

Program

Nanoscience and Nanotechnology for Biological/Biomedical/Chemical Sensing II

**13 - 17 September 2009
Lanzarote, Spain**

Conference Chair:

Martin Stutzmann
Walter Schottky Institute, Germany

Conference Co-chairs

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Sunday, September 13, 2009

17:00 - 19:00	Conference check-in
18:00 - 19:00	Welcome reception
19:00	Dinner

NOTES FOR CONFERENCE PARTICIPANTS

- Participants should observe no smoking at ECI technical and social events.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- During technical sessions please keep cell phones on vibrate or shut off. Take any telephone conversations out of the session room.
- Be sure to make any corrections to your name/contact information on the Master Participant List or confirm that the listing is correct. A corrected copy will be sent to all participants after the conference.

Monday, September 14, 2009

- 08:00 - 10:00 Breakfast buffet
- 09:30 - 10:30 Conference check-in (for late arrivals)
- 10:30 - 11:00 Greeting from the Chair (Martin Stutzmann)
Welcome from ECI (Nghì Lam)
Conference overview
- 11:00 **Session 1: Quantum Dots I**
Session Chair: Martin Stutzmann
- 11:00 - 11:45 Invited Talk
Alexander L. Efros, Naval Research Laboratory, USA
**NON-BLINKING SEMICONDUCTOR NANOCRYSTALS: SUPPRESSION OF
NONRADIATIVE AUGER PROCESSES**
- 11:45 - 12:30 Invited Talk
Anke Krüger, Kiel University, Germany
**FUNCTIONALISED NANOSCALE DIAMOND MATERIALS
FOR BIOAPPLICATIONS**
- 12:45 - 14:30 Lunch
- 14:30 **Session 2: Quantum Dots II**
Session Chair: Anke Krüger
- 14:30 - 15:15 Invited Talk
Friedemann Reinhard, Stuttgart University, Germany
**SINGLE COLOUR CENTERS IN DIAMOND FOR MAGNETIC FIELD SENSING
AT NANOSCALE**
- 15:15 - 15:35 Martin Stutzmann, Walter Schottky Institut, TU Munich, Germany
DOPING OF SILICON QUANTUM DOTS
- 15:35 - 15:55 Nadia Ruthardt, LMU Munich, Germany
**LIVE-CELL IMAGING AND SINGLE-PARTICLE TRACKING OF GENE CARRIER
INTERNALIZATION**
- 15:55 - 16:30 Coffee break
- 16:30 **Session 3: Quantum Dots III**
Session Chair: Kian P. Loh
- 16:30 - 17:15 Invited Talk
Shuit-Tong Lee, City University of Hong Kong
**SILICON NANOSTRUCTURES FOR SENSING AND BIOLOGICAL IMAGING
APPLICATIONS**

Monday, September 14, 2009 (continued)

17:15 - 17:35 Tingting Xu, City University of Hong Kong
**PHOTO AND PH STABLE, HIGHLY-LUMINESCENT SILICON
NANOSPHERES AND THEIR BIOCONJUGATES FOR
IMMUNOFLUORESCENT CELL IMAGING**

18:00 Social hour

19:00 Dinner

Tuesday, September 15, 2009

- 08:00 - 09:00 Breakfast buffet
- 09:15 **Session 4: Cell – Chip Interactions**
Session Chair: Robert J. Nemanich
- 09:15 - 10:00 Invited Talk
Serge Picaud, Institut de la Vision, France
RETINAL PROTHESES: DIAMOND BIOCOMPATIBILITY IN VITRO AND IN VIVO TESTING ON A DYSTROPHIC RAT
- 10:00 - 10:20 Moritz Hauf, Walter Schottky Institute, Germany
DIAMOND TRANSISTOR ARRAYS FOR THE EXTRACELLULAR RECORDING OF CELL ACTION POTENTIALS
- 10:20 - 10:50 Coffee break
- 10:50 - 11:30 Invited Talk
Tomaso Zambelli, ETH Zurich, Switzerland
FluidFM: A NOVEL AFM-BASED TOOL COMBINING NANOFLUIDICS FOR SINGLE-CELL EXPERIMENTS
- 11:30 - 11:50 Anne Charrier, CINaM-CNRS, France
CELL PLACEMENT FOR THE MONITORING OF SYNTHETIC NEURAL NETWORKS BY AN INTEGRATED PATCH-CLAMP
- 12:00 - 14:00 Lunch
- 14:00 Optional excursion
- 19:30 Dinner followed by social hour

