

Sunday

NanoTech Insight Program



- 09:00 - 12:50 Registration (Z-building Club-room)
- 14:00 - 16:00 Registration (Z-building Club-room)
- 16:00 - 17:30 Mixer
- 17:30 -18:00 Official Conference Opening (Khan El-Khalili Hall)

Opening Session (Khan El-Khalili Hall)

Chaired by: Roland Nolte

- 18:00 - 18:10 Opening Remarks
- 18:10 - 18:50 **Klaus Müllen (MPI-Mainz, Germany)**
Putting the Molecules into Molecular Electronics
- 18:50 - 19:30 **Max Lu (U. Queensland, Australia)**
Novel Method of Synthesis of Mesoporous and
Nanocrystalline TiO₂ for Dye-sensitized Solar Cells
- 19:30 - 20:10 **Paul Hansma (U. of California, USA)**
Lessons for New Nanotechnology from Nature's
Nanotechnology
- 20:10 - 20:50 **Claude Levy-Clement (LCMTR, France)**
A New Eta-solar Cell Based on Free-Standing ZnO/
CdSe Nanowires

Monday

07:30 - 08:10 *Registration (Z-building Club-room)*

Session 1 (Khan El-Khalili Hall)
Chaired by: Frans C. De Schryver

08:20 - 08:30 **Frans C. De Schryver (KU Leuven, Belgium)**

IUPAC Lecture

08:30 - 09:10 **James Gimzewski (UCLA, USA)**

Mechanical Processes Pertaining to Chemistry and Biochemistry on the Nanoscale

09:10 - 09:50 **Alan E. Rowan (RU Nijmegen, The Netherlands)**

Chromophoric Nanoarchitectures

09:50 - 10:30 **Hans Lüth (RC Jülich, Germany)**

Semiconductor Nanodevices for Electronics

10:30 - 10:50 *Coffee break - Exhibition*

Session 2 (Khan El-Khalili Hall)
Chaired by: Hans Lüth

10:50 - 11:30 **Yuris Dzenis (U. Nebraska, USA)**

Novel Continuous Polymer, Carbon, and Ceramic Nanofibers

- Next Carbon Nanotubes of Nanotechnology?

11:30 - 12:10 **Michel Aegerter (INM GmbH, Germany)**

Low and High Temperature Processing of Transparent Coatings Using Suspensions of Crystalline Nanoparticles

12:10 - 12:50 **Harald Fuchs (Uni. Münster, Germany)**

From Molecular Hooks to Complex Nanostructures

12:50 - 13:45 *Lunch*

13:45 - 16:30 **Karnak Tour**

Session 3 (Khan El-Khalili Hall 1)
Chaired by: Max Lu

17:20 - 17:50 **David Amabilino (ICMAB, Spain)**

Chiral Molecular and Supramolecular Materials with Electronic and Magnetic Properties

17:50 - 18:20 **Lionel Vayssieres (NIMS, Japan)**

Hierarchical Design of Advanced 1-D Metal Oxide Nanostructures

18:20 - 18:50 **Jaume Veciana (ICMAB, Spain)**

Self-Assembled Nanoporous Molecular Magnets

18:50 - 20:30 *Free Time*

20:30 - 22:30 **Poster Session 1**

Session 4 (Khan El-Khalili Hall 2)
Chaired by: James Gimzewski

Alexandre Brolo (U. Victoria, Canada)

Metallic Nanostructures and their Application in Nanophotonics and Biosensing

Ihab El-Kady (Sandia National Lab, USA)

Photonic Crystals: From a Nano-size Scientific Novelty to Realizable Hi-Tech. Applications

Johan Hofkens (KU Leuven, Belgium)

Probing Dynamics of Biomolecules by Single Molecule Microscopy

Tuesday

07:30 - 08:20 *Registration (Z-building Club-room)*

Session 5 (Khan El-Khalili Hall)

