

SEMICON® EUROPA

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Fab Management Forum



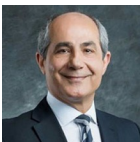
J. Recklies
Senior Vice President
Infineon Technologies AG, Regensburg, Germany



Biography

Joerg Recklies has been in the semiconductor industry for 27 years with responsibilities ranging from Chip design to IDM. He is currently in charge of the General Manager at Infineon Technologies Regensburg. Prior to that, Joerg Recklies was in charge of the FAB Manager at Infineon Dresden and held several positions in automation and productions at Infineon. These positions contributed to his excellent experience in terms of equipment and automation. Earlier in his carrier he has made contributions in digital and analog Chip design. Joerg Recklies holds a graduate engineer for Semiconductor. **Highlight during the time with Infineon** - Establish high automation at IFD 1995- 1997 as project leader automation software integration- Project Leader world wide cost reduction program within Infineon Frontend Productions from 1999 –2003 (within Europe, US, Asia)- Section Manager Plasma Etch / Wafer Inspection 2003- 2007- Director Maintenance Engineering 2007 – 2014- Project Leader 300 mm Fab Startup / Transfer Power Technologies 2011-2013- FAB Manager Senior Director 200 / 300 mm Dresden 2014 – 2018- General Manager Site Regensburg Senior Vice President since 2018

Welcome Remarks



L. Altimime
President
SEMI Europe, Berlin, Germany



Abstract

Coming Soon

Biography

Laith Altimime, as President of SEMI Europe, leads SEMI's activities in Europe and the Middle East and Africa (EMEA). Altimime has P&L responsibility as well as ownership of all Europe region programs and events, including SEMICON Europa. He is responsible for establishing industry standards, advocacy,

community development, expositions, and programs. He provides support and services to SEMI members worldwide that have supply chain interests in Europe. He manages and nurtures relationships with SEMI members in the region and globally as well as with local associations and constituents in industry, government, and academia. Altimime has more than 30 years of international experience in the semiconductor industry. Prior to joining SEMI in 2015, He held senior leadership positions at NEC, KLA-Tencor, Infineon, Qimonda and imec. Altimime holds an MSc from Heriot-Watt University, Scotland.

The Great Wolfspeed Takeover



M. Stigall
SVP Global Fab Operations
Wolfspeed, Durham, United States of America



Abstract

Coming Soon

Biography

Missy is responsible for the strategy and direction of the Wolfspeed global device factories, developing innovative production solutions, building dynamic manufacturing and engineering teams, and delivering on-time quality execution that meets customer needs. In addition, she sponsors our Management of Change initiative, is responsible for several initiatives in the Global Ops organization, and has a passion for driving critical conversations that result in solutions that evolve inclusion and diversity.

Missy has 25 years of experience in the semiconductor industry, encompassing a wide range of roles. She graduated from Southern Methodist University with a BS in Electrical Engineering and from Kettering University with a MS in Engineering Management.

Building the new Smart Power Fab in Dresden: A Strong Signal for the Future



H. Hasse
Senior Project Director for the Plant Expansion,
Infineon Site Dresden
Infineon Technologies Dresden GmbH, Dresden,
Germany



Abstract

The Infineon Dresden production site already produces over 400 different products based on 200- and 300-millimeter wafers. The site was founded in 1994 – at that time still as part of Siemens.

Today, Infineon operates one of the most modern and largest sites for manufacturing, technology, and product development in Dresden – with around 3,300 employees. This makes Infineon Dresden one of the largest industrial employers in the region.

With the new Smart Power Fab, the site in Dresden will grow significantly in the coming years and become Infineon's largest Frontend location. This investment is an essential contribution to achieving the European Commission's declared objective of reaching a 20 percent share of global semiconductor production in the EU by 2030. Semiconductor solutions for industrial and automotive applications from the Dresden Fab will help secure value chains in key European industries even better in the future.

The Smart Power Fab is the largest single investment in Infineon's corporate history and will make a decisive contribution to driving climate protection and digitalization forward. With the level of digitalization and automation established here, Infineon in Dresden is also setting new standards in manufacturing excellence. Furthermore about 1,000 direct new jobs will be created.

In February 2023, the Infineon Management Board and supervisory bodies gave the green light for the Dresden site. The German Federal Ministry for Economic Affairs and Climate Action (BMWK) has approved an early project launch, meaning that construction can already begin before completion of the inspection of legal subsidy aspects by the European Commission. Subject to the European Commission's state aid decision and the national grant procedure, the project is to be funded in accordance with the objectives of the European Chips Act.

