
Dieter Hoffend is Business Director for the Automotive Sector at imec, where he leads strategic initiatives in chiplet technology and edge AI for the automotive industry. Based in Munich, he joined imec in February 2025, bringing more than 30 years of international experience in semiconductors, automotive electronics, and business leadership.
Before joining imec, Hoffend built a distinguished career at Intel Corporation. He played a pivotal role in shaping Intel's entry into the automotive market, serving on a three-person team that launched the company's automotive strategy in 2005. This work set the foundation for Intel's efforts in in-vehicle infotainment, advanced driver assistance systems (ADAS), and autonomous driving, and became a model for the broader semiconductor industry's engagement with the automotive sector.
Hoffend went on to lead Intel's automotive sales in Europe, covering IT, connectivity, and Industry 4.0 and manufacturing solutions. He managed global relationships with major automotive OEMs and Tier-1 suppliers, driving significant growth and fostering long-term strategic partnerships. His leadership also extended to high-level collaborations with IT OEMs such as Hewlett Packard, Fujitsu Siemens Computers, and MEDION AG, as well as establishing Intel's Foundry Services Business Development organization.
Recognized for his ability to navigate complex markets and cultivate executive-level relationships, Hoffend has consistently delivered growth and innovation in highly competitive technology-based environments.

References

Space and Security Applications (title to be confirmed)

N. V. den Wijngaert
VP Aerospace & Security
imec, Leuven, Belgium

Abstract
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Biography
Coming Soon

References

Industry Keynote

J. M. Pascual Ruiz
Innovation Centres Director
INDRA, Madrid, Spain

Abstract
Coming Soon

Biography
Telecom Engineer from the Madrid Polytechnic University (ETSIT-UPM), (Ingeniería Superior, 6 year degree, Msc), since 1989.

He has developed his full professional career since then in Indra where he has developed technology innovations on the Sensor and Radar Signal Intelligence fields (SIGINT/ELINT). Among these technologies can be the introduction of ultrawideband Digital Reception capability UW-DRX, Digital Radiofrequency Memories (DRFM) and its application on countermeasures techniques, together with analysis systems currently deployed on the Indra's EW/Intelligence systems.

He has been involved in most of the national EW programs since the date including intelligence systems (large body aircraft ELINT, naval systems and ground base acting as System Engineer and Technical Director on the complete lifespan cycle from proposal to field testing, and maintenance). Also, on the development and deployment of RWR/SPJ systems on fighter aircraft as F18, ALR-400 RWR suite and ALQ-500 Self Protection Jammer, or rotary wing platforms, and on high performance naval ESM systems deployed on Spanish Navy and other countries.

Also has participated in multiple international programs, on export and collaboration activities and as Technical Director on the ALR-400M version of RWR deployed on A400M.

He has participated in NATO NIAG (NATO Industrial Advisory Group) studies on Future Electronic Support Systems and Geolocation Systems, and delivered speeches and courses on multiple universities, military academies and AOC Symposia (Association of Old Crows, member since 1999). Presently participating as contact between NIAG and Science & Technology Organization (STO).

Long time on charge of the Technology Areas in Indra leading the development of technological Building Blocks for the Transport & Defense Product activities. Including dual use technologies as Electronics (microelectronics and electronic design), Radiofrequency, Antenna, Microwave and Signal Processing.

Presently as Innovation Centres Director, in charge of the Technology Acquisition department working on the elaboration and review of technology roadmaps and activities with impact on the product roadmaps (as example impact of SIP/Microelectronics technologies, Quantum, Photonics and new materials and manufacturing processes are part of this strategy).

Member of the Indra's Innovation Board, also coordinating the technology strategy with digital technologies and other product/activity lines in the company.

Areas of interest include Systems Engineering, Manufacturing methods, RF, MW, Signal Processing, IA, Quantum and Photonics.

References

Enviromentally aware IC chip manufacturing

E. Gallagher
Program Director
imec, Leuven, Belgium

Abstract
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Biography
Emily Gallagher is a director of the SSTS (Sustainable Semiconductor Technologies and Systems) program at imec, focusing on sustainability in semiconductor manufacturing processes. Emily earned her PhD in physics from Dartmouth College where she studied free electron lasers. After graduation, she joined IBM and became immersed in semiconductor technology. She held many roles at IBM from functional IC chip characterization to wafer process integration, to leading the EUV photomask development effort. She joined imec in 2014 to continue EUV development work. Emily has authored over 120 technical papers, holds ~30 patents, is an SPIE Fellow, cochairs the Scientific Advisory Board of the Advanced Research Center for Nanolithography (ARCNL) and is active in international organizations like SEMI's Semiconductor Climate Consortium and the PFAS Consortium.

