CALL FOR PAPERS

SPIE. OPTICAL METROLOGY

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

Abstract Due Date:
8 FEBRUARY 2023

Optics for Arts, Architecture, and Archaeology (O3A) IX (OM103)

Conference Chairs: **Haida Liang,** Nottingham Trent Univ. (United Kingdom); **Roger Groves,** Technische Univ. Delft (Netherlands)

Programme Committee: **Dario Ambrosini,** Univ. degli Studi dell'Aquila (Italy); **Daniela Comelli,** Politecnico di Milano (Italy); **Claudia Daffara,** Univ. degli Studi di Verona (Italy); **Vincent Detalle,** CYU Paris Cergy Univ. (France); **John K. Delaney,** National Gallery of Art (United States); **Martin C. Fischer,** Duke Univ. (United States); **Raffaella E. M. Fontana,** Istituto Nazionale di Ottica (Italy); **Igor P. Gurov,** ITMO Univ. (Russian Federation); **Gaël Latour,** Univ. Paris-Sud (France); **Nicola Masini,** Consiglio Nazionale delle Ricerche (Italy); **Vadim A. Parfenov,** S. I. Vavilov State Optical Institute (Russian Federation); **Luca Pezzati,** Istituto Nazionale di Ottica-CNR (Italy); **Robert Sitnik,** Warsaw Univ. of Technology (Poland); **Mathieu Thoury,** Synchrotron SOLEIL (France); **Vivi Tornari,** Foundation for Research and Technology-Hellas (Greece)

The Optics for Arts, Architecture and Archaeology Conference is being held again in Munich as part of the SPIE Optical Metrology Symposium at the World of Photonics Congress in June 2023. O3A is an established event for discussing advanced methods and new instruments for the study, conservation and documentation of cultural heritage. The symposium is a unique forum focused on optics research in the field of heritage science. Optics applications in cultural heritage has a long and dynamic history owing to the non-destructive nature of optical imaging starting with microscopy, infrared photography and X-radiography. Optical imaging provided the most popular methods of examination for cultural heritage before micro-chemical analysis became possible. In recent years, the development of new imaging and spectroscopic techniques have revitalized the application of optics in cultural heritage. The non-invasive nature of these techniques means that whole objects and collections can now be examined with multiple techniques, which will inevitably result in unprecedented amount of data collected that will in turn push new boundaries in data and image processing methods. The demand of the developing European Research Infrastructure for Heritage Science (www.e-rihs.eu) for news instruments, data processing methods and facilities will no doubt advance the field even further.

The 2023 symposium will discuss instruments and techniques that span the entire electromagnetic spectrum and cover a broad range of spatial scales along with the associated data and image processing and visualization methods. New instruments and techniques, multi-modal imaging and multi-technique integrated analysis and data fusion techniques that meets the challenges of big data analytics are expected to be the focus. A further area of focus is the examination of potential damage to materials caused by illumination sources such as lasers and X-rays, to ensure that a technique is not only effective but also safe for heritage materials.

Contributions are welcome and will be considered in all fields of research for cultural and natural heritage including the following areas of interest:

- 3D topographic scanning, surface examination and analysis (e.g. optical profilometry, reflectance transformation imaging, structured light imaging and other triangulation based methods, etc.)
- 3D tomographic imaging, stratigraphic and depth resolved methods (e.g. optical coherence tomography, non-linear microscopy, terahertz imaging, micro-CT etc.)
- large scale internal structural analysis (e.g. holography and other interferometric techniques)
- imaging and spectroscopy for material analyses (e.g. the various spectral imaging modalities such as reflectance imaging from UV to infrared, fluorescence imaging and fluorescence lifetime imaging, laser induced breakdown spectroscopy, laser induced fluorescence and Raman spectroscopy, X-ray imaging, synchrotron based techniques, etc.)
- remote imaging, sensing and spectroscopy at large stand-off distances, including drone-based methods
- new portable instruments for in situ applications
- multimodal imaging and multitechnique analysis, including data fusion methods
- multiscale and multiwavelength imaging for structural and material analysis
- light-matter interactions (signal-generating interactions in the various imaging and spectroscopic techniques, material degradation induced by natural lighting or illumination sources associated with an analysis technique
- advanced image processing methods, including artificial intelligence and machine learning methods to tackle big data problems
- new data visualization methods
- new methods and applications to cultural heritage research.

The symposium will be an ideal forum to introduce new applications, to exchange ideas and to discuss methods and best practices for optics applied to heritage science. The World of Photonics Congress offers a perfect opportunity for instrumentalists to engage with industry and to learn about the latest developments in sensor technology and optical components at the accompanying exhibition.

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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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- Sign in to your SPIE account, or create an account if you do not already have one
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- 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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