Chaired by: Hermann Gaub

08:30 - 09:10 **Christoph Bräuchle (LMU München, Germany)**
What Single Molecules Can Tell us About Nano- and Biosystems

09:10 - 09:50 **Alfred Meixner (Uni. Siegen, Germany)**
Towards Understanding and Control of Noble-Metal Nano-Particle Enhanced Spectroscopy

09:50 - 10:30 **Antoine van Oijen (Harvard, USA)**
A Single-Molecule View of DNA Replication

10:30 - 10:50 *Coffee break - Exhibition*

Session 6 (Khan El-Khalili Hall)

Chaired by: Paul Ziemann

10:50 - 11:30 **Beng Ong (Xerox, Canada)**
From Structured Nanoparticles to Printed Transistor Circuits: Gateway to Low-cost, Structurally Inspiring Electronics

11:30 - 12:10 **Alberto Credi (Uni. di Bologna, Italy)**
Artificial Molecular-level Devices and Machines

12:10 - 12:50 **Eric Garfunkel (Rutgers, USA)**
Interface Composition and Band Alignment in Nano-electronics

12:50 - 14:00 *Lunch*

Session 7 (Khan El-Khalili Hall 1)

Chaired by: Klaus Müllen

14:30 - 15:00 **Zineb Mekhalif (FUNDP, Belgium)**
Self-Assembly Chemistry on Active Metals Based on Organothiols and Organoselenols

15:00 - 15:30 **Concepció Rovira (CSIC, Spain)**
Organic Field-Effect Transistors and Transparent Metallic Films Based on Organic Molecules

15:30 - 16:00 **Dirk Kurth (MPI, Germany)**
From Molecular Modules to Modular Materials

16:00 - 16:30 **Avik Ghosh (Purdue, USA)**
Molecular Electronics
- Formal and Computational Challenges

16:30 - 16:50 *Coffee Break - Exhibition*

Session 8 (Khan El-Khalili Hall 2)

Chaired by: Alfred J. Meixner

Robert Ros (Uni. Bielefeld, Germany)
Single Molecule Recognition: From Transcriptional Regulation to Supramolecular Chemistry

Detlev Grützmacher (Paul Scherrer Inst., Switzerland)
Self Assembled Si-Ge Nanostructures

Hiroshi Yamaguchi (NTT Basic Research Labs, Japan)
Low-dimensional Micro/Nanomechanical Systems

Peter Hänggi (Uni. Augsburg, Germany)
Controlling Current and Shot Noise through Molecular Wires

Tuesday cont.

Session 9 (Khan El-Khalili Hall 1) Chaired by: Alan E. Rowan		Session 10 (Khan El-Khalili Hall 2) Chaired by: Yuris Dzenis	
16:50 -17:10	Ioannis J. A. Arvanitidis (Aristotle Uni. Thessaloniki, Greece) Pressure Response of the Double-Wall Carbon Nanotubes Studied by Raman Spectroscopy	Wei Chen (National U. Singapore, Singapore) Carbon Nanomesh: Its Atomic Structure and Applications	
17:10 - 17:30	Carla Bittencourt (FUNDP, Belgium) Nano-WO ₃ Powder Doped with Carbon Nanotubes: Analysis and Sensing Application	Ahmed Abou-Kandil (NIS, Egypt) Importance of Mesophases in Polymer Crystallisation	
17:30 - 17:50	Walid H. Awad (NIS, Egypt) Recent Advances in Flame Retardant Polymer Nanocomposites	Sharifah Bee Abd Hamid (COMBICAT, U. Malaya, Malaysia) Nanocatalysis: A Paradigm Shift In Synthesis Approach	
17:50 - 18:10	Rabah Boukherroub (CNRS, France) Controlled Silicon Nanowire Growth on Si(111)	Mikala Grubb (TU Denmark, Denmark) Properties and Hybridisation of DNA-Based Molecules towards the Single-Molecule	
18:10 - 18:30	Ruey-an Doong (Tsing Hua Uni., Taiwan) Synthesis and Characterization of Quantum-Sized TiO ₂ -ZrO ₂ Photocatalyst Prepared by a Non-Hydrolytic Sol-Gel Method	Andreas Kiebele (U. of Basel, Switzerland) Supramolecular C ₆₀ /Porphyrin Assemblies on Metals	
18:30 - 18:50	Jens Ebbecke (Uni. Augsburg, Germany) Utilization of Carbon Nanotubes by Surface Acoustic Waves	Heidi Van den Rul (IMEC/IMOMECE, Belgium) Aqueous Solution Synthesis of Nanostructured Multimetal oxides	
18:50 - 20:30	<i>Free Time</i>		
20:30 - 22:30	Poster Session 2		

