

Singapore - UCSB Workshop

**National University of Singapore Nanoscience and Nanotechnology Initiative,
Institute of Materials Research and Engineering,
Materials Research Laboratory, California NanoSystems Institute
& Biomolecular Science and Engineering**

April 19, Morning

- 8:30 am Welcome and Introduction
 Daniel E. Morse, Institute for Collaborative Biotechnologies;
 Molecular, Cellular and Developmental Biology & BMSE, UCSB
- 9:00 am Overview of Programs at NUSNNI and IMRE: Nanoscience and Nanotechnology Initiative
 Seeram Ramakrishna, NUSNNI and Dean of Engineering, NUS
 Soo Jin Chua, Deputy Director, IMRE.
- 9:30 am Overview of Programs at UCSB's Materials Research Laboratory, California NanoSystems Institute and Biomolecular Science and Engineering Program
 Glenn Fredrickson, Assoc. Director, MRL, UCSB,
 Evelyn Hu, Director, CNSI, UCSB
 Philip Pincus, Director, BMSE, UCSB

10:00 am *Refreshment Break*

Session I - Nanostructures and Nanomaterials

(Moderator: Daniel Morse)

- 10:30 am Template-assisted fabrication of dense arrays of nanowires and nanotubes with well-controlled dimensions on substrates
 Melissa Sander, Micro- and Nano- Systems Cluster, IMRE
- 11:00 am Carbon nanowalls and the associated materials
 Wu Yihong, Electrical and Computer Engineering, NUS

Special 2004 IUMRS Award Commemorative Lecture

- 11:30 am Making and manipulating nanomaterials through soft chemistry
 C.N.R. Rao, CSIR Centre of Excellence in Chemistry;
 Chemistry and Physics of Materials Unit,
 Jawaharlal Nehru Centre for Advanced Scientific Research

12:15 pm *Lunch*

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April 19, Afternoon

Session I - Nanostructures and Nanomaterials (cont'd.)

(Moderator: Seeram Ramakrishna)

- 1:30 pm DNA binding by aggregates of peptide-lipid conjugates.
 Matthew Tirrell, Dean, College of Engineering, UCSB
- 2:00 pm Nanofabrication of polymeric 3_D structures with imprinting techniques.
 Albert Yee, California Institute of Telecommunications and Information
 Technology; Chemical Engineering and Materials Science, UC Irvine
- 2:30 pm Field-theoretic computer simulations of nanostructured soft materials
 Glenn Frederickson, MRL, UCSB
- 3:00 pm *Refreshment Break***
- 3:30 pm High coercivity in nanostructured cobalt-ferrite thin films
 Ding Jun, Materials Science, NUS
- 4:00 pm New biosensor strategies based on light harvesting water soluble conjugated
 polymers.
 Guillermo C. Bazan, Institute for Polymers and Organic Solids,
 Department of Chemistry
- 4:30 pm Poster Session and Reception (Engineering II Pavilion)**
- 7:00 pm Symposium Banquet (Faculty Club)**

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April 20, Afternoon

Session III - Biomaterials and Bionanotechnology (cont'd)

(Moderator: Evelyn Hu)

1:30 pm Lessons from nature: From mimicking to engineering of functional materials
Liu Xiang Yang, Physics, NUS

2:00 pm Self assembly of nanotubes from DNA tiles
Deborah Fygenon, Physics, UCSB

2:30 pm Nanoparticles of biodegradable polymers for cardiovascular tissue repair
Feng Si-Shen, Chemical and Biomolecular Engineering, NUS

3:00 pm *Refreshment Break*

3:30 pm Microtubule dynamics and the regulation of dynamics by microtubule-associated
proteins and drugs
Leslie Wilson, BMSE and Molecular, Cellular & Developmental Biology,
UCSB

4:00 pm Nanomechanics of biological structures and biomaterials
Lim Chwee Teck, Mechanical Engineering/Bioengineering, NUS

Session IV - Sensors and Nanoscale Devices

(Moderator: Suresh Valiyaveetil)

4:30 pm Folding-based optical and electronic biosensors
Kevin Plaxco, Chemistry and Biochemistry, UCSB

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April 21, Morning

Session IV - Sensors and Nanoscale Devices (cont'd)

(Moderator: Luc Jaeger)

9:00 am Highly luminescent alloyed quantum dots and high-throughout analysis of genes and proteins

Mingyong Han, Nanoscience and Nano-Biotechnology, NUS and IMRE

9:30 am Engineering nanostructures for single molecule detection

Martin Moskovits, Dean of Science and Mathematics, UCSB

10:00 am Refreshment Break

10:30 am Development of carbon nanotube-based nanosensor for bio-molecular detection

Sheu Fwu-Shan, Biological Sciences, NUS

11:00 am Nucleic-acid/quantum dot hybrids: new sensors, new molecular electronics

Norbert Reich, Chemistry and Biochemistry, UCSB

11:30 am Greetings from Dr. Henry Yang, Chancellor, UCSB

Lunch

Session V - Entrepreneurship and the Industrial Development of Research Discoveries

(Moderator: Glenn Frederickson)

1:00 pm From the lab to the market place

Timothy Schwartz, Director,

Center for Entrepreneurship and Engineering Management, UCSB

1:30 pm Closing Reception