Program

Tuesday, 20 August

14:00 Registration Opens

18:00 Opening
Yves Mély and Yitzhak Tor

18:10 Keynote Lecture (**KN1**)
Peng Chen, Cornell University, USA
Single-molecule fluorescence microscopy of nanocatalysis and beyond

19:00 RECEPTION

Kindly sponsored by HORIBA

Wednesday, 21 August

8:00 CONTINENTAL BREAKFAST

Session 1

Session Chair: Michelle Digman

8:30 Invited Lecture (**IL1**)
Julie Biteen, University of Michigan Ann Arbor, USA
Single-molecule fluorescence imaging reveals hidden dynamics inside living bacterial cells

9:00 Invited Lecture (**IL2**)
Maarten Roeffaers, KU Leuven, Belgium
Optical Micro(Spectro)scopic Characterization of Metal Halide Perovskites

9:30 Invited Lecture (**IL3**)
Rachel Evans, University of Cambridge, UK
Bottom-Up Design of Integrated Spectral Conversion Materials for Luminescent Solar Devices

10:00 Oral Presentation (**OP1**)
Bo Albinsson, Chalmers University of Technology, Sweden
Towards Diffusion-Free Triplet-Triplet Annihilation Photon Up-conversion

10:20 COFFEE BREAK

Session 2

Session Chair: Otto S. Wolfbeis

10:50 **Wolfbeis Award**
Otto S. Wolfbeis, University of Regensburg, Germany

11:00 Wolfbeis Award Lecture (**AL1**)
Johan Hofkens, KU Leuven, Belgium
Identifying microbiome species by single-molecule super-resolved DNA mapping and resampling statistics

11:30 Invited Lecture (**IL4**)
P James Schuck, Columbia University, Country
Amplifying the prospects of upconverting nanoparticles

12:00 Oral Presentation (**OP2**)
Karen Gall, HORIBA Instruments Inc., USA
Novel Method for Multidimensional Fluorescence Characterization of Protein Binding and Conformational Changes

12:20 LUNCH BREAK

Session 3

Session Chair: Marcus Wilhelmsson

13:30 Invited Lecture (**IL5**)
Thorsten Wohland, National University of Singapore, Singapore
Generalized fluorescence imaging for maximal information recovery with high spatiotemporal resolution

14:00 Invited Lecture (**IL6**)
Maria Hoernke, Institute Name, Country
Quantified Membrane Permeabilization: Statistical Analysis of Fluorescence Lifetimes

14:30 Oral Presentation (**OP3**)
Veerle Lemmens, BIOMED Hasselt University, Belgium
Raster spectral image correlation spectroscopy: principle and application to the glycine receptor

14:50 Oral Presentation (**OP4**)
Guruswamy Krishnamoorthy, Anna University, India
Fluorescence Window Reveals the Population Distribution During Collapse and Folding of a Small Protein

15:10 COFFEE BREAK

Session 4

Session Chair: Jacek Waluk

15:40 Oral Presentation (**OP5**)
Emily Cosco, UCLA, USA
Multiplexed in vivo optical imaging with shortwave infrared polymethine dyes

16:00 Oral Presentation (**OP6**)
David Birch, University of Strathclyde, UK
Pheomelanin sheet structure revealed by ThT fluorescence

16:20 Oral Presentation (**OP7**)
Michelle Frei, MPI for Medical Research and EPFL, Germany
Photoactivation of silicon rhodamines via a light-induced protonation

16:40 Oral Presentation (**OP8**)
Gregor Jung, Saarland University, Germany
Pyrene derivatives for single-molecule chemistry

17:00 POSTER SESSION (with beer garden and snacks)

Thursday, 22 August

8:00 CONTINENTAL BREAKFAST

Session 5

Session Chair: Nathalie Weickgenannt

8:30 Invited Lecture (**IL7**)
Ulrike Endesfelder, MPI Marburg, Germany
Visualizing the inner life of microbes by single-molecule localization microscopy

9:00 Invited Lecture (**IL8**)
Tahei Tahara, RIKEN, Japan
Microsecond structural dynamics of bio-macromolecules revealed by two-dimensional fluorescence lifetime correlation spectroscopy

9:30 Invited Lecture (**IL9**)
Yvonne Stahl, Heinrich-Heine University, Germany
Molecular control of stem cell regulation in plants

10:00 Oral Presentation (**OP9**)
Robert Neely, University of Birmingham, UK
Image search for the genome: the development and application of fluorescent single-molecule DNA barcodes

10:20 COFFEE BREAK

Session 6

Session Chair: Claus Seidel

10:50 Keynote Lecture (**KN2**)
Paul Weiss, UCLA, USA
Submolecular resolution spectroscopic imaging for photoactive molecules and assemblies

