

**3<sup>rd</sup> International NanoBio Conference, 23 – 27 August 2010, ETH Zurich Switzerland**  
([www.nanobio.ethz.ch](http://www.nanobio.ethz.ch))

**PRE-CONFERENCE WELCOME APERITIF ON MONDAY 23<sup>rd</sup> AUGUST, 6 – 9 PM**

**Location:** ETH Main Building (Hauptgebäude, HG), Rämistrasse 101, Zurich,  
Restaurant “Dozentenfoyer” on **J floor** (top floor)  
(detailed info on location and transportation: see separate “Conference Venue and Maps” document).

All participants are kindly invited to this Welcome Aperitif sponsored by the **Zurich City Council**.  
The welcome address will be given by the **Mayor of Zurich, Mme Corinne Mauch**, at approx. **6:30 pm**.

**For those attending: please register first in the entrance hall** (see below) before attending this welcome event.



Mme Corinne Mauch,  
Mayor of City of Zurich

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**CONFERENCE REGISTRATION ON MONDAY, 23<sup>rd</sup> AUGUST:**

**Location:** ETH Main Building (Hauptgebäude, HG), Rämistrasse 101, Zurich, Entrance hall (see detailed info in separate “Conference Venue and Maps” document).

**Registration Time: 17:00 – 20:00**

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**CONFERENCE REGISTRATION ON TUESDAY, 24<sup>th</sup> AUGUST:**

**Registration starts 08:00 until 12:00**, same location as above. After this time participants may register at the Conference Office on F Floor (HG F33).



# NanoBio-Zurich 2010 / August 24 – 27, 2010: Session Program

[Chairs in brackets]

Tuesday, August 24					
09:00 – 09:30	<b>Welcome: Nicholas Spencer and Marcus Textor, ETH Zurich, F30 (F5)</b>				
09:30 – 10:30	<b>PLENARY TALK 1:</b> <a href="#">Samuel I. Stupp</a> , Northwestern U, USA, <i>Cell Signaling with Nanostructures for Regeneration</i> ; [Nicholas Spencer, CH], F30 (F5)*				
10:30 – 11:00	<i>Coffee/Tea Break (Foyer E-Süd &amp; E-Nord, Central Hall E floor)</i>				
	<b>Session A1: NanoBio Sensing;</b> [Janos Vörös, CH], F30			<b>Session B1: NanoBio Materials;</b> [Keith McLean, AU], F3 (F5)	
11:00 – 11:40	<b>Keynote A1</b>	<a href="#">Luis Liz-Marzan</a> , Spain <i>SERS-Based Diagnosis and Biodetection</i>	11:00 – 11:20	<b>Invited Talk</b>	<a href="#">Marc Bohner</a> , Switzerland <i>Nanodefects to Tune the Chemical and Biological Properties of Calcium Phosphate Biomaterials</i>
			11:20 – 11:40	Contributed Talk	<b>Martin Andersson</b> , Sweden <i>Bio-Active Nanomaterials Formed Using Molecular Self-Assembly, Application Towards Tissue Integrating Implants</i>
11:40 – 12:00	Contributed Talk	<b>Vincent Dupres</b> , Belgium <i>Probing the Mechanical Behavior of the Yeast Plasma-Membrane Sensor Wsc1 using Single-Molecule AFM</i>	11:40 – 12:20	<b>Keynote B1</b>	<a href="#">Molly Stevens</a> , UK <i>Engineering the Cell-Material Interface</i>
12:00 – 12:20	Contributed Talk	<b>Abhijeet Joshi</b> , India <i>Fluorescent Nanoparticles as Implantable “Smart Tattoo” Biosensors for Dissolved Oxygen Monitoring</i>			
12:20 – 12:50	<b>Invited Talk</b>	<a href="#">Christof Fattinger</a> , Switzerland <i>Exploiting Biological Diversity</i>	12:20 – 12:50	<b>Invited Talk</b>	<a href="#">Yukio Nagasaki</a> , Japan <i>Nitroxyl Radical Containing Nanoparticle for Novel Theranostics</i>
12:50 – 13:30	<b>Lunch</b> (Foyer E-Süd & E-Nord)				
13:30 – 14:10	<b>Poster Session I</b> (Foyer E-Süd & E-Nord, Foyer EO-Nord & EO-Süd) & <b>Exhibition</b> (Central Hall E Floor)				

