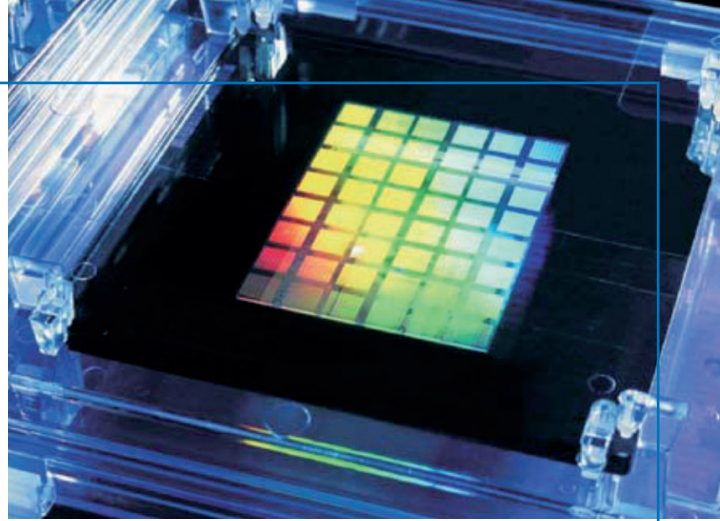


Call for Papers

The 42nd European Mask and Lithography Conference

EMLC^{'27} DRESDEN



Hilton Hotel Dresden, Germany | June 15 – 17, 2027
www.emlc-conference.com

The VDE/VDI-Society Microelectronics, Micro-systems and Precision Engineering (GMM) in cooperation with BACUS, PMJ, and SPIE are pleased to announce the

42nd European Mask and Lithography
Conference, EMLC 2027
at the Hilton Hotel Dresden, Germany, on
June 15 – 17, 2027

The European Mask and Lithography Conference 2027 (EMLC 2027) invites scientists and engineers from advanced research, equipment and device manufacturing to share original advances across the full mask, lithography, patterning, metrology and integration ecosystem.

We welcome contributions reporting new research, technology development, experimental results, manufacturing learning, validated models, and forward-looking perspectives. Submissions may address established production technologies as well as emerging concepts, from mask design and fabrication to exposure, patterning materials, computational methods, inspection, metrology, process control, advanced integration and non-IC applications.

In recognition of Europe's expanding pilot-line and research-infrastructure landscape, the conference particularly encourages work that connects scientific innovation with sustainable manufacturing and scalable production.

Important Dates

25 January 2027 .. Abstract submission deadline

16 April 2027 notification of acceptance

30 June 2027 Manuscript submission deadline

Tutorials and Technical Exhibition

As part of the conference program a tutorial session will be scheduled.

In parallel with the technical program a commercial exhibition will be held.

Further information will be announced on the EMLC website (www.emlc-conference.com) shortly.

Abstract and Manuscript Information

Experts from industry and research institutes wishing to present the results of their recent research are cordially invited to submit a paper. Accepted submissions will be presented in either oral or poster sessions.

Please submit a two-page abstract in English (400–600 words), in PDF format, including figures, tables, and references as appropriate. The abstract should clearly describe the motivation, approach, key results, and conclusions. The abstract should include the title, authors' names, and affiliations.

Abstracts with no new research/development or commercial content will not be accepted.

All accepted abstracts (i.e. the 2-page PDF file) will be made available in digital form to the conference participants, one week before the conference begins

EMLC is cooperating with SPIE and uses the SPIE tool for abstract submission and reviewing.

After acceptance of the abstract, authors are required to submit a manuscript for the SPIE Proceedings of the EMLC 2027 Conference. Manuscript submission is subject to the applicable SPIE publication and copyright requirements.

