



16th International Workshop on “Single Molecule Spectroscopy and Ultrasensitive Analysis in the Life Sciences”

September 15-17, 2010
at WISTA Campus
Berlin-Adlershof, Germany

Program

Organised by



PICOQUANT

Program (subject to alterations)

Wednesday, September 15, 2010

11:15 – 12:15 **Registration and collection of workshop material**
Workshop site: „Max-Born-Saal“

Chair: Rainer Erdmann

12:15 – 12:25 Rainer Erdmann, Berlin, Germany
Opening Remarks

12:25 – 12:55 Jerker Widengren, Stockholm, Sweden (**Invited Paper**)
Transient state monitoring – approaches and possible benefits for biomolecular studies

12:55 – 13:15 Fernando Stefani, Buenos Aires, Argentina
Visualizing and controlling vibrational wave packets of single molecules

13:15 – 13:35 Felix Koberling, Berlin, Germany
Confocal Microscopy: Well Established and No More Cool?

13:35 – 13:55 Olaf Schulz, Tempe, USA (Student Award)
Energy transfer between single fluorophores and atomic force microscopy tips for optical ultraresolution microscopy

13:55 – 14:15 Lisa Marshall, Cambridge, USA (Student Award)
Extending single-molecule spectroscopy to nanosecond through millisecond time scales

14:15 – 14:35 Christian Winterflood, Zurich, Switzerland (Student Award)
Parallel tipless near- and far-field microscopy with supercritical angle fluorescence

14:35 – 14:55 Alexander Gaiduk, Leiden, Netherlands
Combined Photothermal and Fluorescence Microscopy

14:55 – 15:30 COFFEE BREAK

Chair: Jerker Widengren

15:30 – 16:00 John Eid, Menlo Park, USA (**Invited Paper**)
Real-time DNA sequencing from single polymerase molecules

16:00 – 16:20 Armin Hoffmann, Zurich, Switzerland (Student Award)
Recurrence analysis of single molecule data

16:20 – 16:40 Simon Sindbert, Düsseldorf, Germany (Student Award)
Single molecule FRET accurately measures structure, dynamics and heterogeneities of an RNA four-way junction

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- 16:40 – 17:00 Thorben Cordes, Oxford, United Kingdom
Real-time initial transcription by RNA polymerase at the single-RNA level
- 17:00 – 17:20 Ruth Buning, Leiden, Netherlands (Student Award)
spFRET spectroscopy with alternating excitation and FCS reveals the effect of histone acetylation at H3K56 on nucleosome dynamics
- 17:20 – 17:40 Seamus Holden, Oxford, United Kingdom (Student Award)
TIRF-based FRET with one base-pair resolution
- 17:40 – 18:00 Hagen Hofmann, Zurich, Switzerland
Single molecule spectroscopy of protein folding in a chaperonin cage
- 18:00 – 18:20 Tobias Rosenkranz, Jülich, Germany (Student Award)
Intermediate States in Multi-Domain Protein Folding Monitored by single pair FRET
- 18:20 Move to „WISTA Corner“
- 18:45 RECEPTION („WISTA Corner“)

Thursday, September 16, 2010

Chair: Paul R. Selvin

- 08:30 – 09:00 Philip Tinnefeld, Munich, Germany (**Invited Paper**)
From Single Molecules to Superresolution
- 09:00 – 09:20 Thomas Dertinger, Los Angeles, USA
Superresolution Optical Fluctuation Imaging (SOFI) – more pixels and higher resolution
- 09:20 – 09:40 Matthew Lew, Stanford, USA (Student Award)
Three-dimensional superresolution imaging of single emitters using a double-helix point spread function
- 09:40 – 10:00 Ulrike Endesfelder, Bielefeld, Germany (Student Award)
Quantitative super-resolution fluorescence microscopy of transcription sites in E. coli
- 10:00 – 10:20 Christian Steinhauer, Munich, Germany (Student Award)
Single-Molecule Spectroscopy Meets DNA Origami
- 10:20 – 10:55 COFFEE BREAK

Chair: Philip Tinnefeld

- 10:55 – 11:25 Paul R. Selvin, Urbana, USA (**Invited Paper**)
Super-Accuracy and Super-Resolution of Biomolecules and Cells

Program (subject to alterations)