14:20 – 15:20	<b>PLENARY TALK 2: Fredrik Höök, Chalmers U of Technology, Sweden, <i>Integrating Microfluidics with Nanoplasmonic Sensing of Cell-membrane Mimics</i>; [David Grainger, USA], F30 (F5)</b>				
	<b>Session A2: NanoBio Sensing; [David Grainger, USA; Fredrik Höök, SE], F30</b>			<b>Session B2: NanoBio Materials; [Jijian, CN], F3 (F5)</b>	
15:30 – 16:10	<b>Keynote A2</b>	<b><u>Itamar Willner, Israel</u></b> <i>Functional Biomolecule Nanostructures for Sensing, Catalysis and Circuitry</i>	15:30 – 15:50	Contributed Talk	<b>Rodney Chen Australia</b> <i>Fabrication of asymmetric “Janus” particles via plasma polymerization</i>
			15:50 – 16:10	Contributed Talk	<b>Dirk de Bruyn Ouboter, Switzerland</b> <i>Self-Assembled Peptide Microspheres</i>
16:10 – 16:40	<b>Coffee/Tea Break (Foyer E-Süd &amp; E-Nord, Central Hall E floor)</b>				
16:40 – 17:00	Contributed Talk	<b>Christoph Wälti, UK</b> <i>Label-free multiplexed high-density peptide-aptamer-based protein arrays</i>	16:40 – 17:20	<b>Keynote B2</b>	<b><u>David Kaplan, USA</u></b> <i>Dynamic Biomaterial Systems Based on Silk Proteins</i>
17:00 – 17:20	Contributed Talk	<b>Kaori Sugihara, Switzerland</b> <i>A Gigasealing Lipid Bilayer on a Single Polyelectrolyte Multilayer-filled Nanopore for Ion Channel Sensors</i>			
17:20 – 18:00	<b>Keynote A3</b>	<b><u>Harold Craighead, USA</u></b> <i>Nanostructures for Biological Investigations</i>	17:20 – 17:40	Contributed Talk	<b>Francesca Baldelli Bombelli, Ireland</b> <i>What the “Cell” Sees in Bionanoscience</i>
			17:40 – 18:00	Contributed Talk	<b>Hiroaki Yoshida, Japan</b> <i>Fabrication of Biodegradable Hydrogels with Controlled Vascular Networks</i>
18:00 – 18:30	<b>Invited Talk</b>	<b><u>Rachel McKendry, UK</u></b> <i>Nanomechanical Sensors for Superbugs and Superdrugs</i>	18:00 – 18:30	<b>Invited Talk</b>	<b><u>Cait MacPhee, UK</u></b> <i>Hybrid Nanomaterials: Exploiting Biological Self-Assembly for Novel Functions</i>
18:30 – 20:00	<b>Poster Session I (Foyer E-Süd &amp; E-Nord, Foyer EO-Nord &amp; EO-Süd) &amp; Exhibition (Central Hall E Floor) / Free Drinks &amp; Snacks</b>				