For a long time, no semiconductor plant of this size was built in Europe. Due to the increasing demand in the semiconductor market, Infineon has set a very ambitious timeline for this complex project. Diverse challenges arise, for example, the extensive approval process with the local authorities must be mastered. Price increases in construction and delays in delivery of long lead items must also be absorbed.

Biography

As Senior Project Director at Infineon Dresden, Holger Hasse is responsible for the construction and facilitation of the new Smart Power Fab with more than 20,000-square-meter clean room, where the 300-millimeter wafers for semiconductor production will be processed in the future.

He learned the semiconductor business from scratch: At the beginning of the 1990s, he completed an apprenticeship as an electronics technician and started in the industry in 1995. At the same time, he studied business administration and mechanical engineering.

After his studies, Holger Hasse first took care of maintenance as a team leader and later as a department manager. This was followed by management positions in various production areas at different semiconductor companies.

Holger Hasse was born in Görlitz, Germany, in 1970.

Discover Saxony-Anhalt - Vibrant Industries Joined by Intel's Gigafactories



R. Franke
Managing Director
IMG - Investment and Marketing Corporation
Saxony-Anhalt, Magdeburg, Germany



SACHSEN-ANHALT
Investment and Marketing
Corporation

Abstract

Saxony-Anhalt, operating on a global scale, is soon home to global players like Intel, Daimler, Avnet, and Sioux. Discover the possibilities of our region, which is on the path to becoming a leading European high[1]tech area and also offers a solid base of small and medium-sized companies.

Biography

Experience:

from January 2023 Managing Director

IMG – Investment and Marketing Corporation Saxony-Anhalt

10/2015 – 12/2022 Director Office of Economic Development

05/2019 – 10/2020 Director Office of Road and Infrastructure Department (temp.)

City of Dresden

01/2013 – 03/2016 Managing Director

Energy Saxony e.V.

01/2012 – 09/2015 Head Dresden Office

01/2009 – 12/2011 Consultant

VDI/VDE Innovation + Technik GmbH

02/2007 – 02/2008 Project Manager

Heliatek

Education:

01/2003 – 01/2007 Doctor of Philosophy – PhD, Physics

10/2002 – 02/2005 Diploma Degree, Business Administration

10/1999 – 09/2002 Diploma Degree, Physics

Technische Universität Dresden

Challenges of Capacity Doubling Under Brownfield and Full Load Conditions



M. Woittennek
CEO X-FAB Dresden
X-FAB Dresden GmbH & Co. KG, Dresden,
Germany



Abstract

Coming Soon

Biography

Michael Woittennek is **CEO - Managing Director, X-FAB Dresden GmbH & Co. KG** with a strong focus on cooperation and growth of the teams during the last 15 years in X-FAB. Responsibility for Dresden location including and ~580 employees in operations, facility, quality, controlling, IT and R&D. Short- and long-term goal- and priority setting responsibility. Focus on economy of scale activities (ramp 11.000 wafer starts/month) and clear support of automation roadmap to improve profitability of the site.



C. Melvin
Senior Director of Business Development &
Operations
SEMI Europe, Berlin, Germany



Biography

Cassandra joined SEMI Europe in 2018 to lead its operations, business development and strategic initiatives related to diversity and inclusion. In this role she is responsible for leading a culturally diverse team, enhancing member value, and directing operations for optimized financial performance. Prior to joining SEMI, she held the position Global Product Manager at Atotech for its semiconductor division. She began her career at the SUNY Polytechnic Institute as a Business Manager focused on technical programs for chemistry and equipment manufacturers and held project management roles in clean room operations and IT. Cassandra's written work has been published in leading technical magazines and presented at conferences globally. She holds a BS in Business Management, and Minor in Neuropsychology from Rensselaer Polytechnic Institute.

