

9th International Workshop on “Single Molecule Detection and Ultrasensitive Analysis in Life Sciences”

Organized by
PicoQuant GmbH



Program

September 24 – 26, 2003
at WISTA Campus
Berlin-Adlershof (Germany)

Program (subject to alterations)

Wednesday, 24th September 2003

11.30 - 13.00 REGISTRATION

Chair: Rainer Erdmann

13.00 - 13.15 Rainer Erdmann, Berlin
Opening Remarks

13.20- 13.55 Maxime Dahan, Paris (**Invited Paper**)
Studying the Dynamics of Post-Synaptic Receptors in Live Neurons
with Single Quantum Dots

13.55 - 14.20 Hilary Hartigan, Teddington
Advances in Colloid and Electrochemical Environments for Optimum
Surface Enhanced Raman Spectroscopy (SERS)

14.20 - 14.45 Matthias Bastian, Berlin
Improvement of Tumor Diagnostics and Therapy Using Multiphoton
Absorption

14.45 - 15.10 Jörg Neukammer, Berlin
Single Molecule Detection in Tissue Sections of Human Lymph Nodes
by Confocal Fluorescence Microscopy

15.10 - 15.45 COFFEE BREAK

Chair: Maxime Dahan

15.45 - 16.20 Johan Hofkens, Heverlee-Leuven (**Invited Paper**)
Single Molecule Fluorescence Spectroscopy of Dendritic Systems and
Single Molecule Surface Enhanced Raman Spectroscopy of
Fluorescent Proteins

16.20 - 16.45 Robert L. Armstrong, Las Cruces
Resonant Four-Wave Mixing Sensor for Ultra-Sensitive Molecular
Detection

16.45 - 17.10 Yuji. C. Sasaki, Hyogo
Dynamical Observations of Individual Single Protein Molecules Using
X-rays

17.10 - 17.35 Colin Coates, Belfast
Back-Illuminated Electron Multiplying CCD Technology and Its Impact
on Ultra-Sensitive Analysis

17.35 - 18.00 Lloyd M. Davis, Tullahoma
Comparison of Various Data Analysis Methods for 2-Color High-
Throughput Drug-Binding Measurements

18.15 - 21.00 RECEPTION

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Thursday, 25th September 2003

Chair: Taekjip Ha

- 09.00 - 09.35 Petra Schuille, Dresden (**Invited Paper**)
Confocal Spectroscopy and Beyond: On the Look-Out for Single Molecules in Cells and Microstructures
- 09.35 - 10.00 Sandra de Keijzer, Leiden (*Students Award*)
Imaging of Individual G-Protein Coupled Receptors on the Plasma Membrane in Vivo
- 10.00 - 10.25 Marcelle König, Düsseldorf (*Students Award*)
Mechanisms of Membrane Fusion Studied by Single Molecule FRET and Single Molecule Fluorescence Images
- 10.25 - 11.00 COFFEE BREAK

Chair: Petra Schuille

- 11.00 - 11.35 Enrico Gratton, Urbana (**Invited Paper**)
3-D Particle Tracking in a Two-Photon Microscope
- 11.35 - 12.00 Felix Koberling, Berlin
Scanning Fluorescence Lifetime Microscope with Single Molecule Sensitivity: Novel Technical Features and Results
- 12.00 - 12.25 Jan Hesse, Linz (*Students Award*)
Ultra-Sensitive Fluorescence Reader for Proteomics and Genomics
- 12.25 - 12.50 Elke Haustein, Göttingen (*Students Award*)
Triple Information from Triple-Labelled Biomolecules?
- 12.50 - 13.00 GROUP PICTURE
- 13.00 - 14.00 LUNCH
- 14.00 - 17.30 POSTER SESSION and PRODUCT PRESENTATION
- 19.00 DINNER

Program (subject to alterations)

Friday, 26th September 2003

Chair: Stefan Hell

- 09.00 - 09.35 Taekjip Ha, Illinois (**Invited Paper**)
Doing Biochemistry One Molecule at a Time via Fluorescence
- 09.35 - 10.00 Alonso Castro, Los Alamos
Direct Detection of Single-Copy DNA Sequences
- 10.00 - 10.25 Piotr Jurkiewicz, Wrocław (*Students Award*)
Water Properties of Lipid Surfaces Measured by Solvent Relaxation Technique
- 10.25 - 11.00 COFFEE BREAK

Chair: Enrico Gratton

- 11.00 - 11.35 Kazuhiko Kinoshita, Okazaki (**Invited Paper**)
The Rotary Mechanism of F₁-ATPase Studied by Single-Molecule Physiology Under an Optical Microscope
- 11.35 - 12.00 Manuel Diez, Freiburg (*Students Award*)
Proton Powered γ -Subunit Rotation in Membrane-Bound F₀F₁ ATPsynthase Observed by Single Pair FRET
- 12.00 - 12.25 Ine Segers-Nolten, Enschede
Confocal Single Molecule Microscopy of Nucleotide Excision Repair
- 12.25 - 12.50 Silke Oellerich, Leiden
Conformational Flexibility of Pigment-Protein Complexes Studied by Optical Single-Molecule Spectroscopy
- 12.50 - 13.50 LUNCH

Chair: Kazuhiko Kinoshita

- 13.50 - 14.25 Stefan Hell, Göttingen (**Invited Paper**)
Pushing Fluorescence Microscopy Resolution to the Nanoscale
- 14.25 - 14.50 Christian Hübner, Mainz
3D-Orientational Co-Localization and Photo-Physics of Individual Donor-Acceptor Pairs
- 14.50 - 15.15 n.n.
- 15.15 - 15.45 COFFEE BREAK

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Program (subject to alterations)

Friday, 26th September 2003

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Chair: Johan Hofkens

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| 15.45 - 16.10 | Carey K. Johnson, Lawrence
Single Molecule Dynamics of Calmodulin and Calcium Signaling |
| 16.10 - 16.35 | Ben Schuler, Potsdam
Single Molecule Measurement of Protein Folding Kinetics Using a Microfabricated Mixer |
| 16.35 - 16.50 | Rainer Erdmann, Berlin
Presentation of „SMD Students Award“ and Concluding Remarks |

Call for Papers 2004

10th Anniversary

We would like to invite all participants of this meeting and all other interested scientist to our

10th Anniversary of the International Workshop on “Single Molecule Detection and Ultrasensitive Analysis in Life Sciences”

which will be held in Berlin September 23 – 25, 2004.

Plenary lectures will be given by Richard Keller, Rudolf Rigler and Toshi Yanagida.

The first announcement will be available in autumn on our web page http://www.picoquant.com/_workshop.htm

We would like to invite people to submit their papers as soon as possible. From our experience organizing the previous meetings we recommend to do all correspondence by e-mail. Please submit abstracts on basis of the instructions given on the web.

New Event

Further, we would like to bring the following meeting to your attention:

2nd European Short Course on "Principles and Applications of Time-Resolved Fluorescence"

taking place October 2004 in Berlin, Germany. The course consists of lectures as well as instrumentation and software hands-on training. Local organization is handled by PicoQuant and the key lectures are given by Prof. J. Lakowicz and other invited speakers. For more information please have a look on the following web pages: http://www.picoquant.com/_trfcourse.htm and <http://cfs.umbi.umd.edu/course>