Wednesday

Session 11 (Khan El-Khalili Hall) Chaired by: Harald Fuchs	
08:30 - 09:10	Thomas Basché (Uni. Mainz, Germany) Single Molecule Spectroscopy of Molecular Aggregates: New Insights into Energy Transfer Processes
00:10 - 09:50	Hermann E. Gaub (LMU München, Germany) Single Molecule Force Spectroscopy by AFM-related Techniques
09:50 - 10:30	Roeland J. M. Nolte (RU Nijmegen, The Netherlands) Nanosized Architectures by Programmed Assembly
10:30 - 10:50	<i>Coffee Break - Exhibition</i>

Wednesday cont.1

Session 12 (Khan El-Khalili Hall 1) Chaired by: Alberto Credi		Session 13 (Khan El-Khalili Hall 2) Chaired by: Roberto Lazzaroni	
10:50 - 11:20	Jingdong Zhang (DTU, Denmark) Self-assembled Monolayers of Organic Molecules and Proteins Revealed by in situ STM and Electrochemistry		Raouf Loutfy & S. Katagiri (Fullerene Int. Corp., USA) NanoCarbon Materials Road Map to Commercialization
11:20 - 11:50	Steven De Feyter (KU Leuven, Belgium) Supramolecular Chemistry at the Liquid-Solid Interface Probed by STM		Wenhui Song (Brunel U., UK) Size-Dependent Nematic Liquid Crystallinity of Multiwall Carbon Nanotubes
11:50 - 12:20	Masahiro Yamashita (Tohoku U., Japan) Direct Observation of Soliton, Charge Density Wave State, and Mott-Hubbard State in Ni-Pd Mixed-Metal Nano-Wire Complexes by STM		Achim Wixforth (Uni. Augsburg, Germany) Flat Fluidics: Programmable On-Chip Networks for Biological and Chemical Applications
12:20 - 12:50	Federico Rosei (U. Québec, Canada) Nanostructured Materials: from Quantum Dots to Organic Molecules		Sulabha Kulkarni (Uni. Pune, India) Functionalized and Patterned Core Shell Particles
12:50 - 14:30	<i>Lunch</i>		
Session 14 (Khan El-Khalili Hall 1) Chaired by: Thomas Basché		Session 15 (Khan El-Khalili Hall 2) Chaired by: Maria Anita Rampi	
14:30 - 14:50	Irshad I. Hussain (Liverpool/NIBGE, UK/Pakistan) Gold Nanoparticles as Building Blocks for Advanced Materials Fabrication		Lars Montelius (Lund U., Sweden) Nerve Cell Cultured on Monolithic Gallium Phosphide Nanowires
14:50 - 15:10	Stefan Thalhammer (LMU München, Germany) Generation of Molecular Probes for Nanomedical Applications		Qijin Chi (TU Denmark, Denmark) Nanoscale and Single-molecule Interfacial Electron Transfer of the Blue Copper Protein Azurin with Well-controlled Molecular Orientations on Single-Crystal Gold Surfaces
15:10 - 15:30	Ulo Kersen (TU Helsinki, Finland) Synthesis and Characterization of Nanocrystalline Iron Molybdate Aerogels		Frank Cichos (TU Chemnitz, Germany) Manipulating the Emission Intermittency of Single Chromophores
15:30 - 15:50	Shih-Chieh Liao (ITRI, Taiwan) Novel Synthesis and Properties of Nanostructured ZnO		Anne-Sophie Duwez (UC de Louvain, Belgium) Designing AFM Tips for Playing Mechanochemistry on Single Molecules
15:50 - 16:10	Devinder Mahajan (NYSUSB, USA) Designer Synthesis and Characterization of Confined Metal Nanoparticles		Jun Kozuka (Osaka U., Japan) Dynamic Polymorphism of Actin Conformation
16:10 - 16:30	Sabine Szunerits (Grenoble, France) A New Approach to Writing and Reading of Oligonucleotide Gradients on Gold Surfaces: Combining Surface Plasmon Resonance Imaging (SPR-i) with Scanning Electrochemical Microscopy (SECM).		Albert R. Zink (LMU, Germany) Estimation of Bloodstain Age in Forensic Applications by Atomic Force Microscopy