The Quest for Talent – How to find the Next Generation Semiconductor Manufacturing Professionals



B. Capraro
EU Talent Development Programme Manager
Intel Research and Development Ireland Ltd,
Dublin, Ireland



Abstract

As Europe engages in the global rebalancing of the silicon supply chain, producing 20% of the world's high-end silicon by 2030, many announced investments in the region are emerging which will require a huge intake of highly trained and skilled technical workers. The supply of talent to run and sustain the latest and future semiconductor processes is a major issue as many professionals approach retirement, and the younger generations appear not to be attracted to our industry. In this short talk, I will showcase some of the talent pipeline initiatives already underway in Ireland in support of Intel's newly opened state-of-the-art manufacturing facility, Fab34. In a small Country with many hi-tech companies for graduates to choose from, the attraction and retention of technical talent is paramount. This is obviously the case for Europe as a whole, so what can we now achieve together, to generate a large, informed, excited, sustainable and diverse talent pool to support our current and future ambitions and investments?

Biography

Bernie received a Masters Degree in Engineering from Newcastle upon Tyne Polytechnic (now Northumbria University Newcastle) and has been working at Intel for the past 26 years holding various Engineering and Management roles across the wafer fabrication facilities, semiconductor and nanotechnology research activities in Ireland and wider Europe, as well as University engagement and relationship building across Ireland. Bernie is currently responsible for Higher Education talent pipeline development across wider Europe, currently focusing on Intel's manufacturing expansions in Germany and Poland. In February 2019, Bernie was announced as an Adjunct Professor within Ireland's first Technological University, TU Dublin. Bernie's semiconductor experience spans 36 years, with other Process and Equipment Engineering positions held at Telefunken GmbH (DE), Nortel/Bell Northern Research (UK/Canada), Applied Materials (UK) and Newport Wafer Fab (UK).

Coming Soon



R. Goddard
Global Practice Lead, Technology
Mercuriurval, Copenhagen, Denmark



Abstract

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Biography

Richard Goddard is the Head of the Global Technology Practice for Mercuri Urval, a leading Executive Search and Leadership Advisory firm, with teams operating across Europe, Asia Pacific and North America. As an executive search leader, he has specialized in the Global Semiconductor and Deep Tech ecosystem since 1991, working with early-stage, scale-ups, public organizations, venture capital and private equity. During his career he has lived and worked in the UK, Germany and Singapore, where he has supported organizations on strategic hiring programs across all functional disciplines within the industry and across both mature and emerging markets. He is a passionate advocate of the Semiconductor and Deep Tech industry and is committed to sharing his extensive experience and insights to help the industry capitalize on its path to shaping a \$1trillion era.

Demystifying Microelectronics: Innovative Strategies for Attracting New Talent



M. Williams-Vaden
Deputy Director
SEMI Foundation, Milpitas, United States of
America



Abstract

The global semiconductor industry will need to attract nearly a million new workers worldwide as it catapults towards being a \$1 trillion industry by 2030. Finding this talent will require innovative strategies that demystify and illuminate this often-invisible industry to students and jobseekers. The SEMI Foundation runs multiple programs designed to generate awareness and excitement about the breadth of jobs within the industry, and the positive impact workers in semiconductors can have on improving peoples' lives. This presentation will share insights on what will attract jobseekers and students to the industry, and outline programs and initiatives that companies can engage in to reach new talent.

Biography

Bio: Michelle Williams-Vaden is the Deputy Director of the SEMI Foundation. Michelle is responsible for the organization's scaling strategies, resource generation, storytelling and communications, and working toward diversity, equity, and inclusion in the semiconductor industry. Michelle has supported the launch and scaling of numerous national workforce development initiatives and has secured significant public and private support for programs that welcome more women, veterans, people of color, and other underrepresented populations to the industry. She is an accomplished speaker and writer who has presented and written for national and global audiences. She also developed a first-of-its-kind diversity, equity, and inclusion roadmap and toolkit for the microelectronics industry.

Previous to SEMI, Michelle spent 15 years at the helm of nonprofit organizations dedicated to strengthening local communities and positively impacting policy and program development on local, state-wide, and national levels.



K. Schimpf
Fab Manager
Texas Instruments, Regensburg, Germany



Biography

Now 25 years with TI- 1997: Phd in Physics Research Centre Juelich- 1997: joining TI in Freising as Product engineer working on Development and yield improvement of Analog technologies- 2007-2020: various mgmt roles in Engineering and Operations- 2021: Fab Manager , FFAB TI Freising

TI's Energy Saving Activities



A. Stur
Facilities Engineering Manager
Texas Instruments, Munich, Germany



Abstract

Coming Soon

Biography

Coming Soon

Partnerships & Collaboration for a more Sustainable Future



F. Chene
VP Sustainability Solutions
Schneider Electric, Paris, France



Abstract

Embracing sustainability through collaboration is essential for driving change within the semiconductor industry and advancing its decarbonization. We invite you to join Schneider Electric and Infineon in this session to explore the power of partnership and collaboration in facilitating industry transformation.

