Taiwan International Conference on Nano Science and Technology  
( TICON 2004 )

June 30 to July 3, 2004  
Center for Nano-Science and Technology,  
University System of Taiwan

**June 30, 2004 ( Wednesday )**

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<th>Time</th>
<th>Event</th>
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| 08:00-09:00 | **Opening**  
(Registration & Refreshments and Coffee) |
|        | SITE: Lobby, Physics Building, NTHU |
| 09:00-09:40 | **Honorable Guest Speakers**  
Prof. Chao-Han Liu (President, University System of Taiwan)  
Prof. Chuan Sheng Liu (President, National Central University)  
Prof. Chun-Yen Chang (President, National Chiao Tung University)  
Prof. Hsia-San Shu (President, National Tsing Hua University)  
Prof. Yan-Hwa Wu Lee (President, National Yang Ming University) |
| 09:40-10:20 | **Overview of Taiwan National Program on Nanoscience and Nanotechnology**  
Prof. Maw-Kuen Wu (Director, Institute of Physics, Academia Scinica) |
| 10:20-10:50 | **Coffee Break** |
| 10:50-11:30 | **Quantum Dot Array for Simulating Strongly Correlated Electron Systems**  
Dr. Chang-Chyi Tsuei (IBM Thomas J. Watson Research Center, USA) |
| 11:30-12:10 | **Interface Composition and Band Alignment in Nano-electronics**  
Prof. Eric Garfunkel (Department of Chemistry, Rutgers University, USA) |
<p>| 12:10-13:30 | <strong>Lunch</strong> |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session I – Nanomagnetics / Nanophotonics</th>
<th>Session II – Nanobiotechnology</th>
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<tr>
<td>13:30-14:00</td>
<td><strong>Ferromagnetism in Doped ZnO Bulk and Nano-wires</strong>&lt;br&gt;Prof. Tsung-Shune Chin (President, National United University / Department of Materials Science and Engineering, NTHU)</td>
<td><strong>Surface Enhanced Raman Scattering Spectroscopy and Imaging in Cell and Molecule Monitoring</strong>&lt;br&gt;Prof. Huihua Chiang (Institute of Biomedical Engineering, NYMU)</td>
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<tr>
<td>14:00-14:30</td>
<td><strong>Quantum Dot, Photonic Crystal Microcavity, and Single Photon Source</strong>&lt;br&gt;Prof. Tzu-Min Hsu (Director, Center for Nano Science and Technology &amp; Department of Physics, NCU)</td>
<td><strong>From Submicron CMOS Photodiode to Carbon Nanotube Field Effect Transistor</strong>&lt;br&gt;Prof. Yuh-Shyong Yang (Department of Biological Science and Technology, NCTU)</td>
</tr>
<tr>
<td>14:30-15:00</td>
<td><strong>Structure and Electro-optic Properties of MEH-PPV/ TiO₂ Nanoparticles/Nanotubes Composites</strong>&lt;br&gt;Prof. Peter P. J. Chu (Department of Chemistry, NCU)</td>
<td><strong>A Novel Biomimic Micro/Nano Opto-Electro-Mechanical Trapping/Culture Array for Manipulation, Observation, and Measurement of Bio-objects at Nanoscale</strong>&lt;br&gt;Prof. Long Shu (Institute and Department of Electrophysics, NCTU)</td>
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<tr>
<td>15:00-15:30</td>
<td>Coffee Break</td>
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<tr>
<td>Time</td>
<td>Session III – Nanophotonics</td>
<td>Session IV – Nanobiotechnology</td>
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<tr>
<td>15:30-16:00</td>
<td><strong>Nanostructure Enhanced Organic Light Emitting Diodes</strong>&lt;br&gt;Prof. Chain-Shu Hsu (Vice-Chancellor, UST / Department of Applied Chemistry, NCTU)</td>
<td><strong>Nano-manipulation of Living Cells- a Window for Monitoring Single Molecule Dynamics</strong>&lt;br&gt;Prof. Chi-Hung Lin (Institute of Microbiology and Immunology, NYMU)</td>
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<tr>
<td>16:00-16:30</td>
<td><strong>Enhancement of Luminescence Efficiency of Dendritic Polyfluorene Copolymers by CdS Nanoparticles</strong>&lt;br&gt;Prof. Kung Hwa Wei (Department of Materials Science and Engineering, NCTU)</td>
<td><strong>Case Study of a SARS-CoV Virus Denaturing Agent and a Multi-functional Biochip Detection System</strong>&lt;br&gt;Prof. Chih-Kung Lee (Institute of Applied Mechanics, NTU)</td>
</tr>
<tr>
<td>16:30-17:00</td>
<td><strong>Growth Issues of (In,Ga)As Quantum Dots for Photonic Devices</strong>&lt;br&gt;Prof. Jen-Inn Chyi (Department of Electrical Engineering, NCU)</td>
<td><strong>Optical Tweezers-based Quantification of Single Molecule Pair Binding Force between Integrin $\alpha_{IIb}\beta_3$ and the Disintegrin Rhodostomin in Live Cells</strong>&lt;br&gt;Dr. Chia-Fen Hsieh (Institute of Microbiology and Immunology, NYMU)</td>
</tr>
<tr>
<td>17:00-17:30</td>
<td><strong>High Speed Quantum Dot Lasers for Novel Photonic Systems</strong>&lt;br&gt;Dr. Matthias Kuntz (Institutes of Physics, Technische Universität Berlin, Germany)</td>
<td><strong>Use of Fluorescence Resonance Energy Transfer Technology to Investigate Enterovirus Protease Activity In Vivo</strong>&lt;br&gt;Prof. Szu-Hao Kung (Institute of Biotechnology in Medicine, NYMU)</td>
</tr>
</tbody>
</table>
**Poster Session I – Nanoelectronics**

