

2000 US-Swiss Forum on NanoBioSciences

Bowen Hall, Princeton University
Princeton, New Jersey U.S.A.

Wednesday, December 13

- 07:30 Registration
08:00 Transportation to BMS
(Meet at Bowen Hall)
08:30 - 13:00 Tour of Bristol-Myers Squibb
Princeton Research Laboratories
(Lunch at BMS)
13:30 - 18:00 NASA Workshop on Biomaterials
(separate registration required)
19:00 - 21:00 NASA Workshop Working Dinner

Thursday, December 14

- 08:15 Registration
09:00 Welcome and Introduction
Ishan A. Aksay, Princeton University, and
Hans Leuenberger, SNSF and SATW
- Session 1: Plenary
09:10 Nanomechanics in Biochemistry
Hans-Joachim Güntherodt, University Basel
09:50 Switching the Functional States of Proteins by
Mechanical Force: Implications for the Design of
Nanoswitches and Biomaterials
Viola Vogel, University of Washington
10:30 Bioanalytics at the Nanometer Range
Horst Vogel, EPFL, Lausanne
11:10 Photoimmobilization of Biomolecules with a
Scanning Near Field Optical Microscope
Fabienne Marquis Weibler, EPFL, Lausanne
11:50 Lunch, Third World Center
- Session 2a: Cell Activity and Interaction with Surfaces
13:40 Atomic Probe Microscopy: A Powerful Tool to
Observe Function, Interaction, and Assembly of
Native Proteins
Daniel J. Mueller and Andreas Engel, University of Basel
14:00 Dynamic Substrates for Controlling the
Behaviors of Adherent Cells
Milan Mrksich, University of Chicago
14:20 Localized Immobilization of Biomolecules
André Bernard, IBM, Rüschlikon
14:40 The Role of Fibronectin on Cell Adhesion
Jean E. Schwarzbauer, Princeton University
15:00 Break
- Session 2b: Cell Activity and Interaction with Surfaces
15:20 Synaptic Pattern Formation During Cellular
Recognition Jay T. Groves, University of California, Berkeley
15:40 Force Spectroscopy for Investigating
Biorecognition Louls Tiefenauer, PSI, Villigen
16:00 Surface-Selective Proteins
Angela M. Belcher, University of Texas, Austin
16:20 Nanostructured Chiral Surfaces
Karl-Heinz Ernst, EMPA, Dübendorf
16:40 Probing Epigenetics using Nanofabrication
Robert H. Austin, Princeton University
17:00 Social Hour, Bowen Hall Atrium

Sponsored by the US and Swiss
National Science Foundations and
Princeton Materials Institute



Friday, December 15

- 08:15 Registration
Session 3: Plenary - Nanobiotechnology, Modeling,
Monitoring
09:00 Surface Modification for Cell Adhesion
George M. Whitesides, Harvard University
09:40 Monitoring Structural and Functional Aspects of
Native Biological Specimens by Time-Lapse AFM
Ueli Aebi, Biocenter, University of Basel
10:20 Stretching Molecules into Novel Conformations
using the Atomic Force Microscope
Julio M. Fernandez, The Mayo Foundation
11:00 Ion-Selective AFM-Tips: A Tool to Monitor the
Ion Release from Biological Membranes
Selectively and Destruction-Free
Ursula Spichiger-Keller, ETH Technopark
11:40 Lunch, Third World Center
- Session 4: Biopolymers - Synthesis, Properties, and
Applications
13:00 De Novo Proteins from Designed Combinatorial
Libraries Michael H. Hecht, Princeton University
13:20 Multifunctional Polyglycerols as Biocompatible
Drug Delivery Systems
Rainer Haag, Material Research Center, University of Freiburg
13:40 Functional Nanocontainers from Amphiphilic
Block Copolymers Wolfgang P. Meier, University of Basel
14:00 Replication of Micro- and Nanostructures Using
Molding Techniques Helmuth Schift, PSI, Villigen
- Session 5a: Analytics, Biophysics, Therapy
14:20 Analyzing Single Molecules, Vesicles, and Cells
Thorsten Wohland and Richard N. Zare, Stanford University
14:40 Properties of Membranes of Nanovesicles and
Cells Controlling Drug Transport
Georg Imanidis and Hans Leuenberger, University of Basel
15:00 Targeted Modular Fusogenic Liposome Delivery
Systems for Condensed DNA
Andrew S. Janoff, The Liposome Company
15:20 Break
- Session 5b: Biosensors, Therapy, Bioperformance
15:40 Protein-Based 3D Memories and Associative
Processors Duane L. Marcy, Syracuse University, and
Robert Birge, University of Connecticut
16:00 Biocompatible Nanosensor/Actuator for
Electrical Potential Measurements
Roland Hauert, EMPA, Dübendorf
16:20 Biosensors via Colloidal Engineering
Eric W. Kaler, University of Delaware
16:40 Improved Bioperformance of Active Ingredients
by Reducing the Particle Size in Suspensions
(Nanosuspensions) Rolf Hilfiker, Solvias AG, and
Hans W. Haesslin, Novartis Crop Protection Muenchwilten AG
17:00 Electronic, Computational and Biological
Olfaction Alan Gelperin, Bell Laboratories,
Lucent Technologies
17:20 Colloidal Nanosystems for Gene Delivery
Alfred Fahr, University of Basel and Marburg
17:40 Closing Remarks Mihail C. Roco, NSF and
Hans Leuenberger, SNSF/SATW
18:45 Reception, Prospect House, Princeton University
19:30 Banquet Dinner, Prospect House

Saturday, December 16

- 08:30 Coffee/Tea
09:00 Breakout Sessions, NASA Workshop
12:00 Lunch