

NANOTECHNOLOGY BUSINESS OPPORTUNITIES FORUM

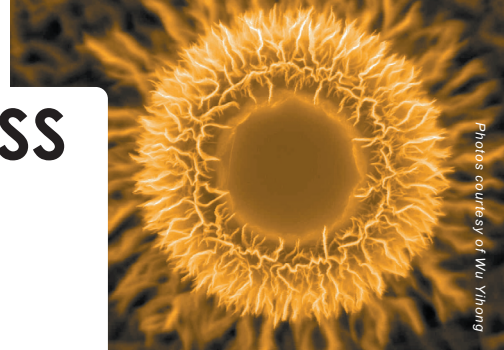
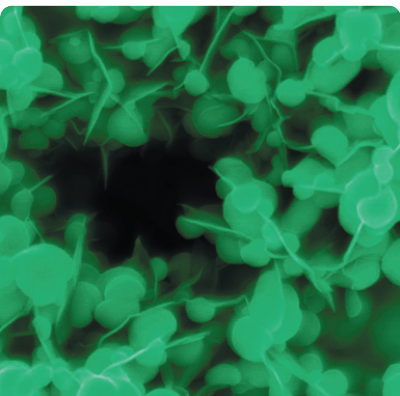
MERITUS MANDARIN, SINGAPORE

16th July 2004

Fee: SGD 380 nett (inclusive of lunch)

For enquiries and registration, please contact Ms Kelly CHONG of

Meet Matters International at kpchong@meetmatt.net or Tel 6466 5775 Ext 222



Photos courtesy of Wu Yihong

Invitation from Organizers

"Nanotechnology may well rival the development of the transistor or telecommunications in its ultimate impact."

– Charles M. Vest, President, Massachusetts Institute of Technology

"Nanotechnology has given us the tools. . .to play with the ultimate toy box of nature – atoms and molecules. Everything is made from it. . . .The possibilities to create new things appear limitless. . ."

– Horst Stormer, Nobel Laureate, Columbia University & Lucent Technologies

Nanotechnology is making the great leap forward from the laboratory to the factory floor. Near-future nanotechnology applications involve everything from scratch-proof surface coating to internal drug delivery systems. If you are interested to explore these opportunities, you are invited to attend the "Nanotechnology Business Opportunities Forum" in Meritus Mandarin on 16 July 2004.

The one-day Forum is part of the three-day international conference - Nanotech 2004 (www.nanotech2004.org). The Forum is especially tailor-made for busy people working in industry and business to meet academics and gain some insight into nanotechnology within a single day. In the plenary session in the morning, five keynote speakers will tell you the latest nanotechnology developments in many parts of the world including Singapore, and the 8 break-up sessions in the afternoon will feature areas with good business potential, including:

- Nanometrology
- Nanostructured Materials
- Nanofabrication & Nano-devices
- Nano-photonics & Nano-optoelectronics
- Computational Nanoelectronics
- Nanoimprinting & Nanolithography

The Forum has already attracted good participation from industry. The participating companies include not only the biggest names such as FEI, Veeco, Carl Zeiss, Raiith, Shimadzu and IBM but also new nanotechnology start-ups such as Molecular Imprints from USA and WITec from Germany. Hope you will participate as well.

Prof. Wei ZHOU

Nanyang Technological University (NTU)

Chair, Organizing cum Technical Committee

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Institute of Bioengineering & Nanotechnology

Program for Nanotechnology Business Opportunities Forum

Friday, 16 July 2004

Plenary Session

Ballroom 3, Meritus Mandarin
Level 8 – South Tower

- 09:00 Opening
- 09:10 Keynote Nanotechnology Applications in Singapore and the Region - NanoFrontier
Prof. Bryan Ngoi
Director of Nanoscience & Nanotechnology Corridor, Nanyang Technological University, and
Director of NanoFrontier (EDB-sponsored nanotech company)
- 09:40 Keynote Progress of Nano Science and Technology in China
Prof Chunli Bai
Key laboratory of Molecular Nanostructure and Nanotechnology, Academician &
Deputy President, Chinese Academy of Sciences
- 10:10 Break - Ballroom 1, Level 6 - South Tower
- 10:40 Keynote 35-MPP-A1030
Nanostructure Processing of Advanced Biomaterials
Prof. Jackie Ying
Director, Institute of Bioengineering and Nanotechnology
- 11:10 Keynote Nanostructured Materials: from Quantum Dots to Organic Molecules
Prof. Federico Rosei
Canada Research Chair in Nanostructured Organic and Inorganic Materials,
Université du Québec, Canada
- 11:40 Keynote 35-GEN-M182
Nano-technology under the Microscope: Advanced Particle Beam Technologies
for Nano-characterization and Nano-fabrication
Dr. Jens Greiser
Strategic Marketing Manager, FEI Company, Eindhoven, Netherlands
- 12:10 Lunch - Mandarin Court, Level 4 - Main Tower