Wednesday cont.2

16:30 - 16:50 *Coffee Break - Exhibition*

Session 16 (Khan El-Khalili Hall 1) Chaired by: Jaume Veciana		Session 17 (Khan El-Khalili Hall 2) Chaired by: Johan Hofkens	
16:50 -17:10	Michel Marso (RC Jülich, Germany) GaN Nanocolumns: Growth and Electrical Transport	Yeni Astuti (Imperial College London, UK) Bio-Functionalized Nanostructured Metal Oxide Electrodes	
17:10 - 17:30	Atsushi Miura (Nara Institute, Japan) Selective and High-density Ferritin Deposition for Bio-nano-processed Device Operation	Yehya Ghallab (U. of Calgary, Canada) A Lab-on-a-Chip for BioCells and DNA Analysis	
17:30 - 17:50	Ruey-an Doong (Tsing Hua Uni., Taiwan) Fabrication of Sol-Gel Derived Ordered Porous Silica Films with Tunable Film Thickness	Irina C. Kleps (IMT-Bucharest, Romania) Nanostructured Silicon Elements for Lab-on-Chip Applications	
17:50 - 18:10	Chia-Jean Wang (Uni. Washington, USA) Self-assembled Nanophotonic Waveguides by DNA Hybridization	Raphael Levy (U. of Liverpool, UK) Expanding the Peptide Toolbox for Nanobiotechnology: Protein-like Gold Nanoparticles	
18:10 - 18:30	Abdul Kadir Masrom (SIRIM Berhad, Malaysia) Electron Microscopy Investigation on Formation of Nanowires, Nanotubes and Nanocrystallite SiC in Mechanically Milled Si and C Mixture.	Azam Iraj Zad (Sharif U. of Technology., Iran) Size Control of CdS Nanoparticles by UV Illumination and Capping Agent	
18:30 - 18:50	Johannes Boneberg (Konstanz, Germany) Nanostructures Illuminated by Intensive Laser Pulses	Veronique Abad Langlais (Univ. Autonoma de Barcelona, Spain) Self-Organization of Calix[4]arene and (1x2) to (1x3) Induced Reconstruction of the Au(110)Substrate	
18:50 - 20:00	<i>Free Time</i>		
20:00 - 23:00	Banquet		

Thursday

Session 18 (Khan El-Khalili Hall) Chaired by: Paul Hansma	
09:00 - 09:40	Roberto Lazzaroni (Uni. Mons, Belgium) Functional Organic Nanostructures via Block Copolymer Self-assembly
09:40 - 10:20	Christian von Borczyskowski (TU Chemnitz, Germany) Semiconductor-dye Nanoassemblies
10:20 - 11:00	Maria Anita Rampi (Uni. di Ferrara, Italy) Correlations of Electrical Properties and Molecular Structure Measured by Junctions Incorporating Self Assembled Monolayers
11:00 - 11:20	<i>Coffee Break - Exhibition</i>