11:30 Invited Lecture (**IL10**)
Martin Schnermann, National Cancer Institute, USA
Harnessing Cyanine Reactivity to Prepare Novel Fluorophores for Advanced Imaging Applications

12:00 Oral Presentation (**OP10**)
Claire McLellan, Stanford University, USA
Upconverting nanoparticle as optical transducers of biomechanical forces

12:20 LUNCH BREAK

Session 7

Session Chair: Enrico Gratton

13:30 Invited Lecture (**IL11**)
Christian Eggeling, Friedrich-Schiller University Jena, Germany
Molecular membrane organization: a super-resolution fluorescence spectroscopy study

14:00 Invited Lecture (**IL12**)
Chiara Stringari, CNRS- Ecole Polytechnique, France
Multicolor Two-Photon Microscopy of Endogenous Fluorescence by Wavelength Mixing for Multiparametric Metabolic Imaging

14:30 Oral Presentation (**OP11**)
Vladana Vukojevic, Karolinska Institute, Sweden
Functional Fluorescence Microscopy Imaging (fFMI). Quantitative scanning-free confocal fluorescence microscopy for characterization of fast dynamic processes in live cells

15:00 Oral Presentation (**OP12**)
Lei Wang, UCSF, USA
Nano-switches for optogenetic control and a fluorescent reporter for acidic vesicles

15:20 COFFEE BREAK

Session 8

Session Chair: Paul Wiseman

15:40 Oral Presentation (**OP13**)
Viktorija Glembockyté, LMU Muenchen, Germany
Self-assembled DNA Optical Nanoantennas for Fluorescence-based Diagnostic Applications

16:00 Oral Presentation (**OP14**)
Radek Šachl, J.Heyrovsky Institute of Physical Chemistry, Czech Republic
Are Lipid Nanodomains Inter-Leaflet Coupled? An MC-FRET Study.

16:20 Oral Presentation (**OP15**)
Hugo Sanabria, Clemson University, USA
Local order-disorder dynamics revealed in domain swapping pathway of the DNA-binding domain of human FoxP1

16:40 Oral Presentation (**OP16**)
Anders Barth, Heinrich-Heine-Universität Düsseldorf, Germany
Studying complex biomolecular dynamics by single-molecule FRET

17:00 POSTER SESSION (with drinks and snacks)

Friday, 23 August

8:00 CONTINENTAL BREAKFAST

Session 9

Session Chair: Yves Mély

8:30 Invited Lecture (**IL13**)
Marcus Wilhelmsson, Chalmers University of Technology, Sweden
Fluorescent nucleobase analogues and their utilization in studies of nucleic acid conformations and oligonucleotide-based therapeutics

9:00 Invited Lecture (**IL14**)
Steven Magennis, University of Glasgow, UK
Ultrasensitive detection of fluorescent nucleobase analogs via multiphoton excitation

9:30 Invited Lecture (**IL15**)
Young-Tae Chang, POSTECH Chemistry, South Korea
Development of Universal Platform for Live Cell Discrimination through Gating Mechanism

10:00 Oral Presentation (**OP17**)
Bilha Fischer, Bar-Ilan University, Israel
An Oligonucleotide Probe Incorporating the Chromophore of Green Fluorescent Protein is Useful for the Detection of HER-2 mRNA Breast Cancer Marker

10:20 COFFEE BREAK

Session 10

Session Chair: Trevor Smith

10:50 Oral Presentation (**OP18**)
Bo W. Laursen, University of Copenhagen, Denmark
A general approach to fluorescent crystals and nanoparticles based on organic dyes

11:10 Oral Presentation (**OP19**)
Jacek Waluk, Institute of Physical Chemistry, Poland
Tautomerization probed by single molecule fluorescence

11:30 Invited Lecture (**IL1**)
Ehud Isacoff, UC Berkeley, USA
Single molecule FRET and photo---switched ligand reveal novel conformational pathway of GPCR activation

12:00 Oral Presentation (**OP20**)
Donna Whelan, La Trobe University, Australia
Complementary Single Molecule Imaging and Infrared Spectroscopy to Characterise DNA Damage Response

12:20 LUNCH BREAK

Session 11

Session Chair: Jerker Widengren

13:30 Invited Lecture (**IL17**)
Johan Elf, Uppsala University, Sweden
Genome-wide Single Cell Biophysics

14:00 Invited Lecture (**IL18**)
Bin Wu, Johns Hopkins School of Medicine, USA
Single molecule imaging of repeat RNA translation in live cells