Break-up session A1 - Nanofabrication & Nano-devices

Ballroom 3, Meritus Mandarin
Level 8 – South Tower
Chair: Dr Hongyu ZHENG

- 13:50 Invited
35-FUT-A709
Artifacts in Transmission Electron Microscope Specimens Prepared Using the Focused
Ion Beam Miller
Prof. Paul Munroe, Dr. Julie Cairney, Dr. Sergey Rubanov,
University of New South Wales, Australia
- 14:15 Invited
35-GEN-M163
Fabrication and Photochromism Property of Ag Doped TiO₂ Thin Films
L. Miao, T. Watanabe, S. Tanemura, T. Jiang, P. Jin, M. Mori, S. Toh, K. Kaneko, Nagoya
Institute of Technology, Japan
- 14:40 Invited
35-OTH-M156
Disordered Nano-magnetic Thin Films for Brand Protection Tags
Dr. Adrian P. Burden, Zhao Yan, Kong Yen Peng, Vincent Lim
Justin Song, Vladislav Apostolyuk, Tan Yee Yuan, Wai Maung Maung
Peter Moran, IMRE, Singapore
- 15:05 Invited
35-CNN-M168 Fabrication of Field Emission Display using Nanostructured Carbon
Film
Z. Sun, Y.W. Chen, P.S. Guo, T. Chen, Z.J. Zhang, L.L. Wang, Z.Y. Cao, S. Ni, Z. Zheng,
Y. Sun, B.K. Tay, Shanghai Nanoking Technology Co., China, Nanocs International
Inc., USA, & NTU

15:30 Break - Ballroom 1, Level 6 - South Tower

Break-up session A2 - Nanofabrication & Nano-devices

Ballroom 3, Meritus Mandarin

Level 8 – South Tower

Chair: Dr. Zhiqiang GAO

- 16:00 35-UPM-A939
Innovative Fabrication Method of 4 μm Thin LiNbO₃ layer on Si Substrate for High Frequency Modulators
Mr. Yem-Yeu Chang, Mr. Chia-Jen Ting, Dr. Hung-Yin Tsai,
MEMS Division, Mechanical Industry Research Laboratories, Industrial Technology Research Institute, Taiwan
- 16:20 35-NND-A1015 F1-ATPase Molecular Motor Based Single-Molecule Biosensor
Dr. Liyan He, Dr. Raimund Fromme, Ms. Ana Benston, Prof. Wayne Frasch, Arizona State University, USA
- 16:40 35-MNS-A1078 Evaluation of Current-carrying Wires for Manipulation of Magnetic Micro/Nano Particles for Biomedical Applications
Mr. Qasem Ramadan, Prof. Daniel Poenar, Dr. Victor Samper
Dr. Chen Yu, Institute of Bioengineering and Nanotechnology etc.
- 17:00 End

Break-up session B1 - Nanostructured Materials

Room 835, Meritus Mandarin

Level 8 – South Tower

Chair: Prof. Ai Kah Soh

- 13:50 Invited
35-MPP-A765
Mechanical Properties of Ferroelectric Ceramic Nano-composites
Prof. Ai Kah Soh, Dr. Kwok Lun Lee, Dr. Xiao Xing Wang, Dr. Kin Wing Kwok,
University of Hong Kong
- 14:15 35-MPP-A932
Development of Novel Lead-free Solder Composites using Carbon Nanotube Reinforcements
Prof. Manoj Gupta, Ms. Mui Ling Sharon Nai, Dr. Jun Wei
- 14:35 35-MPP-M136
Production and Grain Stability of Nanocrystalline Fe-Si Powders and the Effects of Aluminium Addition
Mr. B. Zuo, N. Saraswati, T. Sritharan, H. H. Hng
- 14:55 35-MPP-M140 Nanofibers in CdTe: Iodine Thin Films by Spray Deposition
Prof. V. Dutta, Mr. A. Ranga Rao
- 15:15 35-MPP-M148 Preparation of CdS Nanorods by Chemical Bath Deposition
Prof. Gaoling Zhao, Jinjian Yang, Gaorong Han
- 15:35 Break - Ballroom 1, Level 6 - South Tower

