Multiphoton Microscopy in the Biomedical Sciences XXII (BO501)

Conference Chairs: Ammassi Periasamy, Univ. of Virginia (United States); Peter T. C. So, Massachusetts Institute of Technology (United States); Karsten König, Univ. des Saarlandes (Germany), JenLab GmbH (Germany)

Program Committee: Holly Aaron, Univ. of California, Berkeley (United States); Margarida Barroso, Albany Medical College (United States); Wolfgang Becker, Becker & Hickl GmbH (Germany); Paul J. Campagnola, Univ. of Wisconsin-Madison (United States); Ji-Xin Cheng, Purdue Univ. (United States); Alberto Diaspro, Istituto Italiano di Tecnologia (Italy); Michelle Digman, Univ. of California, Irvine (United States); Chen-Yuan Dong, National Taiwan Univ. (Taiwan); Kevin W. Eliceiri, Univ. of Wisconsin-Madison (United States); Scott Fraser, The Univ. of Southern California (United States); Katsumasa Fujita, Osaka Univ. (Japan); Enrico Gratton, Univ. of California, Irvine (United States); Min Gu, RMIT Univ. (Australia); Stefan W. Hell, Max-Planck-Institut für Biophysikalische Chemie (Germany); Na Ji, Univ. of California, Berkeley (United States); Fu-Jen Kao, National Yang-Ming Univ. (Taiwan); Arnd K. Krueger, Newport Spectra-Physics GmbH (Germany); Darryl McCoy, Coherent Scotland Ltd. (United Kingdom); Wei Min, Columbia Univ. (United States); Junlie Qu, Shenzhen Univ. (China); Angelika C. Rueck, Univ. Ulm (Germany); Lingyan Shi, Univ. of California, San Diego (United States); Klaus Sühl, King’s College London (United Kingdom); Yuansheng Sun, ISS, Inc. (United States); Karissa Tilbury, Univ. of Maine (United States); Steven S. Vogel, National Institutes of Health (United States); Xiaoliang S. Xie, Peking Univ. (United States); Chris Xu, Cornell Univ. (United States); Elena V. Zagaynova, Nizhny Novgorod State Medical Academy (Russian Federation); Bernhard Zimmermann, Carl Zeiss Jena GmbH (Germany)

SPECIAL ABSTRACT REQUIREMENTS

Submissions to this conference must include the following:
• 100-word text abstract (for online program)
• 250-word text abstract (for abstract digest)
• 2-page extended abstract (for committee review only). The extended abstract must be submitted as a separate PDF document limited to two pages, including tables and figures. Include author names and affiliations; text; any figures; tables, or images; and sufficient data to permit committee review.

All submissions will be reviewed by the Program Committee to determine acceptance. Extended abstracts will be used only for the purpose of review, and will not be published.

In January 2022 we will have a one-day Special Event to celebrate the life of late Prof. Watt Webb (1927-2020), Cornell University, a pioneer in methods (including Multiphoton Microscopy) for imaging living biological systems.

JENLAB YOUNG INVESTIGATOR AWARD

We encourage graduate students, postdocs, and scientists or junior faculty who are not more than 32 years old to apply for the JenLab Young Investigator Award. To be eligible for this $2000 cash award, participants must:
• be both the primary author and presenter of an accepted abstract
• submit the proceedings paper by the due date, prior to the meeting, for review by the selection committee
• self-nominate by entering “JenLab Young Investigator Award” as a keyword in the abstract.
• 5 minutes oral presentation for the qualified abstracts. Selection of final two (winner and runner-up) is based on abstract, proceeding manuscript and 5 minutes oral presentation
• The winner will receive $1500 and the runner-up $500.

Submitted proceedings manuscripts may be resubmitted to the Journal of Biomedical Optics (please visit http://spie.org/jbo for details). Prize donated by JenLab GmbH, Germany.
Student Poster Session Competition
Graduate students and postdoctoral fellows are welcome to participate in the poster session competition of the conference on Multiphoton Microscopy in the Biomedical Sciences. There is a cash award ($500/award) for the winner(s). The winner(s) will be informed in person or by email and must receive the award in person in the conference hall. Participants should follow the rules and regulations of SPIE for submission of their abstract and manuscript. Participants should also register their names for the competition with the Conference Chairs or Session Chairs during the first day of the conference. Submitted proceeding manuscripts are allowed for resubmission to the Journal of Biomedical Optics (please visit http://spie.org/jbo for details). Prize donated by the Conference Sponsors.