Wednesday, August 25					
08:30 – 09:30	<b>PLENARY TALK 3:</b> <a href="#">Ruth Duncan</a> , Cardiff U, UK, <i>Polymer Therapeutics: Treatments of Cancer and for Tissue Repair</i> ; [Kazunori Kataoka, JP], F30 (F5)				
	<b>Session C1: Drug Delivery &amp; Nanomedicine;</b> [Kazunori Kataoka, JP; Patrick Couvreur, FR], F30			<b>Session D1: NanoBio Interfaces;</b> [Ashutosh Chilkoti, USA], F3 (F5)	
09:40 – 10:20	<b>Keynote C1</b>	<a href="#">Jeffrey Hubbell</a> , Switzerland, <i>Targeting, Delivery and Adjuvancy in Vaccines</i>	09:40 – 10:00	Contributed Talk	<b>Andre Skirtach, Germany,</b> <i>Nanobio Interfaces – Single Cell Studies with Remotely Addressable Spherical Microcapsules and Planar Bio-interfaces</i>
			10:00 – 10:20	Contributed Talk	<b>Deny Hartono, Singapore,</b> <i>Disruption of Liquid Crystal-supported Cell Membrane Model by Protein-coated Nanoparticles</i>
10:20 – 10:40	Contributed Talk	<b>Pilar Rivera Gil, Germany,</b> <i>Intracellular Processing of Proteins Mediated by Biodegradable Polyelectrolyte Capsules</i>	10:20 – 11:00	<b>Keynote D1</b>	<a href="#">Jennifer Cha, USA,</a> <i>Biomolecular Architectures and Systems for Nanoscience Engineering</i>
10:40 – 11:00	Contributed Talk	<b>Arnaud Felber, Switzerland,</b> <i>Smart pH-responsive Nanocarriers for Nucleic Acid Drug Delivery</i>			
11:00 – 11:30	<b>Coffee/Tea Break</b> (Foyer E-Süd & E-Nord, Central Hall E floor)				
11:30 – 11:50	Contributed Talk	<b>Sun-Mi Lee, South Korea,</b> <i>Local Delivery of Drug and Heat using Multifunctional Nanoparticles</i>	11:20 – 11:50	Contributed Talk	<b>Anders Lundgren, Sweden,</b> <i>Gradients in Nanoparticle Density for Investigation of Biological Adhesion</i>
11:50 – 12:20	<b>Invited Talk</b>	<a href="#">Yi Yan Yang, Singapore,</a> <i>Nanostructures Self-Assembled from Polymers with Well-Defined Molecular Structure for Targeted Delivery of Therapeutics</i>	11:50 – 12:20	<b>Invited Talk</b>	<a href="#">Emmanuel Delamarche, Switzerland,</a> <i>Patterning Proteins on Surfaces: at What scales and What for?</i>
12:20 – 13:00	<b>Lunch</b> (Foyer E-Süd & E-Nord)				
13:00 – 14:20	<b>Poster Session I</b> (Foyer E-Süd & E-Nord, Foyer EO-Nord & EO-Süd) & <b>Exhibition</b> (Central Hall E Floor)				

14:30 – 15:30	<b>PLENARY TALK 4:</b> <a href="#">Frank Caruso</a> , U of Melbourne, Australia, <i>Engineered, Responsive Polymer Carriers for Biomedical Applications</i> ; [Patrick Stayton, USA], F30 (F5)				
	<b>Session C2: Drug delivery &amp; Nanomedicine;</b> [Patrick Hunziker, CH], F30			<b>Session D2: NanoBio Interfaces;</b> [Christoph Gerber, CH], F3 (F5)	
15:40 – 16:20	<b>Keynote C2</b>	<a href="#">Patrick Couvreur</a> , France, <i>Nanomedicines: a New Approach for the Treatment of Severe Diseases</i>	15:40 – 16:00	Contributed Talk	<b>Shirley Daube</b> , Israel, <i>Compartmentalization by Directional Gene Expression</i>
			16:00 – 16:20	Contributed Talk	<b>Jenny Malmström</b> , Denmark, <i>Large Area Protein Patterning for Control of Focal Adhesion Development</i>
16:20 – 16:50	<b>Coffee/Tea Break</b> (Foyer E-Süd & E-Nord, Central Hall E floor)				
16:50 – 17:10	Contributed Talk	<b>Cornelia Palivan</b> , Switzerland, <i>Pseudo-Cellular Nanotraps for Enzyme Therapy in Oxidative Stress</i>	16:50 – 17:30	<b>Keynote D2</b>	<a href="#">Simon Scheuring</a> , France, <i>Membrane Proteins in Native Membranes Studied by Atomic Force Microscopy: Watching Biological Nano-Machines at Work</i>
17:10 – 17:30	Contributed Talk	<b>Elinor Josef</b> , Israel, <i>Nanoparticles Embedded in Aliginate Hydrogels: an Innovative Approach for Sustained Release of Hydrophobic Drugs</i>			
17.30 – 18:00	<b>Invited Talk</b>	<a href="#">Yasuhiro Matsumura</a> , Japan, <i>A New Aspect of Drug Delivery System in Cancer Therapy</i>	17:30 – 18:00	<b>Invited Talk</b>	<a href="#">Sally McArthur</a> , Australia, <i>Plasma, Particles and PDMS</i>
18:00 – 20:00	<b>Poster Session II</b> (Foyer E-Süd & E-Nord, Foyer EO-Nord & EO-Süd) & <b>Exhibition</b> (Central Hall E Floor) / Free Drinks & Snacks				
18:30 – 20:00	<b>Zeiss Satellite Symposium</b> , Drinks and Snacks at 18:00; Light buffet at ca. 20:00, <b>F floor “Uhrenhalle”</b>				

