



Optical Measurement Systems for Industrial Inspection XIII (OM101)

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The conference addresses optical measuring methods and their application to solve measurement problems in production engineering, process and product monitoring, and industrial design. Respective applications range from the optical inspection of large-scale industrial components to the investigation of microsystems and nanostructures. Both, measurement systems fulfilling the requirements of high-volume industrial manufacturing as well as new approaches related to measurement capabilities such as resolution enhancement, in-process applicability and uncertainty reduction are in the focus of the conference. Special emphasis shall be put on the implementation of new methods, algorithms and sensor components into higher-level measurement systems. In particular, the design and implementation of optical systems close-to-production as a prerequisite of ongoing digitization is of interest.

Scientific contributions related to one of the following topics are greatly appreciated.

GENERAL ITEMS

- optical metrology
- reliable and robust measurement systems
- process integrated and in-process measurement and inspection
- resolution enhancement
- modeling of measurement systems, virtual measurements and digital twins
- multi-modal measurement techniques
- metrology for efficient use of resources
- measurement uncertainty
- features of performance assessment.

METHODOLOGY AND TECHNIQUES

- interferometry and interference microscopy
- holographic and speckle techniques
- Moire and structured illumination techniques
- deflectometry and image correlation techniques
- confocal and focus scanning techniques
- coherence scanning, time-of-flight techniques
- light scattering and diffraction-based analysis
- spectroscopic and hyperspectral techniques
- reconstruction/retrieval algorithms and approaches
- advanced image and signal processing
- fiber and micro-optical sensors
- artificial intelligence in measurement systems
- multisensor approaches and sensor fusion
- multiscale inspection.

APPLICATIONS

- micro-, nanostructure, and roughness measurement
- measurement of precision components
- measurement and inspection in additive manufacturing
- shape measurement/reverse engineering
- nondestructive testing and fault detection
- thickness measurement
- inspection of functional surfaces
- determination of material properties and parameters
- stress and vibration analysis

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COLLOCATED WITH

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- inspection of components for renewable energy systems
- inspection of large-scale objects
- inspection of 2D material (meta-surfaces)
- inspection of scattering surfaces and volumes
- high-speed measurement/high-volume production
- measurement systems related to industry 4.0
- remote systems.

A joint session with the conference OM102 (Modeling Aspects in Optical Metrology IX) on modelling and characterisation of quantitative 2D and 3D microscopes, related i.e. to the European project TracOptic (<https://www.ptb.de/empir2021/tracoptic/home/>) will be organized.

Submissions to this joint session topics are very welcome.

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.

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- 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
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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
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- 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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