Thursday cont.1

Session 19 (Khan El-Khalili Hall 1) Chaired by: Antoine van Oijen		Session 20 (Khan El-Khalili Hall 2) Chaired by: Beng Ong	
11:20 - 11:40	Franca Morazzoni (Milano-Bicocca, Italy) CO Interaction with Tin Dioxide Inverted Opals for Gas Sensors: Electron Paramagnetic Resonance Study	Jia Lu (U. of California, Irvine, USA) Field Effect Nanotransistor and Nanosensor	
11:40 - 12:00	Dragan Mihailovic (Jozef Stefan Institute, Slovenia) MoSiX Nanowires: A User-friendly New Nano-material	Tasuku Ito (Tohoku U., Japan) Triruthenium Cluster Oligomers That show Multi-step-Multielectron Transfer	
12:00 - 12:20	Madoka Tokumoto (National Inst. of Sci. & Tech., Japan) Nonlinear Optical Property of Carbon Nanotubes and its Application as Saturable Absorbing Device for Optical Fibre Communication	ShuoWang Yang (Inst. of High Performance Computing, Singapore) DFT Calculation for a Novel Ferrocene Sandwich Quantum Wire	
12:20 - 12:40	Hainer Wackerbarth (TU Denmark, Denmark) Biological Building Blocks for Nano-Devices	Marc Bockrath (California Institute of Technology, USA) Nanoscale Electronics and Mechanics	
12:40 - 13:00	Chun-Ru Wang (Chinese Academy of Sciences, China) Construct Fullerene and Metallofullerene Nanostructures at Room Temperature	Joon Kyung Jang (Pusan National U., South Korea) The Effect of Tip Roughness on the Capillary Force in Atomic Force Microscopy	
13:00 - 13:20	Jingbo Wang (U. of Western Australia, Australia) Multi-electron Quantum Dot Structures	Andriy Kyrlyuk (Leiden U., Netherlands) Challenges for Hybrid Molecular-Nanoscale Modelling: "Culgi" for CAPELLA	
13:20 - 15:00	<i>Lunch</i>		
Session 21 (Khan El-Khalili Hall 1) Chaired by: Lionel Vayssieres		Session 22 (Khan El-Khalili Hall 2) Chaired by: Raouf Loutfy	
15:00 - 15:30	Minqian Li (Chinese Academy of Sciences, China) Molecular Surgery of single DNA Molecules and its Applications	Vladimir Jovic (Microsoft, USA) Learning Self-assembly	
15:30 - 16:00	David Drabold (Ohio U., USA) Amorphous Materials: Modeling and Nanoscale Order	Kristen Kulinowski (Rice U., USA) Nanotechnology and Policy: Mapping the Political and Public Landscape	
16:00 - 16:30	D. D. Sarma (IIS, India) Electronic Structure and Photoemission Investigation of Semiconducting Nanocrystals	Alexander Bittner (MPI, Germany) Viruses as Templates for Nanostructures	
16:30 - 17:00	Hicham Fenniri (U. Alberta, Canada) Self-Assembled Organic Nanotubes with Tunable Dimensions and Properties	Mehmet Sarikaya (U. Washington, USA) Synthetic Biology: Protein-based Materials Science and Engineering	

Thursday cont.2

17:00 - 17:20 *Coffee Break - Exhibition*

Closing Session 23 (Khan El-Khalili Hall 1)
Chaired by: Mohamed Abdel-Mottaleb

17:20 - 18:00 **Paul Ziemann (Ulm, Germany)**
The Selforganization of Metal-Loaded Diblock-Copolymers:
A Tool to Prepare Ordered Arrays of Metallic Nanoparticles

18:00 - 18:20 **Mohamed Abdel-Mottaleb**
(Egypt/Germany)
Closing Remarks

Friday

08:30 - 16:00 **Conference Excursion**

C o n f e r e n c e E n d s

Saturday

Post-Conference Tour to Aswan begins