Biography

With more than 10 years inside Schneider Electric, Fabien Chene has taken the responsibility of several roles in the Energy Efficiency & Sustainability fields. He is currently VP Sustainability Solutions, in charge of serving our Commercial & Industrial customers in their Energy Efficiency and Electrification journey to meet their decarbonization goals

Continuous Sustainability Improvements in Subfab Operation Using Advanced Communication Capabilities as a Cooperative Effort of Multiple Stakeholders

A. Neuber
Senior Director
Applied Materials GmbH, Feldkirchen, Germany

Abstract

Provision of signals from process to subfab components have shown for some time the potential for a more sustainable operation of subfab equipment such as local abatement, dry pumps and others. This accounts to about 20% of the overall equivalent energy consumption of the manufacturing.

The drive to transition to carbon neutrality in fab operation asks for further improvements.

The presentation will address which optimization potentials have been identified and what needs to be done to implement them.

A lot of them will require cross-functional efforts over many disciplines. Smart manufacturing methods are playing a very important part in the implementation as well.

Biography

Andreas Neuber, Ph.D. has been a Senior Director at Applied Materials since 2008. He has published 80+ papers related to semiconductor fab and facility design, sustainable design and energy savings, water management and recycling, contamination control, and industrial engineering.

Prior to joining Applied Materials, Andreas Neuber was Vice President for M+W Zander. During his 18 years at M+W Zander, was involved in semiconductor fab construction and operation/optimization in many locations.

Andreas Neuber received a PhD degree in Chemical Engineering from University of Technology Dresden. He is co-chair of the SEMI ESEC task force as well as Co-Chair for the IRDS Yield Enhancement Gas working group and the IRDS ESH/S Energy working group.

Watlow's Approach Towards Energy Efficiency and Achieving Net-Zero



B. Parkinson
Director of Gas Delivery Business Segment
Watlow Electric Manufacturing Company, St.
Louis, United States of America



Abstract

Watlow's Lean Journey began more than 15 years ago. As we began to implement changes, we quickly learned that this journey would not just improve our manufacturing efforts, but that it would also be the start of our own Green Journey. As a company, we have undertaken many initiatives to reduce our footprint including improvements in HVAC efficiency, lighting, and release of pollutants. Our main initiative is to join many companies in the world and achieve net-zero emissions in 2050 or before.

As a supplier to many of the world's leading companies, Watlow is also committed to supporting our customers' Green Journey. Using unique raw materials, computer-aided simulations, and advanced power control technology, we can ensure that the right amount of heat is applied to the right location and at the right time. Provides our customers with the ability to realize at least a 10% reduction in power output. Which, when scaled to fab-level consumption, provides meaningful support to our worldwide journey to net-zero emissions.

Biography

Blake Parkinson has gained a Master in Business (MBA) and Master in Chemical engineering. He has been with Watlow for 8 years, served in several roles in Operations, Project Management, Process Engineering, and Business Management. Blake has global experience in new product development, supplier development, and cross-functional team leadership. His current role is Director of Gas Delivery and Exhaust in the Semiconductor business unit.

How to Maximize Power Saving in Chipmaking



J. J. Song
Director/Chief Strategy Officer
Global Now Pte. Ltd., Singapore, Singapore



Abstract

After 2015 Paris Agreement, worldwide is driving “Net Zero” and reducing carbon emission. Renewable energy and sustainability become popular topics in each category of our society. To achieve renewable energy or “Net Zero”, we will need to use more IC to producing either EV car or renewable energy equipment. However, IC foundry is the monster for electricity consuming.

We would like to introduce a new technology reducing energy consumption & carbon emission. The product name is “Inner heater”, the new heating system for the semiconductor manufacturing facility. This saves energy during the manufacturing process of FAB and will help the semiconductor companies to contribute to the Net Zero target. It also helps to execute SBTi scopes 1 & 2.

Inner heater saves around 5% of the total power consumption of manufacturing. SK Hynix is using this product, and they are now saving around 50-60% of energy consumption compared to the heating jacket, which is the current way of pipe heating.