Break-up session B2 - Nano-photonics & Nano-optoelectronics

Room 835, Meritus Mandarin

Level 8 – South Tower

Chair: Dr. Adrian P. Burden

- 16:00 35-NPN-A977
Deep Reactive Ion Etching for Pillar Type Nano-Photonic Crystal
Ms. H. G. Teo, J. Singh, M. B. Yu, N. Ranga, J. Li, W.C. Yew, A. Q. Liu
- 16:20 35-NPN-A978
Optical Nonlinearity of Au Metal Nanoparticle Dispersed (Ba,Sr)TiO₃ Thin Films
Dr. Kyeong-Seok Lee, Mr. Seung-Hyun Yoon, Dr. Byungki Cheong, Mr. Taek-Sung Lee,
Mr. In-Ho Kim, Dr. Won-Mok Kim
- 16:40 35-NPN-M129 Intermixing of Quantum-Dot Heterostructures
Dr. B.S. Ooi, O. Gunawan, H.S. Djie

- 17:00 35-NPN-M162
Fabrication Technology for Photonic Crystal Waveguide on Silicon on Insulator Substrate
Sohan Singh Mehta, Doan My The, Zhao Hui, Suryani Rakesh Kumar, Wei Ji
- 17:20 End

Break-up session C1 - Nanometrology

Room 836, Meritus Mandarin
Level 8 – South Tower
Chair: Dr Gan XU

- 13:50 Specially Invited
Application of SNOM & Confocal Raman in Nanotechnology, Bio-Engineering and Life Science
Dr. Klaus Weishaupt, Co-founder & Managing Director, WITec Wissenschaftliche Instrumente und Technologie GmbH, Ulm, Germany
- 14:15 35-NMA-M105 Raman Elucidation of Dimmer-bond Vibration
L.K.Pan, Chang Q Sun, C.M.Li, S.Li
- 14:35 35-NMA-A1172An
Innovative In-line Wafer Defects Detection System for Semiconductor Industries
Dr. Ganesh Udupa, Prof. Bryan Ngoi Kok Ann, Dr. Freddy Goh H.C
- 14:55 35-NMA-A923 A New Scheme to Realize the Measurement Standard of Microforce
Prof. Hsien-Chi Yeh, Dr. Sheau-shi Pan, Prof. Jun Lou
- 15:15 35-NMA-M102 Breaking Limit of Atomic Distance in a Metallic Monatomic Chain
Chang Q Sun, C.M.Li, S.Li, B.K.Tay
- 15:35 Break - Ballroom 1, Level 6 - South Tower

Break-up session C2 - Computational Nanoelectronics

Room 836, Meritus Mandarin
Level 8 – South Tower
Chair: Prof. Xing ZHOU

- 16:00 Invited
35-CNA-A899
Modeling of Deep-submicron MOSFET Drive Current
Dr. Francis Benistant, Chartered Semiconductor
- 16:25 35-CNA-A816
Energetics of Copper Nanowires
Mr. Jayasanker Jayabalan, Dr. Ooi B. L, Dr. Jayaganthan Rengaswamy, Prof. Andrew A.O.Tay
- 16:45 35-CNA-A837
Influence of Electrode/Molecule Interface on Electron Transport
Dr. Ping Bai, Dr. Erping Li
- 17:05 35-CNA-M106
Control of the Edge Effect in a Tri-Gate MOSFET using Channel Corner Rounding Technique
Mr. Kian Meng Tee, S. Jagar, G.S. Samudra, K.W. Leong, Y.S. Li, K.J. Chui, Y.T. Chan, K.C. Tee, L.H. Chan
- 17:25 End

Break-up session D1 - Nanoimprinting & Nanolithography

Room 837, Meritus Mandarin
Level 8 – South Tower
Chair: Mr Stephen WONG Chee Khuen

