

IUPAC Workshop on Advanced Materials

The First Workshop (WAM1): Nanostructured Systems
(July 15 – 17, 1999; Hong Kong)

Chair: M. A. El-Sayed, Georgia Institute of Technology

Workshop Program

Abbreviations used below: PL: Plenary; S: Synthesis; P: Properties; (T), (F), (S): Thurs, Fri, Sat

Meeting Location: **Academic Building; Lecture Theaters F & G**

The Hong Kong University of Science & Technology (HKUST), Clear Water Bay, Hong Kong

Wednesday, July 14

Afternoon

Room Assignment and receiving workshop material will be at the place of your accommodation

Evening 7:30 PM – 9:00 PM

Informal Social Mixing: meeting fellow conferees
Location: by the coffee shop in the Academic Concourse

Thursday, July 15

Morning 9:00 AM – 12:30 PM

Plenary Session I

Lecture Theater F

Session 1PL(I)

Chair: Mostafa El-Sayed

9:00 AM – 9:30 AM

Opening Remarks

Mostafa El-Sayed, Conference Chairman

Leroy Chang, Vice President, Hong Kong University of Science & Technology

Joshua Jortner, President, IUPAC

9:30 AM – 10:10 AM

PL(T)-1 Perspectives in Molecular Electronics
Joshua Jortner, Tel Aviv University, Israel

10:20 AM – 10:50 AM

Coffee Break

Session 2PL(I)

Chair: Art Nozik

10:50 AM – 11:30 AM

PL(T)-2 Small is Different: Size Evolution of Physical and Chemical Properties
Uzi Landman, Georgia Institute of Technology, U.S.A.

11:40 AM – 12:20 PM

PL(T)-3 Nanocrystals as Building Blocks for New Materials and Electrical Devices
A. Paul Alivisatos, University of California-Berkeley, U.S.A.

12:30 PM – 2:00 PM Lunch

Afternoon 2:00 PM – 5:30 PM

Synthesis and Processing I

Lecture Theater F

Session 1S(T)

Chair: Ryong Ryoo

2:00 PM – 2:25 PM

S(T)-1 Design and Modeling of Novel Purpose-Built Metal Oxide Nanostructured Materials
L. Vayssieres, University of Uppsala, Sweden

2:30 PM – 2:55 PM

S(T)-2 Supraaggregate Made with Surfactant-Water-Oil Solution
Marie-Paule Pileni, Universite Pierre et Marie Curie, Paris, France

3:00 PM – 3:25 PM

S(T)-3 Particles Size Control and Size Dependent Properties of Magnetic Spinel Ferrite
Nanoparticles
Z. John Zhang, Georgia Institute of Technology, U.S.A.

3:30 PM – 4:00 PM

Coffee Break

Session 2S(T)

Chair: Alex Eychmueller

4:00 PM – 4:25 PM

S(T)-4 Synthesis of Semiconductor and Metal Oxide Nanoparticles by a Laser Vaporization-
Controlled Condensation Technique
M. Samy El-Shall, Virginia Commonwealth University, U.S.A.

4:30 PM – 4:55 PM

S(T)-5 Silica Coated Metals and Semiconductors - Stabilization and Nanostructuring
Luis M. Liz-Marzan, Universidade de Vigo, Spain

5:00 PM – 5:25 PM

S(T)-6 Nanostructured Metal Oxide Electrodes for Electrochemical Applications
A. Hagfeldt, University of Uppsala, Sweden

Properties and Physical Methods I

Lecture Theater G

Session 1P(T)

Chair: Ping Sheng

2:00 PM – 2:25 PM

P(T)-1 The fate of the high density charge carriers formed in short time in the confined space of
a CdSe nanoparticle
Clemens Burda, Georgia Institute of Technology, U.S.A.

2:30 PM – 2:55 PM

P(T)-2 Optically Detected Magnetic Resonance Measurements of II-VI Nanocrystals
Efrat Lifshitz, Technion - Israel Institute of Technology, Israel

3:00 PM – 3:25 PM

P(T)-3 Effect of Nanostructured Supports on the Catalytic Methane Decomposition
J. Lin, National University of Singapore, Singapore

3:30 PM – 4:00 PM

Coffee Break

Session 2P(T)

Chair: Z. Q. Tian

4:00 PM – 4:25 PM

P(T)-4 Spectroscopy of Colloidal InP and Strain-Induced Stranski-Krastinow GaAs Quantum
Dots
Arthur J. Nozik, National Renewable Energy Laboratory, U.S.A.

4:30 PM – 4:55 PM

P(T)-5 Femtosecond Studies of Charge Carrier Dynamics in Semiconductor Nanoparticles
Jin Z. Zhang, University of California, Santa Cruz, U.S.A.

