

2017

# DIGITAL OPTICAL TECHNOLOGIES CALL FOR PAPERS

A new conference focused on the components, systems design, and applications of emerging digital optical technologies

**Submit Abstracts by  
19 December 2016**

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26-29 June 2017  
Internationales Congress Center  
Munich, Germany

23rd International Congress on Photonics in Europe  
Collocated with LASER 2017 World of PHOTONICS

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# PRESENT YOUR WORK IN MUNICH

2017

A new conference focused on the components, systems design, and applications of emerging digital optical technologies in all social, academic, medical, and industrial areas.



**SPIE.** DIGITAL OPTICAL  
TECHNOLOGIES

26–29 June 2017  
Internationales Congress Center  
Munich, Germany

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## TECHNOLOGIES

- Novel optics for Augmented, Mixed and Virtual Reality systems
- Computational optics
- Digital optics for image formation
- Switchable, tunable and digitally reconfigurable optics
- Digital optics for sensing and authentication
- Integrated digital photonics

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# PLAN TO PARTICIPATE

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Take this opportunity to share your research at SPIE Digital Optical Technologies—a new conference dedicated to emerging digital trends and perspectives in optics. Come to Munich to meet with users and researchers to discuss the latest developments in the field of digital optics. The symposium will highlight all digital aspects from design, fabrication, to integration in systems and final functionality, such as:

**DESIGN:** numerical algorithms to help design novel optics from macroscopic (freeform optics) to nanoscopic scales (metamaterials, plasmonics,...).

**FABRICATION:** novel digital lithography and freeform mold diamond turning techniques and technologies.

**FUNCTIONALITY:** computational techniques to enhance functionality in imaging and display. Digital switching, tuning and reconfiguring to alter optics functionality dynamically.

Colocated with Laser 2017 in Munich, Germany, this new symposium aims at combining all three aspects of digital optics around the following topics:

- **Novel optics for Augmented, Mixed and Virtual Reality systems**
- **Computational optics**
- **Digital optics for image formation**
- **Switchable, tunable and digitally reconfigurable optics**
- **Digital optics for sensing and authentication**
- **Integrated digital photonics**

These are emerging today as very hot topics in academia, research institutions and industry, as well as in the venture capital community. Researchers, engineers, managers, industry leaders as well as market analysts are welcome to share their knowledge and experience, and be part of the ongoing digital optics revolution.

Come and experience first-hand hot new consumer products demoed throughout the Symposium, such as Mixed Reality (Microsoft HoloLens) and Virtual Reality (Oculus and HTC Vive) headsets.

Learn about recent advances in using digital technologies to enhance the performance of optical imaging and display. Find out about new approaches that push digital principles at the macro-, micro- and nanoscales to the forefront of optics. Exchange new ideas, address your shared concerns, and get access to information not yet published in the mentioned topical areas. Share your research with other engineers, scientists, researchers, and managers.

Presentations will be permanently archived in the SPIE Digital Library, and made available to others in the international scientific community who seek to learn, make discoveries, and innovate.

We invite you to join your colleagues and share the most recent developments and applications at SPIE Digital Optical Technologies.

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## CONFERENCE CHAIRS



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SPIE Europe, 2 Alexandra Gate, Ffordd Pengam, Cardiff, CF24 2SA  
Tel: +44 29 2089 4747 · Fax: +44 29 2089 4750 · [info@spieeurope.org](mailto:info@spieeurope.org)

# Digital Optical Technologies

Optics and photonics, similarly to their electronics counterpart, have slowly but steadily migrated from an analog age to a digital age. The term “digital” refers not only to the end functionality as it does in “digital electronics”, but also to the way they are designed, fabricated and integrated in systems:

- a) Numerical algorithms help design non-conventional optics from macroscopic (freeform optics) to nanoscopic scales (metasurfaces, plasmonics...)
- b) Binary or grey scale lithography techniques and freeform mold diamond turning allow for mass production.
- c) Digital techniques enhance their functionality, such as in computational imaging or projection. Digital switching alter their functions, such as in switchable, tunable and reconfigurable optics.

This conference aims at combining all three aspects of the **digital optics realm** around the five following topics. These topics are gaining today massive interest in academia, research institutions, industry (including consumer electronics), as well as in the Venture Capital investment field.

## **Novel optics for augmented, mixed and virtual reality systems**

- novel optics for imaging, field combining and exit pupil expansion
- compact eye tracking optics, systems and algorithms
- technologies to remediate focus/vergence disparity
- foveated rendering algorithms and technologies
- dynamic occlusions and pixelated dimming technologies.

## **Computational optics**

- computational imaging and projection
- wavefront/aperture coding and related technologies
- single pixel, lensless and light field cameras
- digital holography systems and algorithms.

## **Digital optics for image formation**

- LCOS, Micro-OLED, DLP and i-LED micro-display technologies
- technologies and algorithms for dynamic holographic projection
- single or dual MEMS mirror(s) and fiber scanner technologies.

## **Switchable, tunable and digitally reconfigurable optics**

- dynamic vision correction (presbyopia, accommodation,...)
- novel 3D auto-stereoscopic display optics
- dynamic aberration control in imaging systems.

