

## Symposium announcement



E-MRS Spring Meeting  
May 29 to June 2, 2023  
Strasbourg (France)  
Symposium M

**“Materials engineering for advanced semiconductor devices”**

**Abstract submission deadline: January 19, 2023**

<https://www.european-mrs.com>

Dear colleague,

We would like to encourage you to **submit an abstract to symposium M** (<https://www.european-mrs.com/materials-engineering-advanced-semiconductor-devices-emrs>) at the forthcoming E-MRS 2023 Spring Meeting.

All abstracts have to be submitted electronically via <https://www.european-mrs.com> until January 19, 2023. Their **length is limited to 3000 characters** (including spaces, only plain text, no figures, no formulae...). Notification about acceptance will be given until mid March, 2023, at latest.

Authors of accepted abstracts will be asked to submit an extended version of their work. The papers accepted after peer reviewing will be published in a special issue of *Materials Science in Semiconductor Processing*.

We would appreciate if you could inform interested colleagues of this Call for Papers and encourage them to submit their contributions to our symposium.

With kind regards,  
The symposium organisers

Fuccio CRISTIANO, LAAS/CNRS, Toulouse, France  
Alessandra ALBERTI, CNR-IMM, Catania, Italy  
Benjamin COLOMBEAU, Applied Materials, Sunnyvale, CA, USA  
Lourdes PELAZ, Universidad de Valladolid, Valladolid, Spain  
Peter PICHLER, Fraunhofer IISB, Erlangen, Germany

This symposium aims at bringing together scientists and engineers from both academic and industrial environments to discuss the latest developments in the field of semiconductor materials and related compounds for future semiconductor devices, with a focus on both the scientific and technological aspects of the fabrication, processing, characterization and applications of these materials.

#### Symposium Topics

The symposium will include, but will not be limited, to the following topics:

- **Substrate fabrication:** epitaxial growth of semiconductor materials and related compounds (Si, Ge, SiGe, SOI, SiC, GaN, ...); strained and unstrained layers; compliant substrates for heteroepitaxial growth, selective growth on patterned substrates
- **Nanostructured and new materials for future devices:** 2D channel materials, nanowires, nanosheets, dielectrics, materials for quantum technology
- **Dopant and contact engineering:** in-situ and advanced implant doping methods, silicide and germanide formation, multilevel metallization schemes (pre-cleaning, early stages of phase nucleation, interdiffusion, strain...)
- **Selective and low thermal budget processes:** selective dielectric deposition, localised epitaxy and etching, ultra-fast (flash and laser) annealing methods, radical-based surface treatments
- **Surfaces and interfaces:** surface passivation, structural and electrical properties of channel/dielectric and junction/metal interfaces, thin film and high-k dielectric materials...
- **Metrology and characterization:** new advances in the structural and electrical characterisation of semiconductor materials and related compounds (nanoscale characterisation, 3D, ...)
- **Integration issues:** 3D monolithic and heterogeneous integration, layer transfer
- **Applications in advanced devices:** nanoelectronic devices (FinFETs, FD-SOI, GAA-FETs, cryogenic MOS), high-bandgap power transistors (SiC MOSFETs and diodes, GaN HEMTs ...)
- **Modeling and simulation** of the above listed materials' properties and processes (from ab-initio to continuum TCAD)

#### List of confirmed Invited Presentations

- **Ionut Radu**, SOITEC, France – New Substrates for Advanced Devices
- **Kentarou Sawano**, Tokyo City Univ., Japan – Strain engineering of Si/Ge heterostructures based on Ge virtual substrates
- **Daniele Pagano**, STMicroelectronics, Italy, Innovative Materials for Power Devices
- **Nadine Collaert**, IMEC, Belgium – Materials for 6G wireless communication
- **Magali Gregoire**, STMicroelectronics, France – Optimization of the contact engineering processes in the frame of advanced semiconductor devices development
- **Dominique Mangelinck**, Univ. of Marseille, France – Some challenges and issues for contacts formation and stability in microelectronics
- **Andrè Vantomme**, KU Leuven, Belgium – Silicidation processes for nanoelectronics and quantum technology
- **Steve Moffatt**, Applied Materials, UK – Novel Processes for Advanced Nanoelectronic Devices
- **Michael Nolan**, Tyndall Research Institute, Ireland – Modelling of Interfaces and Surface reactions
- **Pierre Eyben**, IMEC, Belgium – Cutting-edge metrology techniques for nanodevice integration
- **Laurent Brunet**, CEA-LETI, France – Recent advances in 3D sequential integration
- **Werner Schustereder**, Infineon Technologies, Austria – Advanced Processes for Power Devices
- **Victor Moroz**, Synopsys, USA – Advanced Materials and Device Modeling
- **Antonino La Magna**, CNR-IMM, Italy – Multiscale studies and simulations of materials and processes
- **Miguel A.L. Marques**, Univ. Of Halle, Germany – Machine-learning assisted exploration of the ternary and quaternary phase diagrams
- **Jan Hoentschel**, GlobalFoundries, Germany – Enabling value added devices and technology solutions for the IoT era