- 11:25 – 11:45 Christian Eggeling, Göttingen, Germany
Spatially resolved single-photon-counting as a tool for molecular tracking and far-field optical nanoscopy
- 11:45 – 12:05 Michael Schwering, Heidelberg, Germany (Student Award)
Stochastic chemical switching of spectroscopic states – a novel route to super resolution microscopy
- 12:05 – 12:25 Jana Humpolickova, Prague, Czech Republic
Dynamic Saturation Optical Microscopy: Saturation Phenomena Employed in Resolution Enhancement
- 12:25 – 12:45 Andrea Candelli, Amsterdam, Netherlands (Student Award)
Single-Protein Detection on a Single DNA Molecule with Nanometer Accuracy by Means of Optical Trapping and Fluorescence Microscopy
- 12:45 – 13:00 GROUP PICTURE
- 13:00 – 14:00 LUNCH
- Chair: John Eid
- 14:00 – 14:30 Gerhard J. Schütz, Linz, Austria (**Invited Paper**)
Addressing plasma membrane nanostructures by single molecule techniques
- 14:30 – 14:50 Ivan Scheblykin, Lund, Sweden
Light polarization in single molecule spectroscopy: from visualization of energy transfer to super-resolution imaging with orientational contrast
- 14:50 – 15:10 Steve Wolter, Würzburg, Germany (Student Award)
Performance and limits of stochastic super-resolution microscopy for high spot densities
- 15:10 – 15:30 David Grünwald, Delft, Netherlands
Export of single mRNAs in vivo
- 15:30 – 18:30 POSTER SESSION and PRODUCT PRESENTATION
- 20:00 DINNER

Friday, September 17, 2010

Chair: Aleš Benda

- 08:30 – 09:00 Jörg Wrachtrup, Stuttgart, Germany (**Invited Paper**)
Imaging magnetic fields with nm resolution: a new dimension in bioanalytics

Program (subject to alterations)

- 09:00 – 09:20 Stefan Krause, Chemnitz, Germany
Probing dynamics of soft matter materials by single molecule fluorescence microscopy
- 09:20 – 09:40 Jan Vogelsang, Austin, USA
Solvent annealing studies of conjugated polymers at the single molecule level
- 09:40 – 10:00 Boiko Cohen, Toledo, Spain
Mapping the distribution of a single molecule interacting with silica based nanomaterials
- 10:00 – 10:20 Prasun Mandal, Paris, France
Single Molecule Investigation of Semiconductor Quantum Dot-Dye Hybrids Towards Understanding of Excitation Energy Transfer
- 10:20 – 10:40 Kerstin Weiß, Göttingen, Germany (Student Award)
Probing the interactions of (bio)-polymers with Poly-NiPAM-based Micro- and Hydrogels Investigated by means of Dual-Focus Fluorescence Correlation Spectroscopy
- 10:40 – 11:15 COFFEE BREAK
- Chair: Jörg Wrachtrup
- 11:15 – 11:45 Aleš Benda, Prague, Czech Republic (**Invited Paper**)
New possibilities offered by EM-CCD detection in classical confocal microscope
- 11:45 – 12:05 Stoyan Yordanov, Mainz, Germany (Student Award)
Studying liquid flow near solid surfaces by total internal reflection fluorescence correlation spectroscopy (TIR-FCS)
- 12:05 – 12:25 Antonia Göhler, Würzburg, Germany (Student Award)
Ligand-induced changes of hydrodynamic properties in adhesion/growth-regulatory galectins detected by fluorescence correlation spectroscopy
- 12:25 – 12:45 Meike Kloster, Saint Martin d'Hères, France (Student Award)
Multi-confocal fluorescence correlation spectroscopy for parallel multi-spot measurements in living cells
- 12:45 – 13:05 Nikolaus Naredi-Rainer, Munich, Germany (Student Award)
Exploring Actin Nucleation with Fluorescence Fluctuation Spectroscopy
- 13:05 – 13:25 Martin Sikor, Munich, Germany (Student Award)
The Conformational Dynamics of the Mitochondrial Hsp70 Chaperone
- 13:25 – 14:25 LUNCH

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- Chair: Gerhard J. Schütz
- 14:25 – 14:55 Steven A. Soper, Baton Rouge, USA (**Invited Paper**)
Moving Single Molecule Detection into the Clinic for In Vitro Diagnostics
- 14:55 – 15:15 Peter Jomo Walla, Göttingen, Germany
Analysis of Important Intermediate Steps in Neural Signal Transmission by Fluorescence Correlation Spectroscopy
- 15:15 – 15:35 Nathalie Westbrook, Palaiseau cedex, France
Following translation kinetics using quantum dot-labeled ribosomes
- 15:35 – 15:55 Ulrike Alexiev, Berlin, Germany
Functional interaction structures of the photoreceptor rhodopsin: High-resolution membrane structures
- 15:55 – 16:05 Rainer Erdmann, Berlin, Germany
Presentation of "Student Award"
- 16:05 – 16:30 Steven A. Soper, Baton Rouge, USA
Concluding Remarks
- 16:30 End of Workshop**

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