Instructions for submitting an abstract through the SPIE submission system are available at www.emlc-conference.com

Authors are invited to submit work in the following areas:

1 Mask Technology, Manufacturing, and Business

- Photomasks, EUV masks and masks for emerging lithography techniques
- Mask materials, substrates, reflective multilayers, absorbers and coatings
- Mask data preparation, fracturing, curvilinear data and data formats
- Laser, electron-beam and multi-beam mask writing
- Mask process technology, cleaning, contamination control, handling, pellicles and transport systems
- Defect inspection, review, repair, qualification and printability
- Registration, CD, phase, reflectivity and mask-topography metrology
- Curvilinear mask workflows from design and writing to inspection, metrology, repair and mask-to-wafer fidelity
- Technologies and infrastructure for large-format EUV masks
- Yield, cycle time, productivity, cost, supply chain, ecosystem, standardization, business trends and future demand
- Large-area and non-semiconductor masks

2 Exposure Systems, Optics, and Imaging

- i-line, KrF, ArF dry and immersion, EUV, High-NA EUV, Hyper-NA EUV and future exposure systems
- Illumination, projection optics, stages, alignment, focus, leveling, overlay, stitching and scanner matching
- EUV sources, collectors, optics, contamination control, lifetime and availability
- Imaging physics, polarization, flare, aberrations, mask 3D effects, shadowing and anamorphic imaging
- System performance, qualification, productivity, reliability and cost of ownership
- Future light sources and wavelengths, including beyond-EUV concepts

3 Computational Lithography, Design Enablement, and Data

- Optical proximity correction, source-mask optimization, inverse lithography and curvilinear patterning
- Computational imaging, rigorous electromagnetic simulation, compact models and process modeling
- Computational etch and pattern-transfer simulation
- AI/ML-enabled modeling, optimization, metrology and process control
- Model calibration, validation, uncertainty quantification, benchmarks and digital twins
- GPU/HPC acceleration, data pipelines, interoperability and secure workflows
- Design-technology co-optimization and manufacturability

4 Patterning Materials, Processes, and Integration

- Photoresists and materials for optical, EUV, electron-beam and emerging lithography techniques
- Chemically amplified, metal-oxide, molecular and other novel resist platforms
- Underlayers, developers, dry development, surface treatments and ancillary materials
- Single and multiple patterning; tone inversion; shrink, trim, smoothing and pattern rectification
- Stochastics, roughness, resolution-sensitivity trade-offs, pattern collapse and defectivity
- Etch, deposition, selective processing, pattern transfer and process integration
- Directed self-assembly, including high- χ materials and defectivity control
- Sustainable materials and processes

5 Metrology, Inspection, and Process Control

- Mask and wafer CD, overlay, registration, focus, dose, edge-placement error and roughness metrology
- Actinic and non-actinic inspection, defect review and defect printability
- Optical, electron, X-ray, scanning-probe and hybrid metrology
- Computational metrology, reconstruction, AI/ML and sensor/data fusion
- Calibration, reference standards, traceability, measurement uncertainty and sampling
- In-line monitoring, advanced process control, yield learning and equipment diagnostics

6 Emerging Lithography and Nanofabrication

- Nanoimprint lithography, soft lithography and micro-printing
- Maskless and direct-write technologies, including laser, electron, ion and multi-beam approaches
- Two-photon and multiphoton lithography
- Charged-particle and X-ray proximity/interference lithography
- Bottom-up and hybrid patterning
- Novel imaging, writing, replication and pattern-transfer concepts
- Research infrastructure, prototyping and transition to manufacturing

7 Applications, Advanced Integration, and Sustainability

- Advanced packaging, chiplets, heterogeneous integration and wafer-level integration
- 3D integration, backside processing, alignment and high-aspect-ratio patterning
- Photonics, metasurfaces, flat-panel / microdisplays and AR/VR devices
- MEMS, sensors, bio- and life-science devices and microfluidics
- Patterning for quantum technologies
- Patterning and integration for AI and high-performance computing hardware
- Sustainability, resource efficiency, emissions, waste, circularity and life-cycle assessment

Cross-disciplinary contributions

Cross-disciplinary papers are strongly encouraged. Contributions should identify the technical challenge, describe the approach supporting evidence and explain the significance of the results for research or industrial applications.

A manuscript submission for the SPIE Proceedings of the EMLC 2027 Conference is required.

EMLC 2027 Organizer

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