

Swiss Nanoconvention 2014 Technical Program Wednesday, May 21, 2014

8:00 – 9:15 Registration, Coffee

9:15 Opening session. Campussaal, Chair: R. Buser, NTB, Buchs and President, Swiss MNT Network

Welcome Addresses: **R. Schnaidt**, School of Engineering, FHNW, Windisch; **J. Gobrecht**, Paul Scherrer Inst., Villigen

9:30 Plenary Lecture I. Campussaal, Chair: R. Buser

G. Aeppli, Paul Scherrer Inst., Villigen, Switzerland and London Centre of Nanotechnology, London, UK, *The next life of silicon*

10:15 Panel discussion, Campussaal, *"Three years of ETHZ-IBM Binnig-Rohrer Nanotechnology Center"*. Moderation: A. Hirstein, Neue Zürcher Zeitung

Panelists: R. Eichler (President, ETHZ), W. Riess (IBM Zurich Research Center), G.-L. Bona (President, EMPA), G. Aeppli (Dept. Head Photon Science) PSI, Christofer Hierold (ETHZ)

10:45 Coffee break, Exhibition, Posters

11:15 Three years Binnig-Rohrer Nanotechnology Center , Part I. Campussaal, Chair: C. Hierold, ETHZ
11:15 A. Knoll, IBM Research – Zurich, *Thermal Probe Nanolithography: What You See is What You Get*
11:35 D. Poulikakos, ETHZ, Zürich, *Direct Open-Atmosphere Functional Printing at the Nanoscale: Toward a new Frontier*
11:55 H. Riel, IBM Research – Zurich, *Semiconducting Nanowires - From Materials to Devices*
12:15 A. Bachthold, ICFO, Barcelona, Spain, *Mechanical Resonators based on Nanotubes and Graphene*

11:15 Nanotechnology in Energy Research Foyerraum A, Chair: J. Brugger, EPFL
11:15 A. Fontcuberta i Morral, EPFL, Lausanne, *Semiconductor Nanowires for next Generation Photovoltaic Energy Conversion*
11:45 D. Opris, EMPA, Dübendorf, *Conductive Nanoparticle Fillers in Elastomers for Actuators*
12:15 V. Brüser, INP, Greifswald, Germany, *Plasma-Enhanced Synthesis of Visible Light-Active Photocatalyst Nanostructures for Water Splitting and Other Solar Applications*

11:15 Applications of nanotechnology in the life sciences, Part I. Foyerraum B, Chair: P. Seitz, EPFL
11:15 A. Fink, Adolphe Merkle Inst., Fribourg, *When "Nanomaterials meet Cells"*
11:35 D. Müller, D-BSSE, ETHZ, Basel, *Looking inside Cellular Machines using AFM-based Technologies*
11:55 G. Fantner, EPFL, Lausanne, *Life and Death at the Nanoscale: the Growth and Demise of Bacteria observed with Time Resolved AFM*
12:15 E. DiFabrizio, King Abdullah Univ., Thuwal, Saudi Arabia, *Sensing few Molecules at Nanoscale through Raman Spectroscopy*

12:45 – 14:00 Buffet Lunch, Exhibition, Posters

14:00 Three years Binnig-Rohrer Nanotechnology Center , Part II. Campussaal, Chair: W. Riess, IBM
14:00 C. Degen, ETHZ, Zürich, *Adventures in Ultrasensitive Force Detection*
14:20 W. Hänsch, IBM Research-New York, *Will we see Carbon Nanotubes for VLSI in 2020?*
14:40 V. Wood, ETHZ, Zürich, *Understanding and Optimizing Nanostructured Solids for Energy Applications*
15:00 L. Gross, IBM Research - Zurich, *Molecular Structure Determination by AFM*

14:00 Molecular- and quantum structures. Foyerraum A, Chair: L. Heyderman, PSI and ETHZ
14:00 A. Götzhäuser, Univ. Bielefeld, Germany, *Carbon Nanomembranes Engineered from Molecular Monolayers*
14:30 J. Osterwalder, Univ. Zürich, *CVD Growth and Transfer of Single-Crystalline Hexagonal Boron Nitride Monolayers and Graphene*
15:00 Th. Jung, Paul Scherrer Inst., Villigen, *Organic Electronics and Spintronics at the Ultimate Limit: Engineering with Molecules at Interfaces*

14:00 Applications of nanotechnology in the life sciences, Part II. Foyerraum B, Chair: K. Knop, I4U
14:00 W. Stark, ETHZ, Zürich, *Industrial Applications of Nanoparticles: Safety, Production and Commercialization*
14:30 B. Beck-Schimmer, Univ. Zürich, *Magnetic Nanoparticles: one Step closer to the Bedside?*
15:00 E. Delamarche, IBM Research-Zürich, *Chemistry with Sub-Nanoliter Volumes in the Open Space: from Surface Patterning to Pathology*

15:30 Coffee break, Exhibition, Posters

16:00 Hans-Joachim Güntherodt Lecture on Nanoscience (plenary lecture II). Campussaal, Chair: C. Schönenberger, Univ. of Basel
F. Giessibl, Univ. of Regensburg, Germany, *A Passion for Precision: Atomic Force Microscopy with Subatomic Resolution*

16:45 Plenary Lecture III. Campussaal, Chair: P. Seidler, IBM Research-Zürich

M. Aspelmeyer, Univ. of Vienna, Austria, *Quantum-Optomechanics*

17:30 – 20:30 Apéro riche, Campussaal Foyer

Sponsored by Swiss Federal Institute of Technology, Zürich and IBM Research - Zürich, Rüschlikon.