- 13:50 Invited
35-NNA-A1090
The Impact of Step and Flash Imprint Lithography for Nano bio Applications
Dr. Michael Watts, Ian McMackin, Jin Choi, Philip Schumaker, Van Nguyen, Frank Xu,
Ecron Thompson, Daniel Babbs, S.V. Sreenivasan, Nick Stacey, Molecular Imprints Inc, USA
- 14:15 Invited
35-NNA-A873
Physical and Chemical Nanolithography Techniques: Challenges and Prospects
Dr. Jun Wei, Dr. Zhongping Fang, Singapore Institute of Manufacturing Technology
- 14:40 35-NNA-M155
Direct Writing of sub-10 nm Oxide Nanostructures using an Electron beam
M. S. M. Saifullah, K. R. V. Subramanian, D-J. Kang, M. E. Welland, Cambridge University, UK
- 15:00 35-NNA-M118
100 KeV and 50 KeV Electron Beam Nanolithography Processes Comparison
Mr. L. Mollard, C. Comboroure, N. Martin, C.E.A, GRENOBLE, France
- 15:20 35-NNA-M120
Nanofabrication by X-ray lithography at SSSL
Dr. O. Wilhelmi, J.R. Kong, B.D.F. Casse, B.T. Saw, Shahrain Bin Mahmood, S. Heussler, M. Dasch,
T. Waterstradt, H. O. Moser, SSSL-NUS
- 15:40 Break - Ballroom 1, Level 6 - South Tower

Break-up session D2 - Nanoimprinting & Nanolithography

Room 837, Meritus Mandarin
Level 8 – South Tower
Chair: Dr Jun WEI

- 16:00 35-NNA-M109
Plasma Activated Bonding of Imprinted Polymer Features structured by
Hot Embossing for Packaging Applications
R. Pelzer, T.Glinsner, S. Farrens, V. Dragoi, P. Kettner, D. Lee, EV Group, Austria
- 16:20 35-NNA-M150
Performance of PMMA for Nano-dot Patterning Using Electron-beam Lithography
Narayanan T V, Sohan Singh Mehta, My The Doan, Suryani, Zhao Hui, Balasubramanian N,
Yoon Soon Fatt, IME & Singapore-MIT Alliance
- 16:40 35-NNA-A747
Morphology Evolution of an Asymmetric Diblock Copolymer P(S-b-MMA) as a Function of Film
Thickness and Annealing Time
Mr. Hai Wang, Dr. Mao Hai Xie, Dr. Aleksandra B Djuri_i_, Mr. Hai Wang, Dr. W. K. Chan, Dr.
Oleksandra Kutsay, Univ of Hong Kong
- 17:00 End

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Website: www.worldscientific.com.sg
Country: Singapore

World Scientific is a leading academic publisher, which publishes more than 400 books and 90 journals a year. Many of its books are recommended texts adopted by renowned institutions such as the Massachusetts Institute of Technology, Harvard University, California Institute of Technology and Princeton University. The company also co-founded the London-based Imperial College Press with London University's Imperial College and has offices in New Jersey, London, Beijing, Shanghai Hong Kong, Taipei, Bangalore and Chennai.

**Shimadzu (Asia Pacific) Pte Ltd**

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Fax No: (65) 67782050
Website: <http://www.shimadzuasiapac.com.sg>
Country: Singapore

Shimadzu is a Japanese multi-national corporation based in Kyoto. It is a leading manufacturer and distributor in the world for: analytical instruments (eg. HPLC, LCMS, GC, GCMS, UV-Vis Spectrophotometers, FTIR, AAS etc); scientific and testing instruments (eg. EDX, XRD, XRF, micro-focus CT scanner, testing machines, thermal analysers, weighing instruments etc) instruments for life sciences R&D (eg. AXIMA-QIT, AXIMA-CFR, Integrated gel processing system etc) systems

**Advance Pinnacle Technologies**

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Fax No: (65) 6846 7874
Website: <http://www.appt.com.sg/>
Country: Singapore

APT was started in February 2001. They are a trading company which specialises in high-end technological products, with the main products coming from prestigious companies in USA, UK, Japan, India and Korea. Since the company started in 2001, there have been increased sales despite the economic downturn. They cover sales activities in the Asia-pacific region, such as India, Thailand, Philippines, Malaysia and Singapore.

**KSV Instruments Ltd**

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Website: <http://www.ksvltd.fi>
Country: Finland

KSV Instruments Ltd is a manufacturer of thin film and monolayer instruments for deposition of organic monolayers on solid substrates and characterization of films on air water interface or on a de-electric surfaces. KSV Quartz Crystal Microbalance is used to measure extremely low masses for the study of molecular interactions and adsorption surfaces.