## **Digital optics for sensing**

- 3D depth cameras and 3D sensors Systems
- optical gesture sensing and integrated motion sensors
- optical biometric authentication systems (finger print, iris, DNA...)
- optical anti-counterfeiting/anti-tampering systems.

## **Integrated digital photonics**

- silicon photonics and photonic light chips
- optical switching and computing
- parallel optical information processing.



## **IMPORTANT DATES**

Abstracts Due:

**19 DECEMBER 2016**

Author Notification:

**18 FEBRUARY 2017**

The contact author will be notified of abstract acceptance by email.

Manuscripts Due:

**15 APRIL 2017**

**PLEASE NOTE:** Submissions imply the intent of at least one author to register, attend the conference, present the paper as scheduled, and submit a manuscript for publication in the conference proceedings in the SPIE Digital Library.

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## GENERAL INFORMATION

### TECHNICAL PROGRAMME

#### Available March 2017

The comprehensive Advance Technical Programme for this symposium will list conferences, paper titles, and authors in order of presentation; an outline of all planned special events; and hotel and registration information.

### REGISTRATION

#### Available Online March 2017

All participants, including invited speakers, contributed speakers, session chairs, co-chairs, and committee members, must pay a registration fee.

Fee information for conferences, courses, a registration form, and technical and general information will be available on the SPIE website in March 2017.

### HOTEL RESERVATIONS

Hotel Booking information will be available online at the Laser World of Photonics 2017 website.

### VISA INFORMATION

Attendees from certain countries may not require a visa to enter Germany. For more details, please visit our information page: [www.spie.org/dot-visa](http://www.spie.org/dot-visa) or the website of the German Foreign Office, which will list the point of information within your country.

### LETTERS OF INVITATION

FOR CONFERENCE CHAIRS, TECHNICAL COMMITTEE MEMBERS, AND AUTHORS: If you are listed as an author on a paper, or as a participant in the programme, and you require an Official Invitation Letter for visa application purposes, please look for the instructions published at the Optical Metrology Website [www.spie.org/dot](http://www.spie.org/dot) following the Optical Metrology 2017 acceptance notifications on 18 February 2017.

NOTE: We recommend that you secure your travel visa before registering for the conference as cancellations after the preregistration cutoff may result in a cancellation fee.



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## ABSTRACT SUBMISSION

By submitting an abstract, I agree to the following conditions:

### AN AUTHOR OR COAUTHOR (INCLUDING KEYNOTE, INVITED, ORAL, AND POSTER PRESENTERS) WILL:

- Register at the reduced author registration rate (current SPIE Members receive an additional discount on the registration fee).
- Attend the meeting.
- Make the presentation as scheduled in the programme.
- Submit a full-length manuscript (6 pages minimum) for publication in the SPIE Digital Library and Proceedings of SPIE.
- Obtain funding for registration fees, travel, and accommodations, independent of SPIE, through their sponsoring organizations.
- 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.

Submit an abstract and summary online at :  
**[www.spie.org/DOTcall](http://www.spie.org/DOTcall)**

- Optional: prepare an **expanded abstract of up to two pages** as a supplemental file for review purposes. No special formatting is necessary. This file may contain images / graphs / tables. You will be prompted to upload this file during the submission process. The information will assist the conference chairs in determining placement in the programme.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research. Accepted abstracts will be published and made available at the meeting. Please submit a **500-word text abstract** for review.
- Please also submit a **300-word text summary** suitable for early release. If accepted, this summary text will be published prior to the meeting in the online or printed programmes promoting the conference.
- Only original material should be submitted.
- Abstracts should contain enough detail to clearly convey the approach and the results of the research.
- Commercial papers, papers with no new research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons will not be accepted for presentation in this conference.
- Please do not submit the same, or similar, abstracts to multiple conferences.

### REVIEW, NOTIFICATION, AND PROGRAMME PLACEMENT INFORMATION

- To ensure a high-quality conference, all submissions will be assessed by the Conference Chair/Editor for technical merit and suitability of content.
- Conference Chair/Editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations.
- The contact author will receive notification of acceptance and presentation details by e-mail no later than **18 February 2017**.
- Final placement in an oral or poster session is subject to the Chairs' discretion.

### PROCEEDINGS OF SPIE AND SPIE DIGITAL LIBRARY INFORMATION

- Manuscript instructions are available from the **"For Authors/Presenters"** link on the conference website.
- Conference Chair/Editors may require manuscript revision before approving publication and reserve the right to reject for publication any paper that does not meet acceptable standards for a scientific publication. Conference Chair/Editors' decisions on whether to allow publication of a manuscript is final.
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- Only papers presented at the conference and received according to publication guidelines and timelines will be published in the conference Proceedings of SPIE and SPIE Digital Library.
- Published papers are indexed in leading scientific databases including Astrophysical Data System (ADS), Chemical Abstracts (relevant content), Compendex, CrossRef, Current Contents, DeepDyve, Google Scholar, Inspec, Portico, Scopus, SPIN, and Web of Science Conference Proceedings Citation Index, and are searchable in the SPIE Digital Library. Full manuscripts are available to SPIE Digital Library subscribers worldwide.

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