Program and Abstract Book

23. International Workshop on

Single Molecule Spectroscopy and Super-resolution Microscopy in the Life Sciences

Berlin, Germany
September 13-15, 2017
Program

Wednesday, September 13

12:00 - 13:00  Registration and collection of workshop material

13:00 - 13:15  Opening Remarks by Rainer Erdmann, Berlin, Germany

Session: FLIM and FCS 1  Chair: Dagmar Klostermeier

13:15 - 13:45  Julie Biteen, Ann Arbor, United States (Invited Talk)
Understanding Molecular-Scale Biophysics in Bacteria with Single-Molecule Imaging

13:45 - 14:05  Ephrem Sitiwin, Bondi Junction, Australia (Student Award)
Application of label-free 2-photon fluorescence lifetime imaging microscopy to measure endogenous melanin profiles in human eye melanocytes, nevus and melanoma cells

14:05 - 14:25  Rhys Dowler, Berlin, Germany
Quantitative Ultra-fast FLIM

14:25 - 14:45  Elizabeth Hinde, Sydney, Australia
Imaging chromatin dynamics during the DNA damage response.

14:45 - 15:25  COFFEE BREAK

Session: FLIM and FCS 2  Chair: Julie Biteen

15:25 - 15:55  Dagmar Klostermeier, Münster, Germany (Invited Talk)
Single molecule studies on the regulation of DEAD-box helicase activities by interaction partners and ancillary domains

15:55 - 16:15  Antoine Delon, Grenoble, France
Combining Fluorescence Correlation Spectroscopy and Adaptive Optics for in depth measurements.

16:15 - 16:35  Kristina Brrun, Potsdam, Germany (Student Award)
Interaction of drug-loaded liposome carriers with artificial cells - a quantitative study using 2P-FCS and FLIM

16:35 - 16:55  Anjali Gupta, Singapore, Singapore (Student Award)
Plasma membrane organization and dynamics is probe and cell line dependent

16:55 - 17:15  David Li, Glasgow, United Kingdom
Latest developments of CMOS single-photon avalanche diodes and programmable time-to-digital conversion for TCSPC applications

18:00 - …  WELCOME RECEPTION
Thursday, September 14

Session: Biological applications 1  Chair: Bianxiao Cui

09:00 - 09:35  **Enrico Gratton, Irvine, United States (Invited Talk)**  
Measuring obstacles to molecular diffusion in live cells

09:35 - 09:55  **Stephan Uphoff, Oxford, United Kingdom**  
Single-molecule and single-cell imaging of DNA repair pathways in live cells

09:55 - 10:15  **Rebecca Andrews, Oxford, United Kingdom (Student Award)**  
A single-molecule sequencing method based on DNA binding

10:15 - 10:35  **Till Zickmantel, Lübeck, Germany (Student Award)**  
Detection of three discrete conformations of human dipeptidyl peptidase III using solution smFRET

10:35 - 11:10  COFFEE BREAK

Session: Biological applications 2  Chair: W.E. Moerner

11:10 - 11:40  **Bianxiao Cui, Stanford, United States (Invited Talk)**  
The role of membrane curvature at the nano-bio interface

11:40 - 12:00  **Klaus Yserentant, Heidelberg, Germany (Student Award)**  
Measuring the absolute degree of labeling for protein tag-based labeling in quantitative fluorescence microscopy

12:00 - 12:20  **Arvi Freiberg, Tartu, Estonia**  
Light-Induced Transformations of the LH2 Antenna Exciton Spectra

12:20 - 12:50  **Philip Tinnefeld, Braunschweig, Germany**  
DNA Origami Force Spectroscopy

12:50 - 13:00  GROUP PICTURE

13:00 - 14:10  LUNCH BREAK

Session: Super-resolution microscopy  Chair: Enrico Gratton

14:10 - 14:40  **W. E. Moerner, Stanford, United States (Invited Talk)**  
The Promise and Challenges of 3D Super-Resolution Microscopy and Single-Molecule Tracking in Cells and in Solution

14:40 - 15:00  **Johann Georg Danzl, Klosterneuburg, Austria**  
Coordinate-targeted fluorescence nanoscopy with multiple off-states
15:00 - 15:20  **Sebastian Isbaner**, Göttingen, Germany *(Student Award)*
Nanometer Axial Colocalization of Single Emitters Using Metal-induced Energy Transfer

15:20 - 15:40  **Bartosz Turkowyd**, Marburg, Germany *(Student Award)*
Blue and infrared light-induced photoconversion of green-to-red fluorescent proteins as a new approach in single molecule localization microscopy.

15:40 - 16:00  **Ron Tenne**, Rehovot, Israel *(Student Award)*
Quantum correlation enhanced super-resolution microscopy

16:00 - 16:15  **COFFEE BREAK**

16:15 - 18:45  POSTER SESSION and PRODUCT DEMONSTRATION
16:15 – 17:30 odd poster numbers
17:30 – 18:45 even poster numbers

20:00 - 23:00  **DINNER**

**Friday, September 15**

Session: Methods and techniques 1  Chair: Achillefs Kapanidis

09:00 - 09:35  **Niek F. van Hulst**, Castelldefels – Barcelona, Spain *(Invited Talk)*
Single Molecule Spectroscopy in the Femtosecond Regime

09:35 - 09:55  **Tim Schröder**, Braunschweig, Germany *(Student Award)*
Finding the Highest Labeling Density in DNA Origami

09:55 - 10:15  **Arindam Ghosh**, Goettingen, Germany *(Student Award)*
Dynamics using Metal Induced Energy Transfer (DynaMIET): Probing Nanoscale Biomolecular Dynamics at Single-Molecule Level

10:15 - 10:35  **Maabur Sow**, Oxford, United Kingdom *(Student Award)*

10:35 - 11:10  **COFFEE BREAK**

Session: FRET  Chair: Madhavi Krishnan

11:10 - 11:40  **Achillefs Kapanidis**, Oxford, United Kingdom *(Invited Talk)*
Illuminating transcription mechanisms by single-molecule FRET
11:40 - 12:00  **Flurin Sturzenegger, Zurich, Switzerland (Student Award)**
Probing transition path times of protein binding with single-molecule spectroscopy

12:00 - 12:20  **Sarah Adio, Göttingen, Germany**
Release factor-mediated dynamics of the ribosome during translation termination monitored by single-molecule FRET

12:20 - 12:40  **Mikayel Aznauryan, Aarhus, Denmark**
Folding dynamics of G-quadruplex DNA in dilute and molecularly crowded milieus

12:40 - 13:00  **Erik Holmstrom, Zurich, Switzerland**
Using time-resolved single-molecule FRET to study the conformational dimensions of an intrinsically disorderd nucleic acid chaperone

13:00 - 14:20  **LUNCH BREAK**

**Session: Methods and techniques 2  Chair: Niek van Hulst**

14:20 - 14:50  **Madhavi Krishnan, Zürich, Switzerland (Invited Talk)**
The electrostatic fluidic trap - a new tool for measurements on single macromolecules in solution

14:50 - 15:10  **Iman Esmaeil Zadeh, Delft, Netherlands**
A near infrared single-photon detector with 3 ps timing jitter at 50 MHz count rate

15:10 - 15:30  **Dirk-Peter Herten, Heidelberg, Germany**
Can we approach quantitative microscopy?

15:30 - 15:50  **Steven Magennis, Glasgow, United Kingdom**
Structure and dynamics of DNA under crowding conditions

15:50 - 16:00  **STUDENT AWARD PRESENTATION**

16:00 - 16:10  **CONCLUDING REMARKS**

16:10  **END OF WORKSHOP**
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