Biography

- Education: Bachelor of Science, SungKyungKwan univ, Korea Master of Business, Tsinghua univ, China
- Experience: Samsung Electronics / EY ('02~'23)
 - Work at Samsung Electronics, Semiconductor BU ('02~'14) - '02~'09: Manager, FAB SCM - '09~'14: Senior Manager, Corporate Strategy
 - Work at Ernst & Young, Strategy and Transactions Service Line ('14~'23) - '14~'16: Associate Director, Korea office - '17~'23: Director, Singapore office

JJ Song is a seasoned professional with a wealth of experience in the Semiconductor sector, making a significant impact through his strategic insights and expertise.

During his tenure at Samsung Electronics, he played a pivotal role in shaping the strategic direction of the DRAM and NAND business segments. JJ's responsibilities included initiating and implementing corporate, financial, technical, and operational strategies, creating comprehensive business plans, and overseeing critical investments like the Xi'an Fab project in China.

From 2014, JJ Song furthered his career as the Director at Ernst & Young in APAC. Here, he led teams in driving strategic value creation and performance improvement projects for various global semiconductor manufacturers.

JJ's career journey is a testament to his dedication to the Semiconductor sector. His commitment to making a positive impact in the industry aligns perfectly with his aspiration to engage with influential decision-makers and thought leaders. JJ's ultimate goal is to contribute to the industry's growth and sustainability by leveraging his extensive experience. His biography reflects a remarkable career dedicated to shaping the future of the Semiconductor sector, encompassing diverse roles that have molded him into the industry leader he is today.



S. Alba
AG300 Fab - CVD and Dry Etch Area Manager
STMicroelectronics, Agrate Brianza, Italy

Biography

Simone Alba has more than 25 years of experience in the semiconductor industry. He got his master's degree in Physics with specialization in Plasma Physics at University of Milan. After few years spent in the field of plasmas for space applications, he joined STMicroelectronics at Agrate Brianza site (Italy). Holding various managerial roles, he had the opportunity to develop a wide technical experience in technology nodes (350-32nm), technology devices (Flash Memories, Phase Change Memories, Embedded Memories, BCD, ...), manufacturing environments (from early R&D to high volume manufacturing). He also had the chance to deal with different company cultures and businesses thanks to strategic projects, technology transfers, benchmarks, etc. At present he is CVD/dry etch area manager in the new 300 mm fab in Agrate.

The Future of Advanced Packaging Inspection is X-Ray



D. van de Ven
President of the Industrial X-Ray Systems (IXS)
Division
Comet Yxlon, Hamburg, Germany



Abstract

Key take aways:

- Semiconductor industry is driven by miniaturization & efficiency
- Next generation X-Ray as valuable inspection method for Advanced packaging
- X-Ray as booster for faster time-to-market & increased yield

In Summary:

X-Ray technology is ready as a valuable inspection solution for Advanced Packaging to reduce time-to-market and increase yield.

Biography

Dionys van de Ven
President Industrial X-Ray Systems

Born 1968, Dutch citizen; Master's degree in mechanical engineering from the Eindhoven University of Technology, Eindhoven

Before joining Comet in 2022, Dionys van de Ven has led Waygate Technologies' x-ray business unit (part of Baker Hughes) as the unit's Business Executive since 2020. In addition, he has been serving as Managing Director of Baker Hughes Digital Solutions GmbH and member of the board of management of GE Inspection Robotics.

Dionys van de Ven began his career at Philips Assembléon in 1997. In 2005 he became Director of Customer Relationship Management at Philips Applied Technologies and, in 2007, Senior Director of Customer Programs, Service and R&D at Philips Healthcare. In 2017, he joined Waygate Technologies.

Wafer Intelligent Scanner Inspection Technology



M. Franchi
Sales Marketing Executive
Tokyo Electron Europe Limited, Sales, Vimercate,
Italy



Abstract

TEL has been active Worldwide for the last 60 years, providing customised solutions and a full series of platforms to improve the manufacturing quality of the Fabs.

As a company, we have undertaken many initiatives to reduce the impact of possible errors and automatize the wafer-making processes to achieve a better yield, including improvements in the wafer inspection field.

Our aim is to help the semiconductor companies in the world to process 100% of the wafers with enhanced accuracy, optimised footprint to detect yield excursions early to prevent product scrap.

As the semiconductor industry is going through many challenges and changes (for example using new materials like SiC, GaN, Sapphire, Glass, etc., each one with very different properties from the standard silicon), TEL is committed in supporting our customers' journey and enhance the "More than Moore" limits with greater macro-inspection solutions.

