

15th International Workshop on “Single Molecule Spectroscopy and Ultrasensitive Analysis in Life Sciences”

Organized by
PicoQuant GmbH



Program

September 15 -18, 2009
at WISTA Campus
Berlin-Adlershof (Germany)

Program (subject to alterations)

Tuesday, 15th September 2009

10.30 – 12.30 **Registration and collection of workshop material**
(Workshop site: „Max Born Saal“)

Chair: Rainer Erdmann

12.30 – 12.50 Rainer Erdmann, Berlin
Opening Remarks

12.50 – 13.35 Toshio Yanagida, Osaka (**Plenary Paper**)
Single Molecule Nano-Bioscience: Fluctuation and Function of Life

13.35 – 14.00 Sigrun Henkenjohann, Bielefeld (*Students Award*)
Fluorescent Approaches to Enzyme Detection, Quantification and Analysis

14.00 – 14.25 Philipp Kukura, Zurich
Real-Time Nanoscopy of the Position and Orientation of a Single Virus

14.25 – 14.50 Jana Nieder, Berlin (*Students Award*)
Single Molecule Spectroscopy on Photosystem I Complexes Coupled to Metal Nanostructures

14.50 – 15.15 Edward Lemke, Heidelberg
Microfluidic Device for Single Molecule Experiments with Enhanced Photostability

15.15 – 15.50 COFFEE BREAK

Chair: Toshio Yanagida

15.50 – 16.25 Johan Hofkens, Leuven (**Invited Paper**)
Single Molecule Studies of (Bio-)Polymers

16.25 – 16.50 Achillefs Kapanidis, Oxford
Conformational Changes in DNA Polymerase Detected by Single Molecule FRET

16.50 – 17.15 Shehu Mustapha Ibrahim, Cambridge
Single Molecule Studies of Ubiquitin Unfolding

17.15 – 17.40 Andreas Biebricher, Paris
The Facilitated Diffusion of EcoRV on Non-Cognate DNA Investigated by Single Molecule Fluorescence

17.40 – 18.05 Alexandros Katranidis, Jülich
Fast Biosynthesis of GFP Molecules – a Single Molecule Fluorescence Study

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- 18.05 – 18.30 Stephan Link, Houston
Single Particle Absorption and Scattering Spectroscopy of One-Dimensional Plasmonic Nanostructures: Antenna Plasmon Modes in Nanoparticle Assemblies vs. Continuous Nanorods
- 18.30 Move to „Wista Corner“
- 19.00 RECEPTION („Wista Corner“)

Wednesday, 16th September 2009

Chair: W.E.Moerner

- 08.30 – 09.05 Markus Sauer, Bielefeld (**Invited Paper**)
Single Molecule Fluorescence Spectroscopy and Microscopy with High Temporal and Spatial resolution
- 09.05 – 09.30 Thorben Cordes, Munich
Controlling Oxazine Fluorescence for Redox-Sensing and Super-Resolution Microscopy
- 09.30 – 09.55 Jan Vogelsang, Munich
Subdiffraction Resolution in Confocal Microscopy through Superlinear Response of Fluorescent Probes
- 09.55 – 10.20 Steve Wolter, Bielefeld (*Students Award*)
Real-Time Computation of Subdiffraction-Resolution Fluorescence Images
- 10.20 – 10.55 COFFEE BREAK

Chair: Markus Sauer

- 10.55 – 11.30 Sam Hess, Orono (**Invited Paper**)
Localization-Based Fluorescence Imaging of Biological Systems
- 11.30 – 11.55 Steffen Sahl, Göttingen (*Students Award*)
Nanoscale Lateral Dynamics of Single Molecules by Counting Single Photons with Spatial Distinction
- 11.55 – 12.20 Veronika Müller, Göttingen
Exploring the Nanoscale: Dynamics of Lipid Rafts Revealed by STED Fluorescence Fluctuation Spectroscopy
- 12.20 – 12.45 Enrico Klotzsch, Zurich (*Students Award*)
Nanoscopy and Nanomechanics of Bio-Derived Fibers
- 12.45 – 13.45 LUNCH & move to „Bunsen Saal“

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- 13.15 – 13:45 **Guest – Registration for Open Afternoon**
(workshop site: „Bunsen Saal“)

Chair: Rainer Erdmann

- 13.45 – 13.55 Rainer Erdmann, Berlin
Opening Remarks
- 13.55 – 14.55 Stefan Hell, Göttingen (**Plenary Paper**)
Far Field Optical Nanoscopy
- 14.55 – 15.20 Sebastian van de Linde, Bielefeld (*Students Award*)
A General Concept for Super-Resolution Fluorescence Microscopy
- 15.20 – 15.45 Susana Rocha, Leuven (*Students Award*)
Nanometer Mapping of Protein-Membrane Interaction Using Wide-Field Fluorescence Microscopy
- 15.45 – 16.20 COFFEE BREAK
- 16.20 – 18.50 1st POSTER SESSION