5:00 PM – 5:25 PM

P(T)-6 Semiconductor Nanowires: Synthesis, Structure and Properties
S. T. Lee, City University of Hong Kong, China

Evening 6:30 PM – 8:30 PM

Conference Reception

Location: Open Sea-View Platform

Friday, July 16

Morning 9:00 AM – 12:50 PM

Plenary Session II

Lecture Theater F

Session 1PL(II)

Chair: Z. John Zhang

9:00 AM – 9:40 AM

PL(F)-1 Nanotubes and Metal Nanoparticles
C.N.R. Rao, Indian Institute of Science, Indian

9:50 AM – 10:30 AM

PL(F)-2 DNA: An Emerging Motif in the synthesis of Nanostructured Materials
Chad Mirkin, Northwestern University, U.S.A.

10:40 AM – 11:10 AM

Coffee Break

Session 2PL(II)

Chair: Samy El-Shall

11:10 AM – 11:50 AM

PL(F)-3 Self-selecting Quantized Metal Nanostructures in Chemistry and Electronics
Robert Whetten, Georgia Institute of Technology, U.S.A.

12:00 noon – 12:40 PM

PL(F)-4 Nanointegration and Novel Material Growth through Si Surface Structure Control
T. Ogino, NTT Basic Research Laboratories, Japan

12:50 PM – 2:30 PM Lunch

Afternoon 2:30 PM – 5:30 PM

Synthesis and Processing II

Lecture Theater F

Session 1S(F)

Chair: Z. L. Wang

2:30 PM – 2:55 PM

S(F)-1 Sodium Doped Silicon Clathrate as a Potential High Efficient Thermoelectric Material
J. S. Tse, Steacie Institute for Molecular Sciences, Canada

3:00 PM – 3:25 PM

S(F)-2 Preparation and Characterization of Oriented PbS Nanorods in Polymer Films

Shihe Yang, Hong Kong University of Science and Technology, China

3:30 PM – 4:00 PM
Coffee Break

Session 2S(F)
Chair: A. Hagfeldt

4:00 PM – 4:25 PM
S(F)-3 Demonstration of Photoluminescence around 1.55 μm from a Colloidal Solution of HgTe Nanocrystals
M. T. Harrison, BT Laboratories, UK

4:30 PM – 4:55 PM
S(F)-4 Large Scale Synthesis, Characterizations and Physical Property of One Dimensional Nano Structures
Da Pen Yu, Peking University, Beijing, China

5:00 PM – 5:25 PM
S(F)-5 Template Synthesis of Platinum Nanowires and Their Low-Temperature Melting Behavior
Ryong Ryoo, Korea Advanced Institute of Science and Technology, Korea

Properties and Physical Methods II

Lecture Theater G

Session 1P(F)
Chair: Yu Glinka

2:30 PM – 2:55 PM
P(F)-1 Linear-scaling localized density matrix method and optical properties of carbon nanotubes
Guan Hua Chen, University of Hong Kong, China

3:00 PM – 3:25 PM
P(F)-2 Alkali metal doped carbon nanotubes as hydrogen storage media
Ping Chen, National University of Singapore, Singapore

3:30 PM – 4:00 PM
Coffee Break

Session 2P(F)
Chair: Jianyi Lin

4:00 PM – 4:25 PM
P(F)-3 Measurement the Properties of Individual Carbon Nanotubes
Z. L. Wang, Georgia Institute of Technology, U.S.A.

4:30 PM – 4:55 PM

P(F)-4 Surface-Enhanced Raman Scattering from Ordered Arrays of Nanowires of Transition Metals

Z. Q. Tian, Xiamen University, China

5:00 PM – 5:25 PM

P(F)-5 Photophysics and Spectroscopy of Metal Particles

G. V. Hartland, University of Notre Dame, U.S.A.

5:30 PM – 7:00 PM Dinner

Evening 7:30PM – 9:30 PM

Poster Session

Chair: Nai-Teng Yu

Location: Front of Lecture Theater D and E

Saturday, July 17

Morning 9:00 AM – 12:30 PM

Plenary Session III

Lecture Theater F

Session 1PL(III)

Chair: Jin Zhang

9:00 AM – 9:40 AM

PL(S)-1 Manipulating Charges in Nanostructured Semiconductors
Jorg Kotthaus, University of Munich, Germany

9:50 AM – 10:50 AM

Coffee Break and Poster Discussion

Session 2PL(III)

Chair: Robert Whetten

10:50 AM – 11:30 AM

PL(S)-2 Progress toward a Chemically Assembled Electronic Nanocomputer
James Heath, University of California-Los Angeles, U.S.A.

11:40 AM – 12:20 AM

PL(S)-3 Chemistry, Physics and Economics of Information: How Defect Tolerant Architectures May Enable a New Generation of Self Assembled Electronics
Stanley Williams, Hewlett-Packard Co. U.S.A.