14:30 Oral Presentation (**OP21**)
Stefan Krause, University of Copenhagen, Denmark
Single Molecule Excitation-Emission & Lifetime Mapping at Ambient Conditions

14:50 Oral Presentation (**OP22**)
Janos Erostyak, University of Pecs, Hungary
Transition from solid state to molecular-like optical properties in silicon carbide nanoparticles

15:10 COFFEE BREAK

Session 12

Session Chair: David Birch

15:40 Oral Presentation (**OP23**)
Mike Heilemann, Goethe-University Frankfurt, Germany
Determining the stoichiometry of protein complexes with single-molecule localization microscopy

16:00 Oral Presentation (**OP24**)
Rachel Cinco, UC Irvine, USA
Multi-Modal Fluorescence Characterization of Cell Cycle Progression and Cytokinesis

16:20 Oral Presentation (**OP25**)
Marcia Levitus, Arizona State University, USA
Modulation of the oligomerization state of proteins by ions and small molecules: a fluorescence correlation spectroscopy study

16:40 Oral Presentation (**OP26**)
Harold Kim, Georgia Institute of Technology, USA
Sequence dependence of DNA strand displacement kinetics

17:00 Oral Presentation (**OP27**)
Gerhard Holst, PCO AG, Germany
Frequency Domain FLIM System Improvements and Applications

18:00 GALA BANQUET AT BIRCH AQUARIUM

19:30 Poster Awards

Saturday, 24 August – Roger Tsien Memorial Symposium

8:00 CONTINENTAL BREAKFAST

8:20 Opening Remarks
Vice Chancellor for Research Sandra A. Brown

Session 13

Session Chair: Paul Negulescu

8:30 Invited Lecture (**IL19**)
Gregor Zlokarnik, Vertex Pharmaceuticals, USA
A perspective on Roger Tsien's contribution to and impact on Chemical Biology

9:00 Invited Lecture (**IL20**)
Carsten Schultz, OHSU, USA
Novel fluorescent and thermogenetic tools

9:30 Invited Lecture (**IL21**)
Luke Lavis, *Howard Hughes Medical Institute at Janelia Lab*, USA
From single-molecule imaging to the brain: A circuitous route to new neural activity indicators

10:00 Oral Presentation (**OP28**)
Nathan Luedtke, McGill University, Canada
Biopolymer folding studies inspired by the works of Roger Tsien, Yitzhak Tor and Neal Devaraj

10:20 COFFEE BREAK

Session 14

Session Chair: Doug Magde

10:50 Keynote Lecture (**KN3**)
William Moerner, Stanford University, USA
Roger Tsien and Blinking Fluorescent Proteins in the mid--1990s

11:30 Invited Lecture (**IL22**)
Jin Zhang, UC San Diego, USA
Illuminating the Biochemical Activity Architecture of the Cell

12:00 Oral Presentation (**OP29**)
Varda Lev-Ram, UC San Diego, USA
Do Perineuronal nets stabilize the engram of a synaptic circuit?

12:20 LUNCH

Session 15

Session Chair: Jin Zhang

13:30 Invited Lecture (**IL23**)
Amy Palmer, University of Colorado Boulder, USA
Riboglow: a new tool for tagging and tracking RNA in live cells

14:00 Invited Lecture (**IL24**)
Kazuya Kikuchi, Osaka University, Japan
In vivo Multicolor Imaging with Fluorescent Probes Revealed Dynamics and Function of Osteoclast Proton Pumps

14:30 Invited Lecture (**IL25**)
Mark Ellisman, UC San Diego, USA
Revealing Secrets Hiding in Plain Sight: Advances in Multi-scale Multi-modal Imaging

15:00 Oral Presentation (**OP30**)
Paul Wiseman, McGill University, Canada
Beating Nyquist limits for the measurement of fluorophore blinking rates using image correlation spectroscopy

15:20 COFFEE BREAK

Session 16

Session Chair: Gregor Zlokarnik

15:50 Invited Lecture (**IL26**)
Alice Ting, Stanford University, USA
Optogenetic and chemogenetic technologies for probing molecular and cellular interactions

16:20 Invited Lecture (**IL27**)
Neal Devaraj, UC San Diego, USA
Probing lipids in living cells

16:50 Invited Lecture (**IL28**)
Robert Campbell, University of Alberta, USA
The legacy of camgaroo: new fluorescent protein-based biosensors of neural activity and metabolism

17:20 Invited Lecture (**IL29**)
Paul Negulescu, Vertex Pharmaceuticals, USA
Roger Tsien's Impact on Drug Discovery

17:50 Closing Remarks

Poster abstracts may be found online at http://MAF2019.ucsd.edu/