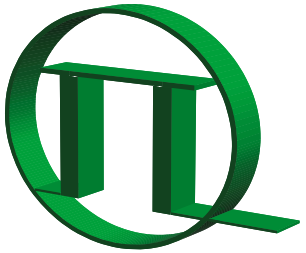
3rd International Workshop on "Single Molecule Detection: Basics and Applic ations in Life Sciences"

Organized under the Auspices of
PicoQuanT GmbH



PicoQuant GmbH
Unternehmen für optoelektronische
Forschung und Entwicklung

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S ociety for the A dvancement of Medical, B iological and
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Technical Program

24. September- 27. September 1997
at WISTA Campus
Berlin-Adlershof (Germany)

List of Sponsors

(as of August 1, 1997)

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* not yet confirmed

Aims and Purpose

Detection and spectroscopy of single molecules under biologically interesting conditions has gained considerable interest since the first report of single molecule detection (SMD) in a liquid 1976. The spectroscopic technique mostly involved in SMD is laser-induced fluorescence spectroscopy, mainly applied in two different experimental set-ups: detection within a focused laser beam and detection in a near-field or confocal scanning microscope. Besides these spectroscopic techniques, other methods like Magnetic Resonance become also increasingly important for single molecule studies.

The possibility of detecting and even spectroscopically studying single molecules in solution offers far-reaching perspectives for the application of this technique in analytical chemistry and life sciences. One of the most striking challenges is the application of SMD for ultrafast DNA sequencing. But also the detection of minute amounts of substances and "direct" measurements of their concentration by counting single molecules in definite volumes is now possible. Another promising perspective is the monitoring of chemical and structural changes of molecules at the single molecule level, gaining new insight into complex processes which is impossible with bulk measurements.

The aim of the workshop is to review the results obtained so far and to exchange the experience of the groups working in the field. Special emphasis will be on the application of single molecule detection and spectroscopy to applied sciences and technology. We attempt thereby the exchange of knowledge between the experts in SMD, interested scientists from other fields and potential users from industry.

Venue

PicoQuant GmbH Berlin:
Rudower Chaussee 5 (IGZ)
OWZ Building, Room 466
D-12489 Berlin

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Registration office:
WISTA Conference Center
Building 12.1
Einstein Kabinett

Wednesday 12 a.m. - 2.p.m.

Hotel address:

Transhotel
Radickestr. 76 (crossing street Adlergestell)
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Hints for manuscript preparation

All contributions to the Workshop will be considered for publication (peer reviewed) in a special issue of the journal Bioimaging (IOP, edited by Prof. T. Jovin, MPI Göttingen). Invited papers are supposed to have a length not exceeding about 15 manuscript pages, contributed papers (oral and posters) a length not exceeding 8 pages. The manuscripts should be prepared according to the Instructions for Authors of the journal, available during the workshop.

Deadline for submission of the manuscripts will be October 31, 1997. Please inform the organizing committee if you plan to submit your paper.

How to get to PicoQuant GmbH

The workshop location is about 12 min walking distance from the S-Bahn station Adlershof. Please go through the railway bridge and follow the Rudower Chaussee on the left hand side until the you see the workshop signs. Then enter the building 12.1 at the WISTA campus and follow the signs.

from Airport/Railway station Berlin-Schönefeld:

take any S-Bahn (city train, choose short distance ticket valid 3 stations only, DM 2.50) and travel two stations to Adlershof.

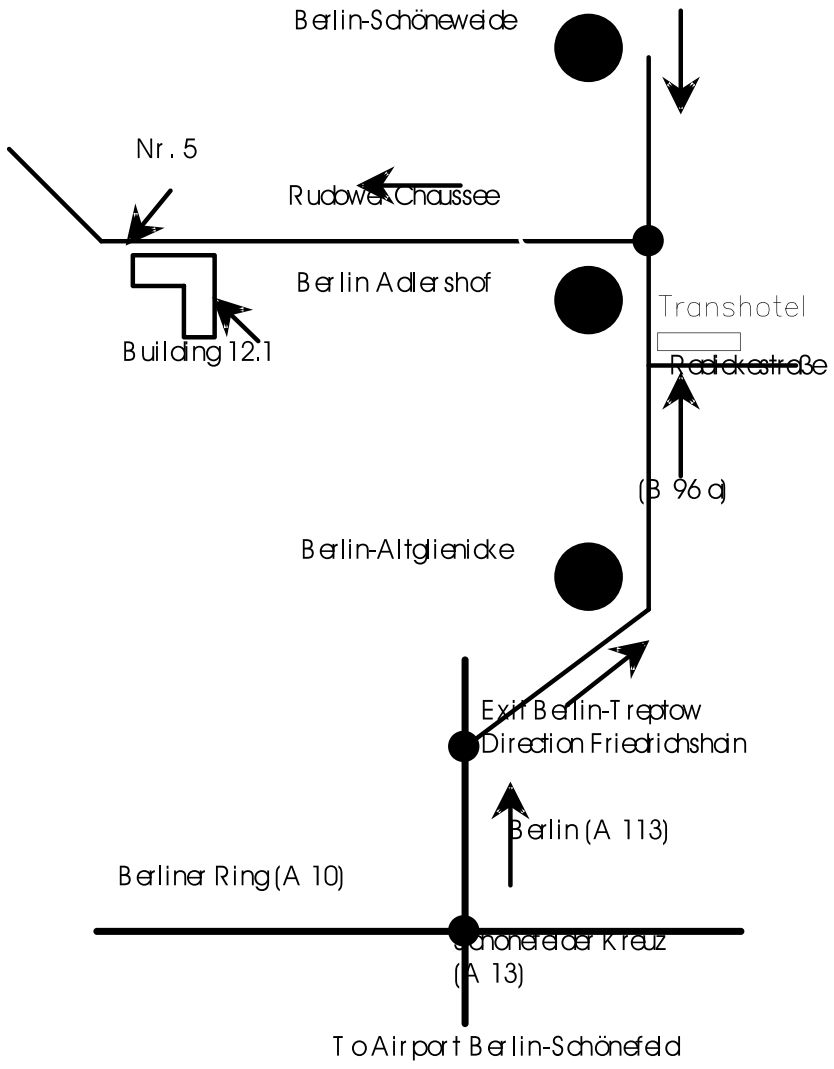
from Railway station Zoologischer Garten:

take any S-Bahn (city train, single ticket DM 3.60 valid for 2h traveling in Berlin) in the following directions: (Grünau (S 8), Zeuthen (S 6), Königs-Wusterhausen (S 46), Flughafen Berlin-Schönefeld (S9/S45) and travel to Adlershof.

from Airport Berlin-Tegel:

take the Express Bus number X9 to Railway station Zoologischer Garten and then follow description given above.

Workshop Location



Program

(subject to alterations)

Wednesday, 24 September 1997

12.00 - 14.00	Registration
14.00 - 14.15	R. Erdmann, Berlin Opening Remarks
14.15 - 14.50	Th. Basche, München, (Invited Paper) Microscopy And Spectroscopy Of Single Molecules And Semiconductor Nanocrystals
14.45 - 15.10	Daniel Walser, Zürich One- And Two Photon Spectroscopy On Single Polyene Molecules At Low Temperature
15.10 - 15.35	E. Heinecke, Berlin Anisotropy Of The Stark-Effect Of Single Molecules
15.35 - 16.10	COFFEE BREAK
16.10 - 16.45	K. Kneipp, Berlin (Invited Paper) Detection Of Biomedically Interesting Single Molecules Using Surface-Enhanced Raman Scattering (SERS)
16.45 - 17.20	J. Wrachtrup, Chemnitz (Invited Paper) Confocal Microscopy on Single Molecules and Defect Centres
17.20 - 17.45	A. Nizovtsev, Minsk Power-Broadened FDMR Lineshapes And FDMR Coherent Transients At Single Triplet Electron Spin As Probes Of Slow Host Spin Dynamics
17.45 - 18.10	n.n.
18.15 - 21.00	RE CEPTION

Thursday, 25 September 1997

09.00 - 09.35	L. Middendorf, Lincoln (Invited paper) Near-IR Fluorescence Instrumentation For DNA Analysis
09.35 - 10.10	S. Soper, Baton Rouge (Invited Paper) Development Of Miniaturized Devices For Single Molecule Monitoring Applications
10.10 - 10.35	L. Davis, Tullahoma Monte Carlo Simulation For Design Of Single Molecule Counting Experiment
10.35 - 11.05	COFFEE BREAK
11.05 - 11.40	R. Rigler, Stockholm Conformational Dynamics Of Single DNA Molecules (Invited Paper)
11.40 - 12.05	C. Zander, Heidelberg Single Molecule Counting And Identification In A Microcapillary
12.05 - 12.30	J. Enderlein, Regensburg Comparison Between Time Resolved Single Photon Counting And Fluorescence Correlation Spectroscopy In Distinguishing Single Molecules
12.30 - 12.55	n.n.
13.00 - 14.00	LUNCH
14.15 - 17.30	POSTER SESSION and PRODUCT PRESENTATION
19.00	DINNER

Friday, 26 September 1997

09.00 - 09.35	R.A. Keller, Los Alamos (Invited Paper) Efficient Single Molecule Detection In Flow
09.35 - 10.00	M. Sauer, Heidelberg Capillary Gel Electrophoresis And Single Molecule DNA-Sequencing With Multiplex Dyes
10.00 - 10.25	M. Wahl, Berlin Timeharp 200, A Concept For Continuous Time Resolved Burst Detection Of Single Molecules In Flow
10.25 - 11.00	COFFEE BREAK
11.00 - 11.35	C. Seidel, Göttingen (Invited Paper) Identification And Dynamics Of A Single Molecule In Solution Using Time-Resolved Fluorescence Detection
11.35 - 12.00	A. Castro, Los Alamos Single-Copy Gene Detection By SMD
12.00 - 12.25	J. Williams, Johnston Two-Zone Two-Color Single Molecule Detection for Genetic Analysis
12.30 - 13.30	LUNCH
13.45 - 14.20	T. Ha, Berkley (Invited Paper) Single Molecule Spectroscopy In Liquid
14.20 - 14.45	Th. Schmidt, Linz Single Molecule Microscopy: Tool For The Study Of Structural Properties Of Biomembranes
14.45 - 15.10	R. Meallet, Cachan Latex Beads As Nano-Sensors
15.10 - 15.35	S. Soper, Baton Rouge Concluding Remaks

15.35 - 16.05	COFFEE BREAK
16.05. - 18.00	Hot Spots – Informal Discussion Perspectives Of Single Molecule Detection
19.00	German Beer-Garden (not included in workshop fees)