

## Single Molecule Spectroscopy and Superresolution Imaging XII

Saturday - Sunday 2 - 3 February 2019

**This conference is no longer accepting submissions.**Late submissions may be considered subject to chair approval. For more information, please contact [Stephanie Kaiser](#).

### Important Dates

SHOW | HIDE

Abstract Due:  
25 July 2018Author Notification:  
1 October 2018Manuscript Due Date:  
11 January 2019

### Conference Cosponsors



### Conference Committee

SHOW | HIDE

#### Conference Chairs

[Zygmunt Karol Gryczynski](#), Univ. of North Texas Health Science Ctr. at Fort Worth (United States), Texas Christian Univ. at Fort Worth (United States)  
[Ingo Gregor](#), Georg-August-Univ. Göttingen (Germany)  
[Felix Koberling](#), PicoQuant GmbH (Germany)

#### Program Committee

[Sohail Ahmed](#), A\*STAR Institute of Medical Biology (Singapore)  
[Michael Börsch](#), Friedrich-Schiller-Univ. Jena (Germany)  
[Christian Eggeling](#), Univ. of Oxford (United Kingdom)  
[Jörg Enderlein](#), Georg-August-Univ. Göttingen (Germany)  
[Rainer Erdmann](#), PicoQuant GmbH Berlin (Germany)  
[Paul M. W. French](#), Imperial College London (United Kingdom)

Program Committee continued...

[Ewa M. Goldys](#), Macquarie Univ. (Australia)  
[Johan Hofkens](#), Katholieke Univ. Leuven (Belgium)  
[Zhen-Li Huang](#), Huazhong Univ. of Science and Technology (China)  
[Thomas R. Huser](#), Univ. Bielefeld (Germany)  
[Maria Teresa Neves-Petersen](#), Aalborg Univ. (Portugal)  
[Markus Sauer](#), Univ. Bielefeld (Germany)  
[Shimon Weiss](#), Univ. of California, Los Angeles (United States)  
[Andong Xia](#), Institute of Chemistry (China)

### Call for Papers

The focus of this conference are all fields of optical single molecule spectroscopy and imaging, ranging from fundamental physics, technical and methodological questions, towards applications in chemical, biological and biomedical research as well as medical diagnostics. It provides a state-of-the-art interdisciplinary forum for information exchange on new technological developments, advanced applications, and fundamental questions of the field.

Ultrasensitive spectroscopic techniques have become an important tool in fundamental biological and biomedical research, allowing study of the function and interaction of individual biomolecules. Improving and extending the existing arsenal of techniques for studying specific biophysical and biochemical questions on a single molecule level is of paramount interest for the life-science community.

This conference puts special emphasis on time resolved methods of fluorescence spectroscopy which allow for investigating not only structural properties but also the function of molecular processes, down to the single molecule level. Therefore, we encourage to submit work related also to Fluorescence Lifetime Imaging (FLIM), Advanced single-molecule techniques such as Fluorescence Correlation Spectroscopy (FCS), Fluorescence Coincidence Analysis or single-molecule burst analysis are also favorite subjects of this conference. In particular Förster resonance energy transfer (FRET) analysis frequently benefits from these time-resolved methods and this conference will be an excellent platform to discuss their application at the molecular level.

A topic of particular interest has become the employment of the single-molecule nature of fluorescence excitation and emission to achieve sub-diffraction superresolution in fluorescence microscopy. It has opened previously unknown opportunities to image live cells in the optical far field with unprecedented optical resolution. This resulted in new microscopy modalities such as Stimulated Emission Depletion (STED) microscopy, single molecule localization microscopy (PALM, STORM, dSTORM, GSD-IM), stochastic optical fluctuation microscopy (SOFI), or structured illumination microscopy (SIM) techniques. The conference provides an interdisciplinary platform for these new and exciting developments in fluorescence imaging.

The need for ultrasensitive and specific biomedical diagnostics requires development of optical and photonic detection/sensing technologies capable of reaching the single molecule level. The technical challenges to rapidly and specifically detect chemical and biological agents at minimal concentration levels are enormous and largely yet to be realized. All spectroscopic techniques (optical spectroscopy, fluorescence spectroscopy, elastic scattering, Raman scattering, IR spectroscopy, terahertz spectroscopy) as well as the chemical and biological sciences themselves including genetically encoded fluorescent markers and (photoswitchable) labels, are potentially critical components for a multidisciplinary approach to ultrasensitive sensing and diagnostics.

Invited and contributed papers are solicited concerning, but not limited to, the following areas:

- techniques and methods of single molecule (SM) detection
- techniques and methods of SM spectroscopy (such as FCS, FLCS, FLIM, FRET)
- techniques of single molecule manipulation
- superresolution fluorescence imaging (STED, PALM, (d)STORM, GSD-IM, SOFI, SIM and related techniques)
- labels and markers for single molecule techniques like ultrastable organic molecules, photoswitchable molecules/proteins, nanodiamonds etc.

- advanced fluorescence imaging like (time-resolved) two- and three-photon fluorescence microscopy or (time-resolved) Raman spectroscopy
- multi-modal SM detection such as combining AFM with confocal microscopy
- correlative microscopy such as combining optical and electron microscopy
- fundamental aspects of SM spectroscopy
- biophysical applications of SM spectroscopy and imaging
- medical applications of SM spectroscopy and imaging SM imaging and tracking in cells and tissues
- ultrasensitive biomedical diagnostics
- high-throughput screening applications
- chemical and biochemical sensing photonic materials for ultrasensitive optical detection
- plasmonics and metal-enhanced fluorescence for ultrasensitive optical detection
- microfluidics and capillary devices.

The 2019 conference program will include presentations from the following speakers:

- *Super-resolution microscopy using deep learning*, **Aydogan Ozcan**, Univ. of California, Los Angeles (United States)
- *Single-molecule fluorescence correlation spectroscopy reveals the conformational dynamics in photosynthetic light harvesting*, **Gabriela Schlau-Cohen**, Massachusetts Institute of Technology (United States)

#### **PICOQUANT YOUNG INVESTIGATOR AWARD**

Young scientists (age 30 or below and not yet full faculty members) are encouraged to participate in this best paper competition, which offers a \$1000 USD cash award. Participants must be both the primary author and presenter of an accepted abstract to be eligible. Please select "PicoQuant Young Investigator Award" as the last Topic in the abstract submission wizard in order to be considered. This award is sponsored by PicoQuant GmbH Berlin and presented Sunday afternoon.

---