Wednesday, September 16, 2009

08:00 - 09:00 Breakfast buffet

09:15 **Session 5: Biosensors I**
Session Chair: Shuit-Tong Lee

09:15 - 10:00 Invited Talk
Gang Jin, Institute of Mechanics, Chinese Academy of Sciences
BIOSENSOR BASED ON TOTAL INTERNAL REFLECTION IMAGING ELLIPSOMETRY

10:00 - 10:20 Makiko Maruyama, Walter Schottky Institute, Germany
KINETICS OF BINDING OF DNA AND PROTEIN TARGETS TO SURFACE TETHERED PROBES STUDIED WITH THE SWITCHDNA TECHNIQUE

10:20 - 10:50 Coffee break

10:50 - 11:35 Invited Talk
Verónica C. Martins, INESC Microsystems and Nanotechnologies, Portugal
SPINTRONIC-BASED BIOCHIP PLATFORM FOR BIOMOLECULAR DETECTION, SEPARATION, AND COUNTING

11:35 - 11:55 Valery A. Petrenko, Auburn University, USA
BIOENGINEERED PHAGE INTERFACES IN WIRELESS BIOSENSORS FOR DETECTION OF THREAT AGENTS

12:00 - 14:00 Lunch

14:00 **Session 6: Biosensors II**
Session Chair: T. Zambelli

14:00 - 14:20 Robert J. Nemanich, Arizona State University, USA
PROTEIN ADSORPTION AND FLUORESCENCE QUENCHING EFFECTS OF NANOCRYSTALLINE DIAMOND

14:20 - 14:40 Ashok Mulchandani, University of California - Riverside, USA
ONE-DIMENSIONAL NANOSTRUCTURE-BASED BIOSENSOR ARRAYS FOR LABEL-FREE AFFINITY SENSING

14:40 - 15:00 Markus Dankerl, Walter Schottky Institut, Germany
DIAMOND SURFACES: A NOVEL PLATFORM FOR BIOSENSOR APPLICATIONS

15:00 - 15:30 Coffee break

15:30 - 16:15 Invited Talk
Kian Ping Loh, National University of Singapore, Singapore
BIOLOGICAL AND CHEMICAL SENSING PROPERTIES OF DIAMOND AND GRAPHENE

Wednesday, September 16, 2009 (continued)

16:20 - 15:30

Poster Session

Session Chair: Ulrich Rant

[P-1] INTERACTIONS OF GOLD ION WITH PLANTS AND PLANT CELLS

Ray Yang, West Virginia University, USA

[P-2] ROLE OF COPPER PHTHALOCYANINE DOPANT IN PENTACENE-BASED ORGANIC THIN-FILM TRANSISTORS

Man-Keung Fung, City University of Hong Kong

[P-3] ATOMIC FORCE MICROSCOPY STUDY OF PHOTODYNAMIC EFFECT ON HELA CELL LINE MORPHOLOGY

Katerina Tomankova, Faculty of Medicine, Palacky University in Olomouc, Czech Republic

[P-4] STUDY OF SONODYNAMIC EFFECT USING FLUORESCENCE AND ATOMIC FORCE MICROSCOPY METHODS ON MELANOMA CELL LINE

Hana Kolarova, Faculty of Medicine, Palacky University in Olomouc, Czech Republic

15:30 - 17:30

Free time

19:30

Conference Banquet

Thursday, September 17, 2009

- 08:00 - 09:00 Breakfast buffet
- 09:15 **Session 7: Hybrid Nanosystems I**
Session Chair: A. L. Efros (not confirmed)
- 09:15 - 10:00 Invited Talk
M. Eickhoff, Justus-Liebig-Universität Giessen, Germany
FUNCTIONALIZED ALGAN/GAN FETS FOR QUANTITATIVE ANALYSIS OF IMMOBILIZED ENZYMES
- 10:00 - 10:45 Invited Talk
Marin Steenackers, Chemistry Department, TU Munich, Germany
ENGINEERED NANOSTRUCTURED POLYMER BRUSHES BY CARBON TEMPLATING
- 10:45 - 11:15 Coffee break
- 11:10 - 11:55 Invited Talk
Ulrich Rant, Walter Schottky Institut, Germany
ELECTRICALLY SWITCHABLE DNA SURFACES FOR THE DETECTION AND SIZE-ANALYSIS OF DNA AND PROTEIN TARGETS
- 11:55 - 12:15 Linbao Luo, City University of Hong Kong, Hong Kong
SILICON NANOWIRE SENSORS FOR Hg²⁺ AND Cd²⁺ IONS
- 12:15 Closing remarks, followed by lunch and departure