Biography

Marco has more than 5 years of experience in the Semiconductors industry. Upon his graduation in Chemical Engineering from Politecnico di Milano (Italy) in Milan, Marco joined GE (General Electric) in 2017 for the Water Business branch. In 2018 he has moved to Tokyo Electron, serving as Sales Marketing Executive for the Clean Track Business Unit in Europe.

Marco works closely with the Customers and the Factory, implementing projects for new systems and improvements into Europe business.

Enabling Semi's Autonomous Fab



J. Behnke
General Manager FPS Product Line
INFICON, Cologne, Germany



Abstract

Coming Soon

Biography

Mr. Behnke has over 35 years of semiconductor industry experience including: logic and memory manufacturing, technology/product development and fab operational excellence. As the GM of Final Phase Systems an INFICON Product Line, John leads a team that develop and deploy SMART software solutions that enable fabs to improve their manufacturing efficiency. FPS's suite of software solutions are built upon a common Datawarehouse which enables advanced Fab Scheduling and optimized WIP movement as well as other related capabilities. He is also a Co-Chair of the Semi North America Smart Manufacturing Special Interest Group.

Prior to FPS John served as the CEO and President of Novati Technologies, the SVP and GM of the Semiconductor Group of Intermolecular, the CVP for Front End Manufacturing, Process R&D and Technology Transfers at Spansion and the Director of AMD's Fab 25's Engineering and Operations groups where he was a founding member of AMD's Automated Precision Manufacturing (APM) initiative which led the Semiconductor industry's development and use of APC and other advanced factory systems. He also led the successful conversion of Fab 25 from Logic to Flash memory which was enabled through the virtual automation of the fab.

Mr. Behnke earned a B.S. degree in Mechanical Engineering with an Industrial Engineering Minor from Marquette University. Mr. Behnke holds five U.S. patents.

Squeezing More Wafers out of a Fab: Can this be Done without Driving Cycle Times Through the Roof?



P. Lendermann
Chief Business Development Officer
D-SIMLAB Technologies, Singapore, Singapore



Abstract

Despite the current dip in global IC demand in some areas, industry leaders are optimistic about mid- and long-term growth prospects in semiconductor manufacturing which is also illustrated by the large number of new wafer fabrication facilities that are already under construction or being planned across the globe. In this setting, optimisation of factory capacity – with the objective to squeeze even more wafers out of existing fabs – will continue to be a critical challenge. To achieve this, powerful techniques to determine fab load mixes that are able to maximise wafers out – or better revenue, or even much better margin – with existing capacity are essential. At the same time, because of the complex operating curve of a wafer fab it is important to prevent cycle times from going through the roof to make sure that delivery performance to customers does not suffer. In an environment with fast-changing customer demand and product mixes, as well as frequent commissioning of new equipment this is not an easy task at all.

How such load mix optimisation can be achieved through a combination of static and dynamic (simulation-enabled) capacity models and powerful yet intelligent optimisation techniques will be showcased in this presentation. Enhancement of the wafer out potential by a double-digit percentage without exceeding operationally feasible equipment utilisation limits and without compromising cycle time has been demonstrated with multiple semiconductor manufacturing companies.

Biography

Peter Lendermann is a Co-Founder and the Chief Business Development Officer of D-SIMLAB Technologies, a Singapore-headquartered company providing simulation-based decision support solutions to Semiconductor Manufacturing companies. Prior to this he worked at the Singapore Institute of Manufacturing Technology where he led related R&D activities until spinning them off into D-SIMLAB. Peter has been engaged in the field of production logistics, supply chain management and related decision support technologies and solutions since the early 1990's. He holds a PhD in Physics from Humboldt University in Berlin (Germany) and an MBA in International Economics and Management from SDA Bocconi in Milan (Italy).

Navigating Semiconductor Challenges: How AI-Driven Technology Can Transform Front-End Manufacturing.



J. Potter
Co-founder and CEO
Flexciton Ltd, London, United Kingdom



Abstract

Mastering the complexities of semiconductor front-end manufacturing hinges on a synergy of innovation and fast adoption of the latest production technologies. Modern-day challenges such as skilled labour shortages, unpredictable demand fluctuations, and the inherent complexity of production processes necessitate a shift to smarter manufacturing paradigms. Herein lies the potential of smart manufacturing solutions like AI-based autonomous scheduling technology.