**SITE:** Lobby, Physics Building, NTHU

**TIME:** 13:30-17:00

**Paper List:**

1. DYMEK ASIA COMPANY

2. Growth Mechanism of the Carbon Nanotubes with Ni Catalysts
   
   Jian-Yang Lin, Shuu-Ru Liu* and Hsiao-Chieh Sung
   
   *Institute of Electronics Engineering, National Yunlin University of Science and Technology

   
   Yu-Hsien Chang¹, Jung-Hsien Yen², Ming-Hung Huang¹*, Ju-Hung Hsu¹, Ing-Chi Leu², Heh-Nan Lin¹ and Ming-Hsiung Hon²
   
   ¹Department of Materials Science and Engineering, National Tsing Hua University
   ²Department of Materials Science and Engineering, National Cheng Kung University

4. Fabrication of Metallic Nanostructures by Atomic Force Microscopy Nanomachining and Lift-off Process
   
   Ju-Hung Hsu*, Chun-Yu Lin, Heh-Nan Lin
   
   Department of Materials Science and Engineering, National Tsing Hua University

5. Electrical Contact Properties of Carbon Nanotubes
   
   Ching-Hsu Chan
   
   Department of MIS, St. John’s & St. Mary’s Institute of Technology

6. Hydrogen Plasma Treatment Effects on Optical and Electrical Properties of ZnO Nanorods
   
   Chin-Ching Lin, Hung-Pei Chen and San-Yuan Chen
   
   Department of Materials Science and Engineering, National Chiao-Tung University

7. Mobility Enhancement of Electroluminescent Polymer Aggregates and Films Investigated by Conducting Atomic Force Microscopy
   
   Bor-Ru Yang*, Heh-Nan Lin
   
   Department of Material Science and Engineering, National Tsing Hua University

8. Magnetic Nanoarray via Ordered Nanopore Templates
   
   Chun-Guay Wu*, Hu Leng Lin
   
   Department of Chemistry, National Central University

9. High-k HfO₂ Gate Dielectric for Tensile Strained-SiC Alloy Layers
   
   Y. S. Liu, S. Maikapa, P. S. Chen² and K. C. Liu¹
   
   Department of Electronics Engineerin, Chang Gung University; ²ERSO/ITRI

10. Giant Magnetocurrent in Spin Tunneling Transistor
    
    Y.W. Huang⁵, C.K. Lo⁶, Y.D. Yao⁷, L.C. Hsieh⁹, J.J. Ju⁷, D. R. Huang⁹, J. H. Huang⁵
    
    ⁵Department of Material science & Engineering, National Tsing Hua Univ
    ⁶Lab. For spintronics, OES, Industrial Technology Research Institute
    ⁷Institute of Physics, Academia Sinica
11. Novel Planarization Process on Polysilicon Surface  
Sheng-Hung Cheng\textsuperscript{a}, Tsung-Kuei Kang\textsuperscript{a}, Bing-Yue Tsui\textsuperscript{b}, Wen-Lu Yang\textsuperscript{a}  
\textsuperscript{a}Department of Electronic Engineering, Feng-Chia University  
\textsuperscript{b}Department of Electronic Engineering, National Chiao Tung University

12. The Effect of Hafnium Contamination on Nano Device  
Kuan-Liang Lin\textsuperscript{a}, Tsung-Kuei Kang\textsuperscript{a}, Bing-Yue Tsui\textsuperscript{b}, Wen-Lu Yang\textsuperscript{a}  
\textsuperscript{a}Department of Electronic Engineering, Feng-Chia University  
\textsuperscript{b}Department of Electronic Engineering, National Chiao Tung University