Call for Papers
Multiphoton microscopy has been established as the 3D imaging method of choice for studying biomedical specimens, from single cells to whole animals, with sub-micron resolution during 1990. Three decades have passed since the realization of two-photon microscopy, and the ever-expanding scope of applications and continuing instrumental innovations require a forum where new ideas can be exchanged and presented. We started the multiphoton conference in 2001 to address this need. Our conference in the SPIE BIOS 2022 meeting continues to focus on the new developments in multiphoton microscopy.

Submitted proceedings manuscripts may also be submitted to the Journal of Biomedical Optics (please visit http://spie.org/jbo for details).

Topics include:
• multiphoton (one- or two- or three- or more photons) microscopy theory and system development
• multiphoton (MP) in wide-field and laser scanning confocal microscopy
• infrared lasers for MP systems (femtosecond vs. picosecond vs. CW)
• tissue engineering, endoscopy and intravital or in vivo imaging using multiphoton microscopy
• endogenous molecular (NADH/FAD/Tryptophan) imaging, energy metabolism and its applications
• harmonic generation microscopy (SHG, THG) and its applications
• two-photon light sheet microscopy
• fluorescence resonance energy transfer imaging (FRET) and its applications
• fluorescence lifetime imaging (frequency and time domain) (FLIM) and its applications
• fluorescence correlation spectroscopy and image cross correlation spectroscopy (FCS, ICCS)
• fluorescence recovery after photobleaching (FRAP), uncaging and photoactivation
• various biological applications including developmental, neurobiology, plant biology, calcium, and pH imaging
• photodynamic therapy (PDT) and clinical imaging
• photo-thermal, -chemical and -mechanical effects of IR radiation
• laser safety and other related applications.
Present your research at SPIE Photonics West

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

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*Authors must register prior to uploading.

## 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)
- Check the individual conference Call for Papers for additional requirements (for example, some conferences require 2- to 3-page extended summary for technical review, or have 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.

## How to submit your abstract

- Visit the conference page: [www.spie.org/bo501call](http://www.spie.org/bo501call)
- You may submit more than one abstract but submit each abstract only once.
- Click the "Submit An Abstract" button on the conference 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.
- If your submission is related to an application track below, indicate the appropriate track when prompted during the submission process.

## Application track

- **Brain:** Papers that describe the development of innovative technologies that will increase our understanding of brain function.
- **Translational Research:** Papers that showcase the latest photonics technologies, tools, and techniques with high potential to impact healthcare.
- **3D Printing:** Papers that showcase innovative ways to apply this multidimensional/multidisciplinary technology.
- **COVID-19 Research:** Papers that illustrate the creativity and breadth of the optics and photonics community’s response to the COVID-19 pandemic.

## 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: Submit a presentation video by the advertised due date, or agree to the presentation capture of your presentation on site, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
  - Poster Presenters: Submit a Poster PDF and optional preview video by the advertised due date, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
  - Submit a 4-page-minimum manuscript by the advertised due date, for online conference viewing during the event and publication in the Proceedings of SPIE on the SPIE Digital Library.
  - 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.
  - 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.

## Publication of Proceedings in the SPIE Digital Library

- SPIE will publish all presentations for viewing during the conference, as well as permanently archive all presentations in the conference proceedings on the SPIE Digital Library.
- SPIE retains rights to distribute and market the official SPIE recording of the presentation, presentation video, and/or poster.
- Most SPIE conferences follow an onsite publication model, meaning that manuscripts received by the advertised due date will be published for online viewing during the event, as well as archived in the SPIE Digital Library.
- A select few of SPIE conferences may elect to follow a Post-Meeting model of publication in order to conduct a more thorough review of manuscripts. In this model, manuscripts will be published 2-4 weeks after the event in the SPIE Digital Library, and may not be published for online viewing during the event.
- Authors must be authorized to transfer copyright of the manuscript to SPIE, or provide a suitable publication license. Authors retain the right to prepare derivative publications based on the paper.
- Conference Chairs/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/Editor decisions on whether to allow publication of a manuscript are final.
- Only papers, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the conference Proceedings of SPIE on the SPIE Digital Library.
- SPIE partners with relevant scientific databases to enable researchers to find the papers in the Proceedings of SPIE easily. The databases that abstract and index these papers include Astrophysical Data System (ADS), Ei Compendex, CrossRef, Google Scholar, Inspec, Scopus, and Web of Science.
- More publication information available on the SPIE Digital Library.

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**SYMPOSIUM CHAIRS**

**Jennifer Barton**  
The Univ. of Arizona  
(United States)

**Wolfgang Drexler**  
Medical Univ. of Vienna (Austria)

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- Brain: Papers that demonstrate innovative technologies that will increase our understanding of brain function.
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