While the semiconductor industry has been adept at data collection, leveraging this data for agile decision-making is the next frontier. Embracing AI-driven scheduling technology provides a pathway to harness vast amounts of data to empower fab engineers to drive unparalleled efficiency.

During our presentation, we will share case studies from real-world fab deployments that demonstrate the transformational impact of Flexciton AI-powered scheduling on decision-making, workflows, labour efficiency, and production KPIs in a particularly challenging diffusion area.

Biography

Jamie Potter, CEO and Co-founder, Flexciton

Jamie is passionate about solving the hardest industrial problems. For the past 10 years, he has been developing optimisation solutions for various sectors, with a focus on semiconductor manufacturing.

As an entrepreneur at heart, after spending a few years working in an industrial consultancy, Jamie co-founded Flexciton in 2016. He was initially directly involved in developing and implementing the first release of Flexciton scheduling software at the Seagate Springtown wafer fab. Along with his role as the company CEO, Jamie leads the commercial and operations teams. Over the past 7 years, Jamie has worked on over a dozen operational improvement projects with various semiconductor manufacturers. Jamie is a smart manufacturing enthusiast with an ambition to bring new technology to the semiconductor industry to enable new levels of efficiency.

Jamie has graduated with honours in MMath from Oxford University, UK. In 2018 he was featured in Forbes' "30 under 30 list".

Combining Physical and Virtual Metrology for Adaptive Process Control



C. Hörr
Business Development Manager
ZEISS Digital Innovation, Munich, Germany



Abstract

Virtual metrology, i.e. predicting workpiece characteristics by means of dense machine and process parameter time series, be it simulated or recorded real-world data, has become common practice in a wide range of applications in semiconductor manufacturing. However, these process twins tend to be quantitatively inaccurate and/or they decalibrate over time, especially when either process parameters such as environmental conditions are difficult to control or the influences themselves as well as their interplay are largely unknown. This often causes complex and error-prone correlation procedures and intralogistics. Even if process stability is finally mastered, expert knowledge is increasingly difficult to scale and therefore a permanent structural risk.

In this talk, we present a generic closed-loop approach how to combine physical and virtual metrology to shift the limits of precision manufacturing in terms of accuracy. Following the ultimate goal of autonomous production, we are also able to massively reduce process ramp-up and cycle times, increase the degree of automation, and finally learn how to transfer process twins to other setups. Using brownfield examples from metal machining, we demonstrate the feasibility of the approach with a technology-agnostic, software-driven solution, including machine-integrated sensors and optical scanners, containerized edge computing modules, and cloud-based datalakes. It turns out that neither physical nor virtual metrology can solve the problem on its own, but each of them relaxes the technical and non-technical requirements on the other.

Biography

2011: PhD in Computer Science from Chemnitz University of Technology

2011-2015: Software Engineer and Head of Software Development at Steinbichler Optotechnik

2015-2021: Head of Software Development and Head of Automation (ad interim) at ZEISS Optotechnik

since 2021: Business Development Manager and Program Manager at ZEISS Digital Innovation

Smarter Manufacturing for a Connected Ecosystem



P. Buseck
Director IT & Automation
Robert Bosch GmbH, RtP1/MFI, Reutlingen,
Germany



BOSCH
Invented for life

Abstract

Ecosystem of Bosch Semiconductor Plant Reutlingen is separated in several dimensions. Dealing with 150mm and 200mm on one side as well as an 800 recipe process flow distributed over four buildings and different building levels are just two aspects. Operating manufacturing processes for wafers and diced components, tracing products from waferstart to final test including external assembly partners are additional aspects. Smart solutions in Digitalisation and Automation can lead to a connected ecosystem for all of these dimensions.

This session will show current activities in Digitalisation and Automation at Bosch Semiconductor Plant Reutlingen driven by strong expansion of manufacturing area. Main focus is how smart projects and innovative solutions lead to a virtual and physical connection of a distributed and separated ecosystem.

Biography

1997: Diploma Business Engineering, University Siegen

1997: Robert Bosch GmbH, Semiconductor Plant Reutlingen

2009: Robert Bosch Elektronika Kft., Manufacturing Plant Hatvan Hungary

2012: Robert Bosch GmbH, Semiconductor Plant Reutlingen

since 2014 responsible for IT & Automation