Thursday, August 26					
08:30 – 09:30	<b>PLENARY TALK 5:</b> <a href="#">Phillip Messersmith</a> , Northwestern U, USA, <i>Mussel Adhesive Proteins and their Biologically Inspired Analogs for Nanobio-technology</i> ; [Stefan Zürcher, CH], F30 (F5)				
	<b>Session E: Biomimetic and Bioinspired Nano-Structured Materials and Interfaces;</b> [Viola Vogel, CH], F30			<b>Session F1: NanoBio Devices;</b> [Kyung-Hwa Yoo, KR], F3 (F5)	
09:40 – 10:20	<b>Keynote E</b>	<a href="#">Karen Wooley</a> , USA, <i>Well-Defined, Biologically-Inspired Nanoscopic Objects Derived from Synthetic Polymer Building Blocks</i>	9:40 – 10:00	Contributed Talk	<b>Madhavi Krishnan Switzerland</b> , <i>Passive Trapping, Levitation and Assembly of Nanometric Objects in a Fluid</i>
			10:00 – 10:20	Contributed Talk	<b>Raffaele Mezzenga, Switzerland</b> , <i>Understanding Amyloid Aggregation by Statistical Analysis of Atomic Force Microscopy</i>
10:20 – 10:40	Contributed Talk	<b>Brigitte Städler, Denmark</b> , <i>Capsosomes: an Approach Toward Cell Mimicry</i>	10:20 – 11:00	<b>Keynote F1</b>	<b>Cees Dekker, The Netherlands</b> <i>Solid State Nanopores for Single Molecule DNA Analysis</i>
10:40 – 11:00	Contributed Talk	<b>Martin Ehrbar, Switzerland</b> , <i>Matrix engineering for the formation of artificial tissues</i>			
11:00 – 11:30	<b>Coffee/Tea Break</b> (Foyer E-Süd & E-Nord, Central Hall E floor)				
11:30 – 11:50	Contributed Talk	<b>Jonathan Heddle, Japan</b> , <i>A Self-Assembled Artificial Protein Nanotube</i>	11:30 – 11:50	Contributed Talk	<b>Han Zuilhof, Netherlands</b> , <i>Enzymatic Cascade Reactions in Micro-channels</i>
11:50 – 12:20	<b>Invited Talk</b>	<a href="#">Nobuo Kimizuka</a> , Japan, <i>Adaptive Self-Assembly in Coordination Nanoparticles</i>	11:50 – 12:20	<b>Invited Talk</b>	<a href="#">Lech Wiczorek, Australia</a> , <i>Gold Nanoparticle Chemiresistors - Towards a Universal (Bio)Chemical Sensor System?</i>
12:20 – 13:00	<b>Lunch</b> (Foyer E-Süd & E-Nord)				
13:00 – 14:00	<b>Poster Session II</b> (Foyer E-Süd & E-Nord, Foyer EO-Nord & EO-Süd) & <b>Exhibition</b> (Central Hall E Floor)				