References

Enabling the European Supply Chain

P. Soussan
Technology Portfolio Director
imec, Leuven, Belgium

Abstract
Coming Soon

Biography
For 20 years **Philippe Soussan** has held different position in R&D management in imec in the field of sensors, photonics, 3D packaging. Addressing these technologies from R&D up to manufacturing levels. His background deals with wafer scale technologies, authoring over 100 publications, and holding more than 20 patents in these fields.
From 2007 till 2011, he has led the group “Packaging, Microsystems and Hybrid Technology”. The group dealt with complex process integration using 3D interconnects, advanced packaging and micro fabrication of scaling and non-scaling driven components. In 2011, he became program manager for the smart system division of IMEC, which mission is to enable novel product in the field of More than Moore, such as sensors, microsystems in the field of RF and opto-electronics. In 2019, he was program director in the field of integrated photonics for sensing applications
Since 2024, Philippe is in charge of strategy definition for IC-link by imec. This imec business line provides an access to design and manufacturing services in the most advanced ASIC and specialty technologies.

References

F. Holsteyns
VP R&D Unit Process & Modules
imec, Leuven, Belgium

Biography
Frank Holsteyns has been serving as the VP of R&D at imec, leading the Unit Process and Module Department since July 1, 2023. Before stepping into this role, he was the director of the same department, where he managed various process-development-focused groups, including surface and interface processing, etch, thin film deposition, epitaxy, plating, chemical mechanical polishing, layer transfer, and assembly.
Frank's journey at imec began in 2000, where he concentrated on wet cleaning research for semiconductor devices. His work in this area culminated in a PhD in Bio Engineering (surface chemistry) from KU Leuven, Belgium. In 2006, he transitioned to Lam Research AG in Villach, Austria, as a research scientist. There, he coordinated a university and research network focused on fluid dynamics, particularly cavitation, droplet impact, wetting, and dewetting.
In 2012, Frank returned to imec, taking on the role of manager for the Surface and Interface Processing Group. In this position, he specialized in wet clean and etch processes, as well as isotropic dry etches.

References

Panelist

J. De Boeck
EVP & CSO
imec, Leuven, Belgium

Abstract
Panelist

Biography
Jo De Boeck received his engineering degree in 1986 and his PhD degree in 1991 from the University of Leuven. Since 1991 he is a staff member of imec (Leuven). He has been a NATO Science Fellow at Bellcore (USA, 1991-92) and AST-fellow in the Joint Research Center for Atom Technology (Japan, 1998).
In his research career, he has been leading activities on integration of novel materials at device level and new functionalities at systems level. In 2003 he became Vice President at imec for the Microsystems division and in 2005 started Holst Centre (Eindhoven) as General Manager of imec the Netherlands.
From 2010 he headed imec's Smart Systems and Energy Technology Business Unit. He is part-time professor at the Engineering department of the KU Leuven and held a visiting professorship at the TU Delft, Kavli Institute for Nanoscience (2003–2016). In 2011 he became Chief Technology Officer and in 2018 he was appointed Chief Strategy Officer. He is member of imec's Executive Board.

References

European Semiconductor Policies: Towards Chips Act 2.0

P. Chastanet
Head of the Unit for Microelectronics and Photonics
European Commission, Brussels, Belgium

Abstract
Semiconductors are increasingly recognised as critical to the EU's economic security. Economic security is increasingly a policy area that is being coordinated by the EU, especially in light of current geopolitical instability. The strategic importance of semiconductors extends across numerous sectors and impacts all Member States, regardless of the size of their domestic semiconductor industries.
To secure the EU's position in future-defining technologies (e.g. chips for Artificial Intelligence) and to promote the EU's strategic autonomy, action at EU level is vital in order to leverage the Single Market and jointly devise solutions to address dependencies in leading-edge chips. The EU can, by enabling joint action and increased coordination, pool the strengths of different Member States in the various segments of the semiconductor value chain. These actions will help safeguard critical industrial sectors, ensure that the EU can sustain its digital transition, and enable future EU markets of leading-edge chips – including AI chips for data centres (cloud/edge) and high-performance computing infrastructures (e.g. AI factories and gigafactories).
The revision of the Chips Act is intended to ensure the EU's resilience and technological sovereignty in semiconductor technologies and applications.

Biography
Pierre Chastanet is Head of the Unit for Microelectronics and Photonics at the European Commission, where he manages the development of European semiconductor policy and the implementation of the European Chips Act.
Mr. Chastanet has been working for over 18 years in the European Commission, supervising different digital policies in the areas of cloud, data flows, software, cybersecurity, privacy, green ICT, and telecom innovation.
Prior to that, Mr. Chastanet gained more than 10 years of ICT experience, mostly in various IT management positions in a large multinational company.
He graduated from Telecom ParisTech, the Free University of Brussels, and the London School of Economics and Political Science. He also earned a Leadership Executive Certificate from Harvard Kennedy School of Government.

