SPIE. PHOTONICS EUROPE

Conferences: 7–11 April 2024
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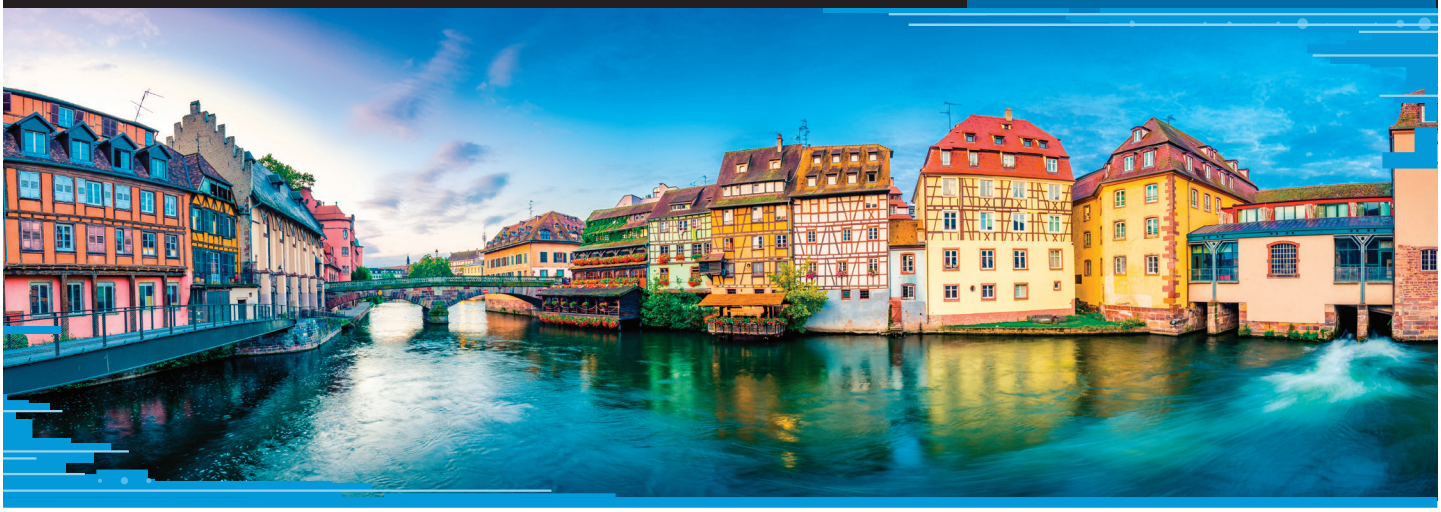
Palais de la Musique et des Congrès
Strasbourg, France

Submit abstracts by
30 November 2023



3D Printed Optics and Additive Photonic Manufacturing IV (PE106)

Conference Chairs: **Alois M. Herkommer,** Univ. Stuttgart (Germany); **Georg von Freymann,** Technische Univ. Kaiserslautern (Germany); **Manuel Flury,** Institut National des Sciences Appliquées de Strasbourg (France)

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3D printing technologies are revolutionizing today's fabrication methods, from research prototypes to individualized mass-production. This trend is accelerated by a growing number of available printing materials, including optical materials and metals. Photonics plays a major double role here: 1) optical techniques are the key enablers in most additive printers; and 2) 3D-printed micro and nano-optical components offer whole new applications.

For example, femtosecond two-photon-polymerization enables manufacturing of optical components in the sub-micrometer scale, allowing the printing of tiny optical freeform surfaces, metasurfaces or metamaterials. Such elements are the key for novel printed optical systems, which find applications in miniaturized cameras, sensors, or endoscopes.

Additive manufacturing at such high precision and micro-scale however requires adequate optical metrology systems for scanning the originals, or testing the printed results. The printing system has to maintain a high focus quality, accuracy and high power within a large writing volume. Also at the macro scale many innovative technologies in additive fabrication depend on optics and photonics to meet various challenges. New fields of activities are being opened, requiring new developments in simulation and materials science. Contributions are therefore also welcome that open new fields for printing optical components in which high precision is either required or where bigger dimensions are also possible.

This conference puts emphasis on techniques that either explore the limits and applications of printed optical components, or push the limits of 3D additive technologies via photonic techniques. The topics include, but are not limited to:

3D-PRINTED OPTICS
- 3D printing technologies for micro- and macro-optics
- femtosecond laser two- or multiphoton polymerization
- optical design and simulation of printed optics
- novel materials for 3D-printed optics
- alternative techniques for printing optics
- printed plasmonics and metasurfaces
- printed photonic crystals, metamaterials, and/or optical antennas
- printed fiber optics and interconnects.

ADDITIVE/SUBTRACTIVE 3D PHOTONIC MANUFACTURING
- additive fabrication techniques (metallic, polymers, molding, etc.)
- 3D lithography (nano- and micro-scale)
- optical systems for additive manufacturing
- 3D high-precision metrology systems
- laser metal deposition (nano- and micro-scale)
- selective laser melting/sintering (nano- and micro-scale)
- multi-material printing and linked additive fabrication
- 3D etching technologies
- polymer coatings, conversion to other materials (Au, Ni, SiO_2, Si, etc.)
- stereo lithography
- mechanical/physical properties of constituent materials
- link between design/graphics program and machine program.

APPLICATIONS
- applications of printed micro- and nano-optical systems
- imaging applications for printed optics
- applications 3D-printed prototypes in the life sciences
- functional micro- and nano-optics
- printed optical elements for lighting and fibers optics
- micro-robotics system with 3D-printed elements
- new metamaterials
- 3D printing of living tissue
- microfluidics and lab-on-chips
- photonic chip applications.

Selected manuscripts will be proposed for publication in Journal of Optical Microsystems or Journal of Micro/nanopatterning Materials and Metrology.

The 3D Printed Optics and Additive Photonic Manufacturing Conference will organize a joint session on 3D printing with the Lasers and Photonics for Advanced Manufacturing Conference. Submissions addressing 3D printing in laser-based manufacturing are invited.

www.spie.org/pe106call

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ABSTRACT SUBMISSION GUIDELINES

Present your research at SPIE Photonics Europe

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	30 November 2023
Authors notified and programme posts online	25 January 2024
Registration opens	8 January 2024
Submission system opens for manuscripts and poster videos/PDFs*	5 February 2024
Manuscripts due	20 March 2024

*Contact author or speaker must register prior to uploading

What you will need to submit

- Presentation title
- Author(s) information
- Speaker biography (1000-character max including spaces)
- Abstract for technical review (200-300 words; text only)
- Summary of abstract for display in the programme (50-150 words; text only)
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (i.e. extended abstract PDF upload for review or instructions for award competitions)

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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- 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
- If your submission is related to an application track below, indicate the appropriate track when prompted during the submission process

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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- Poster presenters: submit a poster PDF 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. Each poster must have a unique presenter; one person may not present more than one poster
- Email messaging for the conference series
- 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
- Attend the meeting
- Present at the scheduled time

Review and programme 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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