14:10 – 15:10	<b>PLENARY TALK 6:</b> <a href="#">Andre Nel</a> , UCLA, USA, <i>Nanotoxicology as a Predictive Science: From Cells to Animals</i> ; [Harald Krug, CH], F30 (F5)				
	<b>Session G: Nanotoxicology;</b> [Katharina Maniura, CH], F30			<b>Session F2: NanoBio Devices;</b> [Petra Dittrich, CH], F3 (F5)	
15:20 – 16:00	<b>Keynote G</b>	<a href="#">Bengt Fadeel</a> , Sweden, <i>Interactions of Engineered Nanomaterials with the Immune System</i>	15:20 – 15:40	<i>Invited Talk</i>	<a href="#">Bettina Sobotka</a> , Germany, <i>Biofilms in Industry and Medicine - An Overview</i>
			15:40 – 16:00	Contributed Talk	<b>Tomaso Zambelli</b> , Switzerland, <i>FluidFM Technology and Single-Cell Biology: From Force-Controlled Patch-Clamp to Single-Virus Dispensing</i>
16:00 – 16:30	<b>Coffee/Tea Break</b> (Foyer E-Süd & E-Nord, Central Hall E floor)				
16:30 – 16:50	Contributed Talk	<b>André van der Vlies</b> , Switzerland, <i>Pyridyldisulfide-Functionalized Nanoparticles for Immunotherapy Application</i>	16:30 – 17: 10	<b>Keynote F2</b>	<a href="#">Luke Lee</a> , USA, <i>Bionanoscience via Satellite Nanoscopes</i>
16:50 – 17: 10	Contributed Talk	<b>Barbara Rothen-Rutishauser</b> , Switzerland, <i>A Sophisticated Model of the Human Epithelial Airway Barrier to Study Uptake, Cell Responses and Intracellular Distribution of Nanoparticles</i>			
17:10 – 17:40	<b>Invited Talk</b>	<a href="#">Harald Krug</a> , Switzerland, <i>3R of Nanotoxicology: Reactions, Regulation and Restriction?</i>	17:10 – 17: 40	<b>Invited Talk</b>	<a href="#">Sebastian Maerkl</a> , Switzerland, <i>Software Programmable Microfluidic Devices: Bringing High-End Microfluidics to the Masses</i>
18:30 – ca. 23:00	<b>Conference Dinner</b> (Restaurant “Die Waid”, Zurich)				