13. Towards GaAs MOSFET: MBE Growth, Processing, Characterization, and Analysis  
K. Jaw\textsuperscript{1}, P. J. Tsai\textsuperscript{1}, Y. W. Chen\textsuperscript{1}, H. P. Yang\textsuperscript{2}, P. Chang\textsuperscript{1}, M. Hong\textsuperscript{1}, R. Kwo\textsuperscript{3}, J. Chi\textsuperscript{2}, and J. P. Mannearts\textsuperscript{1}  
\textsuperscript{1}Department of Material Science and Engineering, National Tsing Hua University  
\textsuperscript{2}Nanophotonics Center, Opto-Electronics & Systems Laboratories, Industrial Technology Research Institute  
\textsuperscript{3}Department of Physics, National Tsing Hua University

14. Diamagnetic Properties of PbSe Spherical Quantum Dots  
Wen-Bin Jian\textsuperscript{1*}, S. J. Chiang\textsuperscript{1}, Weigang Lu\textsuperscript{2}, Jiye Fang\textsuperscript{2}, C. Y. Wu\textsuperscript{3}, and M. D. Lan\textsuperscript{1}  
\textsuperscript{1}Department of Physics, National Chung Hsing University  
\textsuperscript{2}Department of Chemistry and Advanced Materials Research Institute, University of New Orleans, New Orleans, LA 70148  
\textsuperscript{3}Opto-Electronics and Systems Laboratories, Industrial Technology Research Institute

**July 1, 2004 ( Thursday )**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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| 08:20-09:00| **The Opportunities and Challenges of Nanotechnology**  
— From Commercialization Viewpoints  
Dr. Tsung-Tsan Su (Director of Nano Technology Research Center, Industrial Technology Research Institute) |
| 09:00-09:40| **Fabrication and Characterization of Carbon Nanotube FETs**  
Prof. Takashi Mizutani (Department of Quantum Engineering, Nagoya University Furo-cho, Japan) |
| 09:40-10:20| **Temperature Related Problems in Nanoscale Systems**  
Prof. Koung An Chao (Department of Physics, Lund University, Sweden) |
<p>| 10:20-10:50| Coffee Break                                                                                 |</p>
<table>
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<th>Time</th>
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<th>Speaker</th>
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<tr>
<td>10:50-11:30</td>
<td><strong>Inelastic Electron Tunneling Spectroscopy (IETS) Study of Ultra-thin Gate Dielectrics</strong></td>
<td>Prof. Tso-Ping Ma (Raymond John Wean Professor, Chairman, Department of Electrical Engineering, Yale University, USA)</td>
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<td>11:30-12:10</td>
<td><strong>Manipulation of Magnetism in Semiconductors</strong></td>
<td>Prof. Hideo Ohno (Research Institute of Electrical Communication, Tohoku University, Japan)</td>
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<tr>
<td>12:10-13:30</td>
<td>Lunch</td>
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<td></td>
<td>Session V - Nanophotonics</td>
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<td><strong>SITE:</strong> Basement 002, Physics Building, NTHU</td>
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<td></td>
<td>Chairman: Prof. Tzu-Min Hsu (Director, Center for Nano Science and Technology &amp; Department of Physics, NCU)</td>
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<td>13:30-14:00</td>
<td><strong>Biological Cell Tracking by Nanoporous Particles</strong></td>
<td>Prof. Chung-Yuan Mou (Department of Chemistry, NTU)</td>
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<td>14:00-14:30</td>
<td><strong>Distributed-feedback Optical Parametric Amplifier and Oscillator</strong></td>
<td>Prof. Yen-Chieh Huang (Department of Electrical Engineering, NTHU)</td>
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<td>14:30-15:00</td>
<td><strong>Graphical and Numerical Analysis on the Quarter and Non-quarter Wavelength Thickness 1-D Omni-reflector</strong></td>
<td>Prof. Shiuh Chao (Institute of Photonics Technologies, NTHU)</td>
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<td>Session VI - Nanoelectronics</td>
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<td><strong>SITE:</strong> Basement 019, Physics Building, NTHU</td>
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<td>Chairman: Prof. Minghwei Hong (Department of Materials Science and Engineering, NTHU)</td>
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<td>13:30-14:00</td>
<td><strong>Spin Dynamics in Nanostructured System -Unit Cell of Magnetic Random Access Memory-</strong></td>
<td>Prof. Ching-Ray Chang (Chairperson, Department of Physics, NTU)</td>
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<tr>
<td>14:00-14:30</td>
<td><strong>Interlayer Coupling through NiFeO₅ Nano-oxide Layer in IrMn/CoFe/NiFeO₅/CoFe-based Spin Valves</strong></td>
<td>Prof. Chih-Huang Lai, Dr. Yu-Jen Wang (Department of Materials Science and Engineering, NTHU)</td>
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<td>14:30-15:00</td>
<td><strong>Magnetoimpedance in Magnetic Tunnel Junction</strong></td>
<td>Prof. Minn-Tsong Lin (Department of Physics, NTU)</td>
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<td>Institution</td>
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<td>15:00-15:30</td>
<td>Coffee Break</td>
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<td>Chairman: Prof. Chung-Yuan Mou</td>
<td>Chairman: Prof. Minn-Tsong Lin</td>
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<td>(Department of Chemistry, NTU)</td>
<td>(Department of Physics, NTU)</td>
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<td>15:30-16:00</td>
<td><strong>Formation and Characteristic of GaN Quantum Dots by Self-assembled Nanoholes</strong></td>
<td>Prof. Hao-chung Kuo</td>
<td>Institute of Electro-optical Engineering, NCTU</td>
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<td><strong>Effects of the Bulk Nitrogen in HfO_xN_y High-κ Gate Dielectric on Charge Trapping Properties of MOS Devices</strong></td>
<td>Dr. Chin-Lung Cheng</td>
<td>Department of Engineering and System Science, NTHU</td>
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<tr>
<td>16:00-16:30</td>
<td><strong>Fabrication and Emission Characteristic of InGaN/GaN Multiple Quantum Wells Nanorods</strong></td>
<td>Dr. Taohung Hsueh</td>
<td>Institute of Electro-Optical Engineering, NCTU</td>
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<td><strong>A Simple Method to Fabricate Si-based Single Electron Devices</strong></td>
<td>Prof. Ya-Chang Chou</td>
<td>Department of Physics, NTHU</td>
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<td>16:30-17:00</td>
<td><strong>Design of an Optical Bidirectional Module with Photonic Crystal Waveguides</strong></td>
<td>Dr. Forest S.-S. Chien</td>
<td>Center for Measurement Standards, Industrial Technology Research Institute</td>
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<tr>
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<td><strong>Recent Advances in High κ Gate Dielectrics for Si Nano CMOS</strong></td>
<td>Prof. Ray-Nien Kwo</td>
<td>Department of Physics, NTHU</td>
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<tr>
<td>17:00-17:30</td>
<td><strong>Fabrication and Characterization of Photonic Crystals by Colloidal Processes</strong></td>
<td>Prof. Min-Hsiung Hon</td>
<td>Department of Materials Science and Engineering, NCKU</td>
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<td><strong>Surface Functionalization of Carbon Nanotubes and Some Applications</strong></td>
<td>Prof. Kuo-chu Hwang</td>
<td>Department of Chemistry, NTHU</td>
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Poster Session II – Nanobiotechnology
SITE: Lobby, Physics Building, NTHU