12:30 PM – 2:00 PM Lunch

Afternoon 2:00 PM – 5:30 PM

Synthesis and Processing III

Lecture Theater F

Session 1S(S)

Chair: Marie-Paul Pileni

2:00 PM – 2:25 PM

S(S)-1 Polymeric Nanostructured Composite Film
Jiacong Shen, Jilin University, China

2:30 PM – 2:55 PM

S(S)-2 Novel Polymer/Nanoparticle Hybrid Materials
SonBinh Nguyen, Northwestern University, U.S.A.

3:00 PM – 3:25 PM

S(S)-3 A Novel Nanodes Array Fabricated by the Template of Porous Alumina
K. H. Xue, Nanjing Normal University, China

3:30 PM – 4:00 PM

Coffee Break

Session 2S(S)

Chair: Efrat Lifshitz

4:00 PM – 4:25 PM

S(S)-4 Thiol-Stabilized II-VI Semiconductor Nanocrystals
Alex Eychmueller, University of Hamburg, Germany

4:30 PM – 4:55 PM

S(S)-5 Binary Complementary Nanoscale Interfacial Materials
Lei Jiang, Chinese Academy of Sciences, China

5:00 PM - 5:25 PM

S(S)-6 Interfacial Chemistry in Self-Assembled Nanoscale Materials
Jun Liu, Pacific Northwest Laboratory, U.S.A.

Properties and Physical Methods III, P(S)

Lecture Theater G

Session 1P(S)

Chair: Naoki Toshima

2:00 PM – 2:25 PM

P(S)-1 Fields Induced Martensitic Transition in Mesocrystallites
Ping Sheng, Hong Kong University of Science and Technology, China

2:30 PM – 2:55 PM

P(S)-2 Phase Stability and Host Guest Chemistry in Ordered Silica/Surfactant Composites and Nanoporous Silicas

Sarah H. Tolbert, University of California, Los Angeles, U.S.A.

3:00 PM – 3:30 PM

Coffee Break

Session 2P(S)

Chair: Gregory Hartland

3:30 PM – 3:55 PM

P(S)-3 Development of Nanostructured Materials with Macroscopic Processibility, Electrical Conductivity, and Magnetic Susceptibility

Ben Zhong Tang, Hong Kong University of Science and Technology, China

4:00 PM – 4:25 PM

P(S)-4 Core/Shell-Structured Bimetallic Nanocluster Catalysts for Visible Light-Induced Electron Transfer

Naoki Toshima, Science University of Toyko in Yamaguchi, Japan

4:30 PM - 4:55 PM

P(S)-5 Comparison between Chemical Force Microscopies by Friction and Adhesion.

Masamichi Fujihira, Tokyo Institute of Technology, Japan

5:00 PM - 5:25 PM

P(S)-6 Quantum Confinement Effect on Two-Photon-Produced Excitons in SiO₂-based Nanoscale

Yu. D. Glinka, IAMS Academia Sinica, Taiwan

Evening

6:00 PM

1) Boat Tour of Hong Kong Bay

2) Conference Banquet

Location: Pick up at the campus of HKUST

POSTERS

Ah, Chil Seong, Seoul National University, Korea: Photophysics of Mn-Doped ZnS Nanoparticles

Duan, Xiangfeng, Harvard University, USA: General Synthesis of Binary and Ternary Compound Semiconductor Quantum Wires

Enriquez, Erwin P., Ateneo de Manila University, Philippines: A Polysaccharide Template for Synthesis of Semiconductor Nanoparticles

Guo, Guolin, Peking University, China: Electrochemical Preparation and Structural Characterization of CdS Nanowire

Jang, Du-Jeon, Seoul National University, Korea: Photochemistry of Dodecanthiol-Derivatized Silver Nanoparticles

Kim, Kwan, Seoul National University, Korea: Dodecanethiol-Derivatized Au/Ag Bimetallic Nanoparticles: TEM, UV/VIS, XPS, and FTIR Analysis

Mou, Chung-Yuan, National Taiwan University, Taiwan: Hierarchical Organization of Mesoporous MCM-41 Ropes

Park, Joon Woo, Ewha Womans University, Korea: Bimodal Inclusion Complexation and Photoinduced Electron Transfer Reactions of Naphthalene-tethered β -Cyclodextrins with Alkyl Viologens

Pastoriza-Santos, Universidade de Vigo, Spain: Self-Assembly of Silver Particle Monolayers on Glass from Ag^+ Solutions in DMF

Xu, Dongsheng, Peking University, China: Optical Absorption of Oxidized Free-standing Porous Silicon Films

Zhang, Kai, Universitat Hamburg, Germany: Distribution Characterization of Self-assembled InAs Quantum Dots on GaAs (001)

Zimmerman, Claus G., University of Illinois, USA: Nanoscale Phenomena in the Interaction of Metal Nanoparticles with Single Crystalline Substrates