Thursday, 17th September 2009

Chair: Sam Hess

- 08.30 – 09.15 W.E.Moerner, Stanford (**Plenary Paper**)
Molecules and Methods for Superresolution Imaging by Single Molecule Photoswitching
- 09.15 – 09.40 Marcel Leutenegger, Göttingen
Confocal TIRF-STED: Total Internal Reflection Fluorescence Microscopy and Spectroscopy at the Nanoscale
- 09.40 – 10.05 Thomas Dertinger, Los Angeles
Fast, Background-Free, 3D Superresolution Optical Fluctuation Imaging (SOFI)
- 10.05 – 10.30 Gopalakrishnan Balasubramanian, Stuttgart
Super Resolution Imaging Using Single Spins in Diamond
- 10.30 – 11.05 COFFEE BREAK

Chair: Johan Hofkens

- 11.05 – 11.40 Niek van Hulst, Barcelona (**Invited Paper**)
Ultrafast Single Molecule Detection by Phase-Shaped Excitation
- 11.40 – 12.05 Michael Schlierf, Urbana
Repetitive Helicase Shuttling Studied by Single Molecule Fluorescence-Force Spectroscopy

Open Afternoon

Program (subject to alterations)

- 12.05 – 12.30 Thiemo Spielmann, Stockholm (*Students Award*)
Transient State Monitoring at Dielectric Interfaces by Modulated Total Internal Reflection Fluorescence Microscopy
- 12.30 – 12.55 Hans-Heiner Gorris, Regensburg
Single Enzyme Molecule Kinetics in Femtoliter Arrays
- 12.55 – 13.05 GROUP PICTURE
- 13.05 – 14.05 LUNCH
- Chair: Taekjip Ha
- 14.05 – 14.40 Claus A. M. Seidel, Düsseldorf (**Invited Paper**)
Fluorescence Microscopy Meets Structural Biology to Study Biomolecular Complexes
- 14.40 – 15.05 Benedikt Krämer, Berlin
Concepts and Components for Time-Resolved Single Molecule Microscopy
- 15.05 – 15.30 Ralf Kühnemuth, Düsseldorf
Multiparameter Spectroscopy and APD Imaging in Laser Scanning Microscopy
- 15.30 – 16.05 COFFEE BREAK
- 16.05 – 18.35 2nd POSTER SESSION and PRODUCT PRESENTATION
- 20.00 DINNER

Friday, 18th September 2009

Chair: Jörg Enderlein

- 08.30 – 09.05 Michel Orrit, Leiden (**Invited Paper**)
Detection and Spectroscopy of Single Gold Nanoparticles
- 09.05 – 09.30 Aleš Benda, Prague
Spectral Fluorescence Correlation Spectroscopy with EM-CCD Camera
- 09.30 – 09.55 Philippe Tamarat, Talence
Spectroscopy of the Two Lowest-Energy Exciton States in Single CdSe/ZnS Nanocrystals
- 09.55 – 10.20 Stefan Ernst, Stuttgart (*Students Award*)
Simultaneous Monitoring the Two Rotary Motors of a Single F₀F₁-ATP Synthase by Triple-ALEX-FRET
- 10.20 – 10.55 COFFEE BREAK

Program (subject to alterations)

Chair: Martin Hof

- 10.55 – 11.30 Benjamin Schuler, Zurich (**Invited Paper**)
Protein Folding Dynamics from Single Molecule Fluorescence Spectroscopy
- 11.30 – 12.05 Taekjip Ha, Urbana (**Invited Paper**)
Next Generation Single Molecule Fluorescence Techniques
- 12.05 – 12.30 Hoi Sung Chung, Bethesda
Determination of the Upper Bound for Transition Path Times of Protein Folding from Single Molecule Photon-by-Photon Trajectories
- 12.30 – 12.55 Stephan Uphoff, Oxford (*Students Award*)
Measuring Multiple Distances within a Single Molecule Using Photoswitchable FRET Acceptors
- 12.55 – 13.20 Volodymyr Nechyporuk-Zloy, Aarhus
Single Molecule FRET Studies of HIV-1 Genome upon tRNA Annealing
- 13.20 – 14.25 LUNCH
- Chair: Michel Orrit
- 14.25 – 14.35 Rainer Erdmann, Berlin
Presentation of "Students Award"
- 14.35 – 15.10 Jörg Enderlein, Göttingen (**Invited Paper**)
Measuring Molecular Size and Conformational Dynamics
- 15.10 – 15.45 Martin Hof, Prague (**Invited Paper**)
Principles and Applications of Fluorescence Lifetime Correlation Spectroscopy
- 15.45 – 16.10 Zdenek Petrášek, Dresden
Simple Scanning FCS for Robust Measurement of Diffusion Coefficients
- 16.10 – 16.35 Stefan Wennmalm, Stockholm
Inverse-Fluorescence Correlation Spectroscopy
- 16.35 – 17.00 Kevin McHale, Bethesda
Intramolecular Fluorescence Correlation Spectroscopy of DNA in a Feedback Tracking Microscope
- 17.00 Michel Orrit, Leiden
Concluding Remarks
- 17.10 End of Workshop