References

Panelist

C. Kutter
Director
Fraunhofer EMFT, Munich, Germany

Abstract
Panelist

Biography
Christoph Kutter is director of Fraunhofer EMFT, an institute of the Research Fab Microelectronics Germany (FMD), of which he is currently co-spokesperson. He also holds a professorship specializing in solid-state technologies at the University of the Federal Armed Forces in Munich. His focus at Fraunhofer EMFT is on silicon technologies, MEMS, flexible electronics, biosystem integration and heterogeneous integration of various solid-state technologies.

Christoph Kutter is currently Vice President of the VDE (Association for Electrical, Electronic & Information Technologies), a member of acatech (National Academy of Science and Engineering) and the BBAW (Berlin-Brandenburg Academy of Sciences BBAW).

From 1995 to 2012, Christoph Kutter held various management positions at Infineon Technologies AG and Siemens AG, including Head of Communications Product Development, Head of Chip Card Development and Head of Central Research. Christoph Kutter was responsible for several central improvement projects to increase efficiency in research and development as well as for the management of the company-wide innovation initiative.

From 1990 to 1995, Christoph Kutter worked as a research assistant at the High Magnetic Field Laboratory (Max Planck Institute for Solid State Physics) in Grenoble, France.

Christoph Kutter received his Dipl. Phys. from the Technical University of Munich and his Dr. rer. nat. from the University of Constance in 1995.

References

Panelist

R. Hamelin
CTO & Coordinator aCCCess
Blumorpho, Leuven, Belgium

Abstract
Panelist

Biography
Régis Hamelin earned an engineering degree in materials science and a PhD in Electronics from the University of Lille, where he researched semiconductor lasers with the IEMN optronics team in 1993. He spent seven years at CEA-LETI as a process engineer and program manager in optronics, developing expertise in compound semiconductor photonic components and packaging. In 2003, he co-founded Intexys Photonics, serving as CTO and board member in launching active optical cables for high-end supercomputers. In 2010, he joined the “COWIN” support action under FP7, leading to the foundation of BLUMORPHO, which he joined as CTO in January 2015. He is currently coordinator of the aCCCess CSA working closely with the network of Chips Competence Centers.

References

Panelist

J. Kinaret
Executive Director
Chips JU, Brussels, Belgium

Abstract
Panelist

Biography
Jari Kinaret was born in Finland and holds M.Sc. degrees in Theoretical Physics and Electrical Engineering from the University of Oulu in 1986 and 1987, respectively, and a Ph.D. in Physics from the Massachusetts Institute of Technology (MIT) in 1992.
Prof. Kinaret has worked in various roles at research institutes and universities in Copenhagen, Denmark, and Gothenburg, Sweden. From 2013 to 2023, he served as the Director of the Graphene Flagship, a one-billion-euro research project dedicated to exploring the potential of graphene. In October 2023, Prof. Jari Kinaret assumed the role of Executive Director at Chips Joint Undertaking (Chips JU), a European public-private partnership that supports research, development, innovation, and future manufacturing capacities in the European semiconductor ecosystem.

References

Panelist

J.-R. Lèquepeys
Deputy Director & CTO
CEA-Leti, Grenoble, France

Abstract
Panelist

Biography
Jean-René Lèquepeys received his engineering degree in 1983 from Centrale Supelec and taught physics for 2 years in Ouarzazate, Morocco. He joined CEA in October 1985, in Saclay, within the Central Security Office, in the laboratory for the evaluation of means of detection and intrusion. In 1987, he became the head of the laboratory. In 1993, he was recruited by DSYS, at LETI in Grenoble, as an R&D engineer, in the field of image processing. He then lead projects in the field of "Telecom" at LETI before becoming the head of "Telecom, Communicating Objects and Smart Card" programs in 1999, within the team of Jean-Frédéric Clerc. In 2005, he took in charge the Circuits Design Department at LETI / DSYS, and then created, in partenership with the Ecole des Mines de Saint-Etienne, a laboratory dedicated to electronic components safety analysis located in Gardanne (Paca). In 2010, from the common initiative of both LETI and LIST Directors, he launched DACLE division, relying on original bi-site and bi-institute model, and focusing on Electronic Architectures, Integrated Circuit Design and Embedded Software. He participated in the creation of the Division DCOS (Division of Silicon Components) in 2011, and then lead the division until the end of 2017, when he got back to the head of DACLE division in 2018. In 2000, Jean-René Lèquepeys received the famous award from SEE "Grand Prix de l'électronique Général Ferrié" for his work in the telecommunications field. He is the author of about fifteen patents in this field.
In 2019 he was appointed Deputy Director in charge of programs at LETI and Deputy Director of the Director of LETI.

References