<b>Friday, August 27</b>					
08:30 – 09:30	<b>PLENARY TALK 7:</b> <a href="#">Hermann Gaub</a> , LMU Munich, Germany, <i>Force and function: Probing Proteins with Single Molecule Force Spectroscopy</i> ; [Jeffrey Hubbell, CH], F30 (F5)				
	<b>Session H1: Nanomedical imaging;</b> [Ick-Chan Kwon, KR], F30			<b>Session I1: Nano-scale Characterization Techniques and Single-Molecule Analysis;</b> [Julius Vancso, NL], F3 (F5)	
09:40 – 10:20	<b>Keynote H1</b>	<a href="#">Demetri Psaltis</a> , Switzerland, <i>Second Harmonic Nanoparticles in Bio-imaging</i>	09:40 – 10:00	Contributed Talk	<b>Jens Moeller</b> , Switzerland, <i>Shape and Orientation of Catch-Bond Forming, Surface-Adhering Escherichia Coli Impact the Phagocytic Uptake by Macrophages</i>
			10:00 – 10:20	Contributed Talk	<b>Anders Gunnarsson</b> , Sweden, <i>Probing Molecular Recognition on the Single Molecule Level</i>
10:20 – 10:40	Contributed Talk	<b>Yu Matsumoto</b> , Japan, <i>Intravital Real-Time Confocal Microangiography</i>	10:20 – 11:00	<b>Keynote I1</b>	<a href="#">David Klenerman</a> , UK, <i>Single Molecules on Living Cells</i>
10:40 – 11:00	Contributed Talk	<b>Jörg Ziegler</b> , Switzerland, <i>Gold Nano-Dot Arrays for AFM-Based Bio-Analytics</i>			
11.00 – 11:30	<b>Coffee/Tea Break</b> (Foyer E-Süd & E-Nord, Central Hall E floor)				
11:30 – 11:50	Contributed Talk	<b>Esther Amstad</b> , Switzerland, <i>Vesicles for Magnetically Triggered Release</i>	11:30 – 11:50	Contributed Talk	<b>Bert Müller</b> , Switzerland, <i>The Nanostructure of Biological Tissues: a Scanning X-ray Scattering Study</i>
11:50 – 12:20	<b>Invited Talk</b>	<a href="#">Renato Zenobi</a> , Switzerland, <i>Label-Free Chemical Nanoanalysis of Biological Samples using Tip-Enhanced Raman Spectroscopy (TERS)</i>	11:50 – 12:20	<b>Invited Talk</b>	<a href="#">María García-Parajo</a> , Spain, <i>Single Molecule Nanotools in Immunology</i>
12:20 – 13:30	<b>Lunch</b> (Foyer E-Süd & E-Nord) <b>Poster Session II</b> (Foyer E-Süd & E-Nord, Foyer EO-Nord & EO-Süd) & <b>Exhibition</b> (Central Hall E Floor)				



	Session H2: Nanomedical imaging; [Jean-Christophe Leroux, CH], F30			Session I2: Nano-scale Characterization Techniques and Single-Molecule Analysis; [Erik Reimhult, CH], F3 (F5)	
13:40 – 14:20	Keynote H2	<a href="#">Ick-Chan Kwon</a> , Korea, <i>Polymer Nanotechnology for Molecular Imaging</i>	13:40 – 14:00	Contributed Talk	<a href="#">Byoung Yeon Won</a> , South Korea, <i>Signaling Mechanism Investigation and Performance Verification of Electrochemical Real-Time PCR Based on Methylene Blue-DNA Interaction</i>
			14:00 – 14:20	Contributed Talk	<a href="#">Melanie Schwingel</a> , Germany, <i>Multiple Traps Optical Tweezers for Live Cell Force Mapping in Initial Focal Contacts</i>
14:20 – 14:40	Contributed Talk	<a href="#">Aernout Martens</a> , Netherlands, <i>A Comparative Atomic Force Microscopy Study on the Interaction between the CD44 Cell Surface Receptor and Different Glucosaminoglycans</i>	14:20 – 15:00	Keynote I2	<a href="#">Stefan W. Hell</a> , Germany, <i>Nanoscopy with Focused Light</i>
14:40 – 15:00	Contributed Talk	<a href="#">Nadia Ruthardt</a> , Germany, <i>Live-Cell Imaging and Single-Particle Tracking of Polyplex Internalization</i>			
15:00 – 15:30	Invited Talk	<a href="#">Hans Griesser</a> , Australia, <i>PEGylated Nanoparticles for Cancer Detection and Treatment</i>	15:00 – 15:30	Invited Talk	<a href="#">Hongbin Li</a> , Canada, <i>Protein Mechanics of Artificial Elastomeric proteins: from Single Molecule to Biomaterials</i>
15:40 – 16:40	PLENARY: <a href="#">Patrick Stayton</a> , USA, <i>Opening the Intracellular Universe of Disease Targets to Biologic Drugs</i> ; [Marcus Textor, CH], F30 (F5)				
16.40 – 17.00	Final Remarks: Janos Vörös; Information on NanoBio-X 2012, End of Conference				

\* Room F 5 in brackets: Lectures have to be video-cast from F 30 or F 3 into F 5, due to oversubscription of conference.

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