CALL FOR PAPERS

SPIE. OPTICAL METROLOGY

26–29 June 2023
ICM—International Congress Center Messe
München, Germany

Abstract Due Date:
8 FEBRUARY 2023

Modeling Aspects in Optical Metrology IX (OM102)

Conference Chair: **Bernd Bodermann,** Physikalisch-Technische Bundesanstalt (Germany)

Conference Co-Chairs: **Karsten Frenner,** Institut für Technische Optik (Germany); **Bryan M. Barnes,** National Institute of Standards and Technology (United States); **George Koutsourakis,** National Physical Lab. (United Kingdom)

Programme Committee: **Markus Bär,** Physikalisch-Technische Bundesanstalt (Germany); **Jörg Bischoff,** Osires Optical Engineering (Germany); **Sven Burger,** Konrad-Zuse-Zentrum fur Informationstechnik (Germany); **Peter Evanschitzky,** Fraunhofer-Institut für Integrierte Systeme und Bauelementetechnologie IISB (Germany); **Liwei Fu,** Univ. Stuttgart (Germany); **Norbert Kerwien,** Carl Zeiss AG (Germany); **Rainer Köning,** Physikalisch-Technische Bundesanstalt (Germany); **Stefanie Kroker,** Physikalisch-Technische Bundesanstalt (Germany); **Johannes Ruoff,** Carl Zeiss SMT GmbH (Germany); **Thomas Siefke,** Physikalisch-Technische Bundesanstalt (Germany); **Frank Wyrowski,** Friedrich-Schiller-Univ. Jena (Germany)

This conference focuses on any optical metrology topic, where modelling aspects play a crucial role and accurate modelling is a prerequisite for traceable and comparable measurements.. The conference covers the development and verification of methods to describe the interaction of light with matter for quantitative characterization of micro- and nanostructures. The verification of these methods often relies on comparison measurements with independent metrology methods. Improved data analysis is often achieved applying sophisticated hybrid metrology and holistic approaches. Relevant applications include e.g. optical metrology and inspection of nanostructures for semiconductor and nanotechnologies, display production to the investigation of grating structures and grating-based devices. In most of the applications nanometre or sub-nanometre measurement uncertainties are required. Thus, complex and increasingly challenging metrology applications emphasize even more the importance of error modelling for optical systems. Special emphasis is placed on the description and modelling of new methods, algorithms, components or complete measurement systems up to the treatment of big data.

The IX conference is covering two specific focused topics:

1. compressed sensing or other sparse reconstruction methods including advanced sampling strategies, which in recent years have allowed new applications in optical metrology
2. Holistic modelling of quantitative optical microscopes for 2D and 3D micro and nanometrology and uncertainty evaluation

The topics will include, but are not limited to:

- optical metrology
- image modelling
- compressed sensing in optical metrology
- sparse image reconstruction in optical metrology
- lensless imaging, coherent diffraction imaging
- modelling of sensor response, parametric modelling
- modelling of optical metrology systems
- novel microscopy methods
- super-resolution
- reference metrology
- measurement uncertainty and error modelling in optical systems
- multiprobe characterization
- hybrid metrology
- scatterometry, OCD
- inverse problems in optics
- Maxwell equation solving algorithms
- algorithms for real 3D simulations
- modelling of material properties in optics
- modelling of polarization effects, ellipsometry and Mueller ellipsometry
- optimization for diffractive optical elements
- 3D shape metrology
- placement, registration, alignment and overlay metrology
- modelling for nanomanufacturing and nanolithography
- modeling for integrated photonics
- quality control and defect inspection for semiconductor manufacturing
- metrology for multi-patterning/exposure and EUV lithography
- modelling of stochastic parameters, objects and interactions
- phase metrology, phase retrieval techniques
- flatness metrology, deflectometry
- high-precision interferometry
- high-precision displacement metrology
- grating characterization and modelling
- optical scattering, SERS and related
- time dependent phenomena, modelling of ultrafast processes
- new materials, metamaterials
- plasmonics for metrological applications
- photonic crystals, photonic devices
- modelling of optomechanical systems (NOMS, MOMS, MOEMS…)
- modelling of line-edge roughness
- modelling of photometry and radiometry
- modeling for integrated photonics.

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www.spie.org/om102

COLLOCATED WITH

WORLD OF PHOTONICS CONGRESS
International Congress on Photonics in Europe
June 25–30, 2023 | ICM—International Congress Center Messe München
www.photonics-congress.com

SPIE. OPTICAL METROLOGY

The Conference will include a workshop on the application of compressed sensing to metrology, jointly organised with the project PowerElec1, which is kindly funded by the European Metrology Programme for Innovation and Research (EMPIR).

Additionally, a joint session with the conference OM101 Optical Measurement Systems for Industrial Inspection XIII on modelling and characterisation of quantitative 2D and 3D microscopes, related i.e., to the EMPIR project TracOptic (https://www.ptb.de/empir2021/tracoptic/home/), will be organized.

Present your research at SPIE Optical Metrology

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

Abstracts due	8 February 2023
Registration opens	28 March 2023
Authors notified and program posts online	24 April 2023
Submission system opens for manuscripts and poster PDFs	3 April 2023
Registration opens	April 2023
Poster PDFs due (for spie.org preview and publication)	30 May 2023
Manuscripts due	7 June 2023

What you will need to submit

- Title
- Author(s) information
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Your decision on publishing your presentation recording to the SPIE Digital Library
- Some conferences may indicate additional requirements in the call for papers

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

How to submit your abstract

- Visit the conference page: www.spie.org/om102
- Choose one conference that most closely matches the topics of your abstract. You may submit more than one abstract, but submit each abstract only once
- Click the title of the conference to view the full description and submit by clicking the "Submit An Abstract" button on that page
- Sign in to your SPIE account, or create an account if you do not already have one
- Follow the steps in the submission wizard until the submission process is completed

Submission agreement

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

- Register and pay the author registration fee
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF and optional preview video, by the advertised due dates, for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org programme during and immediately after the event
- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance
- Attend the meeting
- Present at the scheduled time

Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

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