



EU Digital Future Forum

Overview of EU policies supporting the growth of microelectronics in Europe



M. Ceccarelli
Programme Officer
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Abstract

The semiconductor sector is undergoing a number of economic, technological and geopolitical developments. At the same time, the European Union has been facing unprecedented circumstances, such as Brexit and the Covid pandemic, right after a new Commission and Parliament took office. The European Union responded with an historic agreement, Next Generation EU, to accelerate the recovery of regions and sectors hit by the pandemic, and to increase the resilience of the European economy. In times of change, and these are exceptional ones, new opportunities arise. Europe must exploit its outstanding competences to drive and reap the benefits of the digital transformation. The European Commission is working on a number of instruments, to support the growth of the EU semiconductor industry. The new Multiannual Financial Framework 2021-27 includes initiatives such as the Key Digital Technologies Joint Undertaking and the Digital Europe Programme. Furthermore, an Important Project of Common European Interest is being conceived, together with interested Member States, to support innovation in the microelectronics sector. Europe has the assets to become a technology leader, provided that all the actors of the ecosystem team up. The support from the European Commission needs to be combined with ambitious objectives, a suitable industrial strategy and proper execution, for which partners are needed. "Working together, we can achieve great things. To do so, we need you, start-ups, SMEs, big companies. If we join forces, the digital revolution can benefit everyone in Europe." (*Thierry Breton, Commissioner for Internal Market, Industry, Entrepreneurship and SMEs*)

Biography

Marco Ceccarelli is currently Programme Officer at the European Commission in Brussels (B). He contributes to the definition of EU policies for the electronics industry in directorate "AI and digital industry" of DG CNECT. Prior to joining the Commission in 2017, he worked in different roles in the domain of digital innovation and high-tech business. He was Director of Business Operations for Dada, the mobile and internet services arm of RCS Media Group (I), and acted as Managing Director and International Business Manager for high-tech start-ups (UK and I). Previously, he headed Product Strategy and Marketing for Business Solutions at Philips Consumer Electronics, worked as Product Manager at Philips Digital Networks, and as Project Manager at Philips Research (NL). Marco graduated in Electronic Engineering at the

University of Florence (I), conducted research at the Technical University of Delft (NL) and obtained an Executive MBA from the Essec Business School (F).

MADEin4 Project Introduction: Metrology Advances for Digitized ECS (Semiconductor and Automotive) Industry 4.0



I. Englard
Applied Materials Israel (AMIL), Rehovot, Israel



Abstract

In the core of MADEin4 (a European Funded project) are the developments of new tools and methods which combine in an intelligent way, for both the Semiconductor and Automotive industries, the large amount of metrology data, with design, process and tools data to enhance productivity as well as predictability of the production processes.

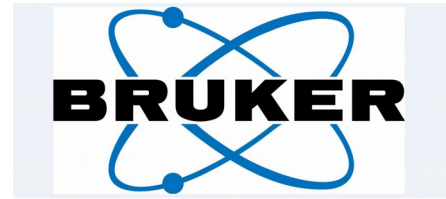
Biography

Ilan Englard is a projects manager for Applied Materials (AMAT) Israel and MADEin4 project coordinator. He has 26 years of experience in the semiconductor industry as AMAT's application engineer at Micron technology in the USA and Italy and as AMAT's technologist at ASML in The Netherlands. He has authored numerous papers in the metrology and lithography fields. Ilan Englard holds an Electronic engineering degree and in recent years, additionally to his work for AMAT, he provides a consultancy and management services regarding European funded projects in the Electronic Components and Systems (ECS) domain.

Advance X-Ray Metrology Equipment As Part Of A European Semiconductor and Automotive Industry 4.0 Cycle Time and Yield Improvements Scheme



J. Vandermeer
Head of Application Development X-ray
Bruker, Mannheim, Germany



Abstract

TXRF (Total Reflection X-ray Fluorescence) is a non-destructive method to detect metal traces on wafer surfaces and plays an important role in the fab cleanliness monitoring process. Bruker improved the throughput and sensitivity for light element analysis of the TXRF platform in the MADEin4 project. In addition, Bruker collaborates with MADEin4 partners to test and assess wafers from their process.

Biography

My background is in physical chemistry and materials science. I earned my PhD from Utrecht University (Netherlands).

I am with Bruker for more than 12 years, based in Karlsruhe, Germany.

I have more than 10 years' experience in X-ray metrology for the semiconductor industry.

Currently I am working as product marketing manager in the Bruker Semiconductor division and I represent Bruker Semiconductor in European consortia and manage the collaboration projects with our partners.

Advanced Photoluminescent Metrology Equipment As Part Of A European Semiconductor and Automotive Industry 4.0 Cycle Time and Yield Improvements Scheme



M. Tallián
Semilab, Budapest, Hungary



Abstract

Semilab developed a unique technology to detect yield-killer electrically active sub-surface defects during front-end processing which enables significant savings by eliminating the need to complete and test the device and allowing to start investigating root causes and mitigate issues early in the process. Semilab is working on big data analysis to extract the most information from the measurement and connect measurement data directly to the root cause of the defect and to its impact on yield.

Biography

Coming soon

New industry 4.0 metrology approaches driven by predictive in line control requirements: At the frontier between academic studies and industrial world



B. PELISSIER
Head of the EquipEx IMPACT project and team
LTM-CNRS, Cedex, France



Abstract

New industry 4.0 metrology approaches driven by predictive in line control requirements: At the frontier between academic studies and industrial world

Biography

After an experience in industrial R&D, Bernard Pelissier integrated CNRS (French National Center for Scientific Research) in 1994. His research activities are mainly focused on material science and surface characterisation.

