

Metrology, Inspection, and Process Control for Microlithography XXXIII

This conference has an open **call for papers**:

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Important Dates	SHOW HIDE	Additional Conference Information
Abstract Due: 29 August 2018		
Manuscript Due Date: 19 January 2019		

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Conference Chair:

Vladimir A. Ukraintsev
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Conference Co-Chair:

Ofer Adan
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Call for Papers

Metrology-based analysis, identification, and control of error sources continue to enable rapid evolution of optical microlithography. Metrology of exposure dose and focus supports ever-smaller process windows. Dimensional metrology in layouts facilitates resolution enhancement and validation of control. Extremely tight overlay is required for multiple patterning. Development of materials, equipment, and processing in EUV, direct write, nanoimprint, directed self-assembly, etch, and deposition drive further innovation of metrology tools and applications.

This conference is the leading forum for the exchange of foundational information and discussion of novel concepts in patterning-related metrology, inspection, and process control. Consistent with the conference charter and goals, please submit original technical papers in these and related technology areas:

Metrology and Inspection

- optical full-field and scanned microscopy, scatterometry, and interference microscopy
- novel measurement techniques with high-resolution optics, scatterometry, SEM, AFM, X-ray
- particle-beam scanned microscopy, materials characterization, and elemental analysis
- design rules, design compliance, hot spots, design-based metrology and inspection
- metrology for design rules and process margins, budgeting, and budget control
- metrology for lithography development, patterning model build and validation
- metrology on photomasks, including pre-compensation, OPC, and phase shifting
- machine learning in metrology and inspection for capability and productivity
- hybrid metrology, including computational or virtual metrology
- parametric electrical testing and other device performance-based metrology
- applications in emerging patterning technologies including optical immersion and EUV lithography, direct-write, nano-imprint, and directed self-assembly
- applications in manufacturing of ICs, cell stacking, wafer bonding, TSV and 3D integration, displays, thin-film heads, MEMS, MOEMS, bio-arrays, lab on the chip, integrated optoelectronics and other micro- and nano-systems.

Critical Dimension, Pattern Placement and Overlay

- 1D, 2D, and 3D metrology of CD and pattern placement, including within device layouts
- alignment, registration and overlay metrology, processing and metrology integration
- feature edge, edge profile and edge position, roughness of edge, width, and centerline
- optical, SEM, and AFM based in-die overlay on small targets and devices.

Measurement System Modeling and Simulation

- physics and mathematical models of metrology process and detection methods
- physical characterization of both systems and samples, model parameters
- data analysis methods, library-based image analysis, and algorithms.

Calibration and Accuracy

- metrology quality, error diagnostics, and data culling
- measurement resolution and error, including precision and accuracy
- standards and reference materials, calibration methods, hybrid metrologies
- reference measurement systems and metrology comparisons
- tool fleet performance, maintenance, and matching.

Process Characterization, Control, Performance, and Yield

- process metrology and monitors, segmentation and reduction of variance
- metrology sampling, excursion detection, costs, device performance, and yield
- data analysis and visualization, modeling and fingerprint detection
- advanced process control, data feedback and feed forward
- big data analysis and diagnostic methodologies, data management.

Defect Detection, Analysis, and Control

- detection and control of systematic, random and low photon count stochastic pattern defects
- defect review, defect reduction, yield improvement, effective data use
- environmental contamination, including impacts on processing and defects.

Performance Limits in Metrology and Inspection

- responses to commanded skews and cross-technology comparisons
- models of tool-sample interaction, noise, and error mechanisms.

The Diana Nyssonen Memorial Best Paper Award

The Diana Nyssonen Memorial Best Paper Award for the best paper of the Conference on Metrology, Inspection, and Process Control for Microlithography recognizes the most significant current contribution to the field, based on the technical merit and persuasiveness of the oral presentation, as well as on the overall quality of the paper published in Conference Proceedings. The Diana Nyssonen Memorial Award consists of an SPIE citation and an honorarium.

Award Sponsored by



The Karel Urbánek Best Student Paper Award The Karel Urbánek Best Student Paper Award recognizes the most promising contribution to the field by a student, based on the technical merit and persuasiveness of the paper presentation at the conference. The Karel Urbánek Best Student Paper Award consists of an SPIE citation and an honorarium. To be eligible, the leading author and presenter of the paper must be a student. To establish eligibility, the principal author's bio submitted with the abstract must state the academic status and the institution, as well as the advisor's name and contact information.

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