Swiss Nanoconvention 2014 Technical Program Thursday, May 22, 2014

8:00 – 9:15 Registration, Coffee

9:15 Plenary Session IV. Campussaal, Chair: J. Gobrecht, PSI

9:15 A. Hürzeler, Head of Departement of Education, Culture and Sports, Canton of Aargau, Aarau, Switzerland, *Hightech-Strategie des Kantons Aargau*

9:35 M. Bopp, Hightechzentrum Aargau, Brugg, Switzerland, *Nano in the Hightechzentrum Aargau*

10:00 Plenary Session V, Campussaal, Chair: A. Bismarck

K. Schulte, TU Hamburg, Germany, *Fibre Reinforced Composites with a Nanostructured Polymer Matrix – Outline from Properties to Application*

10:45 Coffee break, Exhibition, Posters

11:15 Technology Transfer. Campussaal,
Chair: M. Krack, FITT

11:15 R. Dümpelmann, i-net nano, Basel, *i-net: Nano, Support of 4 Cantons and a Cross-functional Landscape*

11:35 J. Güttinger, NTN innovative surfaces, St. Gallen, *Introduction and Current Activities NTN Innovative Surfaces*

11:55 W. Meier, Univ. of Basel, *NCCR Molecular Systems Engineering*

12:15 C. Dransfeld, FHNW, Windisch, *Industrial Break-through of High-Performance Fibre-reinforced Composite Materials for the whole Value Chain in Switzerland*

11:15 CTI Micro- and Nano-Event 2014, Part I. Foyerraum B,
Chair: R. Zehringer, CTI

11:15 R. Zehringer, CTI, Bern, Switzerland
Welcome

11:25 K. Sekanina, CTI, Bern, Switzerland
Latest News from CTI

11:45 Poster Presentations

11:15 Industrial Applications of Scanning Probe

Microscopy. Foyerraum A, Chair: E. Meyer, Univ. Basel

11:15 Th. Glatzel, Univ. of Basel, *Advanced Scanning Probe Force Microscopy for Nanoscale Analysis*

11:35 G. Dietler, EPFL, Lausanne, *Fast Detection of Bacterial Resistance to Antibiotics by Nanomechanical Sensors*

11:55 R. Sum, Nanosurf AG, Liestal, *AFM for Automated Inspection and Diagnostics*

12:15 F. Menges, IBM Research-Zurich, *Scanning Probe Thermometry - A Thermometer for the Nanoscale*

12:35 – 13:45 Buffet Lunch, Exhibition, Posters

13:45 Nanoelectronics. Campussaal, Chair: J. Gobrecht, PSI

13:45 U. Grossner, ABB Ltd., Baden, *Nanotechnology in Power Applications: a Feasibility Consideration*

14:15 D. Zumbühl, Univ. of Basel, *Controlling Spins in Semiconductor Nanostructures*

14:45 A. Pasquarello, EPFL, Lausanne, *Accurate Modelling of Defect Levels*

13:30 CTI Micro- and Nano-Event 2014, Part II, Foyerraum B

13:30 O. Porret, Bobst SA, Mex, *An Ultra High Speed in-Line Braille Control System*

14:00 A. Kounga, Straumann AG, Basel, *Laser-Based Fabrication of Biomimetic Dental Restorations*

14:30 F. Holzner, Swisslitho AG, Zürich, *The Nano Frazor - Rapid Prototyping of High-Quality Nanostructures*

13:45 Nanoengineered Structural Materials. Foyerraum A

Chair: C. Dransfeld, FHNW

13:45 Th. Graule, EMPA, Dübendorf, *Ceramic Based Nanocomposites – a Processing Challenge*

14:15 A. Bismarck, Imperial College, London, UK, *Hierarchical or Nanomaterial Enhanced Composites*

14:45 A. Battisti, Carbo-Link AG, Fehraltorf, *Interface Characterization of EPD Deposited CNT Nanocomposites via Single Fiber Pushout*

15:15 Coffee break, Exhibition, Posters

15:45. Nanofabrication. Campussaal, Chair: M. Bopp, Hightechzentrum

15:45 Ch. Rytka, Inst. of Polymer Nanotechnology, FHNW, Windisch; *Mass Replication of Nanopatterns in Polymers*

16:10 Y. Ekinci, Paul Scherrer Inst., Villigen, *Single-digit Nanolithography by EUV-Interference Lithography*

16:35 Ch. Dais, Eulitha AG, Würenlingen, *PHABLER 100: An Innovative Tool for Low-Cost nano-Patterning of Large Areas*

15:30 CTI Micro- and Nano-Event 2014, Part III, Foyerraum B

15:30 T. Lamprecht, vario-optics AG, Heiden, *InnoWave: Innovative Waveguide Technology*

16:00 M. Gonin, Tofwerk AG, Thun, *Timing Matters - Mass Spectrometry in the Nano Scale*

16:30 M. Willemin, EM Microelectronic-Marin SA, Marin, **Keynote:** *EM Microelectronic-Marin SA and CTI*

15:45 Nanoengineered Functional Materials. Foyerraum A, Chair: M. Kristiansen, FHNW

15:45 S. Vogel, FHNW, Windisch, *Protective Effect of Alumina Layer on CF during CVD Processing for Hierarchical Composites*

16:10 C. Daraio, ETHZ, Zürich, *Nano-structured Materials with Enhanced Mechanical Properties*

16:35 A. Stuck, ETHZ, Zürich, *Mass Manufacturing of Nano-Structured Surfaces*

17:05 Plenary Session VI, Campussaal, Chair: P. Gröning, EMPA

R. Landsiedel, BASF, Ludwigshafen, Germany, *Safety Assessment and Grouping of Nanomaterials*

17:50 Closing of Conference, announcement of Swiss Nanoconvention 2015