He first worked on massive crystalline growth and MOCVD deposition and then integrated LTM (Laboratoire des Technologies de la Microélectronique) in 2001 as XPS surface characterisation manager. His research interest focused on materials fundamentals studies for process development and contamination studies in clean room. He has been involved in several European collaborative projects in surface characterisation.

Since 2005 he is interested in *quasi in situ* physico-chemical characterisation using vacuum transfer.

He actually manages the IMPACT Equipex project "A 300mm *quasi in situ* advanced characterisation platform combining pARXPS, Raman and ellipsometry using vacuum transfer", dedicated to studies at the frontier between process development studies and upfront research.

Social Robot Collaboration use cases



M. Hadad-Segev
Founder and CEO
Brillianetor, Jerusalem, Israel



Abstract

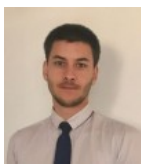
Brillianetor's ground-breaking SocialArtificial Intelligence (AI) technology cultivates human collaboration and social awareness skills in industrial robots. Our platform and tools enable organizations to easily deploy robots capable of efficient and robust teamwork, with rapid setup and development, increased production speed, reduced time requirements, and significantly lowered costs.

Biography

Dr. Meirav Hadad-Segev is the founder and CEO of Brillianetor, a proprietary AI technology platform for Social Collaborative AI, enabling organizations to deploy machines, bots, and robots with revolutionary capabilities for human-like collaboration skills. She is the inventor of novel technologies in the area of Multi-Agent Systems and has published extensively on the subject of AI.

Dr. Hadad-Segev has a proven record in senior management in the High-Tech industry, specializing in the development of practical real-world applications for Multi-Agent AI in the fields of robotics, defense systems, games and simulators. She holds a Ph.D. from Bar-Ilan University and Post Doctorate from the University of Haifa with a specialization in AI Multi-Agent Systems.

The METIS Project: Bridge the skill gaps in Europe's microelectronics industry



L. Saint-Martin
Associate consultant
DECISION Etudes & Conseil, Ile-de-France, Paris,
France



Abstract

This presentation will describe the European electronics and microelectronics industries and present the skill gaps in microelectronics, the METIS project and how it fits in the EU electronics strategy.

Skills and knowledge for today's workforce and future generation are one of key elements for strengthening competitiveness of the microelectronics sector. There is a need for a stronger cooperation between the industry, the training and education providers, local and national authorities to make the microelectronics industry an attractive employment sector, to support the growth of the sector and create more high-quality employment opportunities.

There are already some excellent projects and initiatives at national and EU level aimed at providing a skilled workforce and attracting talents for the sector.

The METIS project, a Sector Skills Alliance co-funded by the Erasmus+ Program with €4 million EU funding, aims to overcome the skills shortage in the microelectronic components and systems value chain. The project has identified skills needed in 2020 and will design and implement from 2021 to 2023 more than 40 training modules that will deliver more than 1000 hours training to different levels of workforces (entrance level, experienced), with different education backgrounds (High school, Bachelor, Master), and in different fields (system design, component design, and basic manufacturing). The METIS has engaged a wide range of stakeholders to conduct a comprehensive survey including an online questionnaire, focus groups and interviews. The survey results are being used to form a Skill Strategy that will guide development of training modules and cooperation between industry and education providers in short and long terms.

Biography

Léo joined DECISION in 2017 as a consultant where he brings his skills in economics, statistics, finance and strategy.

In 2019, Léo has been in charge of the study "Emerging technologies in electronic components and systems (ECS) – Opportunities ahead" (SMART 2018/0005), carried out for the European Commission DG CONNECT. This study consisted in a roadmap of the emerging technologies (high performance computing, artificial intelligence, blockchain, etc.) across the electronic industry, estimating their potential economic impacts over the coming decade and including policy recommendations regarding the technologies to support.

In 2018, Léo was involved in the study "The Electronics Ecosystem: Overview, Developments and Europe's position in the World" (SMART 2016/0007), also carried out for the European Commission DG CONNECT where he was particularly in charge of the study of the automotive electronics sector.

Léo has also been in charge of several projects and studies for industrial associations, industrials and consulting firms on topics related to the electronics industry since 2017.

Léo is in particular in charge of the study of the automotive electronics industry and its driving innovations: electrification of powertrains, ADAS, infotainment, etc.

Léo has finally played an active role in the studies carried out by DECISION on the Security Industries (including Electronics Security Systems) for the French Security Industry (regrouping the Ministries of Economy, the Ministry of Home Affairs, industry associations, etc.). For instance, he has been in charge of the creation and development of a database regrouping more than 5,000 companies and research centers of the French Security industry (company name, nationality, number of employees, activity segment, turnover, geolocalisation, etc.).

Before joining DECISION Etudes & Conseil, Léo has conducted a number of theoretical and empirical research projects in economics and statistics focusing on local and international development issues. Léo also led a project to reorganize the microcredit performance measurement tools of the second Indian micro-

finance institution (ESAF): strategic plan, impact studies, etc.

Léo holds a master's degree in International Economics and Development from Paris-Dauphine University and a bachelor's degree in Economics and Law from Paris Ouest Nanterre-La Défense University.

Mastering the digital transformation - the importance of reskilling and upskilling



F. Schueller
HR Director
Robert Bosch GmbH, Reutlingen, Germany



BOSCH

Abstract

Mastering the digital transformation - the importance of reskilling and upskilling

Biography

Florian Schüller joined Bosch in 2006 as a management trainee after graduating with a degree in industrial psychology. After holding several positions in different divisions, locations and functions within Bosch, he has been HR Director for the company's semiconductor business in Reutlingen/Germany since July 2020. He is married and the father of two daughters.