TIME: 13:30-17:00

Paper List:

1. Probing Microtubule’s Kinetics and Vesicles’ Endocytosis Using Total Internal Reflection Fluorescence Microscopy
   Chien-Hua Chen¹, Shu-Jung Yu³, Chi-Hung Lin¹, ² and Din-Ping Tsai³
   ¹Institute of Biophotonics, ²Institute of Microbiology and Immunology of Nation Yang Ming University; ³Department of Physics, Nation Taiwan University

2. Single DNA Molecule Manipulation Using a Micro-Magnetic Platform
   Chi-Han Chio, Gwo-Bin Lee
   Department of Engineering Science, National Cheng Kung University

   Bo-Jui Chang¹, Ying-Jung Huang³, Jia-han Chan², Hwei-Ling Peng³, Sien Chi¹ and Long Hsu²
   ¹Institute of Electro-Optical Engineering, National Chiao Tung University
   ²Department of Electrophysics, National Chiao Tung University
   ³Department of Biological Science and Technology, National Chiao Tung University

4. Biofunctional Semiconductor Quantum Dots for Cell Biology Study
   Yu-Ming Wang¹*, Hsiang-Chih Yang², Hsiang-Yuan Huang², Yuh-Jiuan Lin², and Wen-Tyng Li¹
   ¹Biomaterial & Tissue Engineering Division, Biomedical Engineering Center, Industrial Technology Research Institute; ²Medical Engineering Technology Division, Biomedical Engineering Center, Industrial Technology Research Institute

5. Monitor the Drug Entry in Live cells by Raman Spectroscopic
   Yin-Jhen Chen, Chi-Hung Lin
   Institute of Biophotonic Engineering, National Yang-Ming University
   Institute of Microbiology and Immunology, National Yang-Ming University

   Chang-An Yuan¹* and Kou-Ning Chiang²
   Department of Power Mechanical Engineering, National Tsing Hua University

7. Trend of Development of Biomolecular Conformational Reaction Dynamics
   Victor Wei-Keh Wu¹, and Chau-Chong Han²
   ¹Department of Electronic Engineering, Lan-Yang Institute of Technology, ²Institute of Atomic and Molecular Science, Academia Sinica

8. Development of a Plate-based Biochemical Assay by Using Quantum Dots as a Fluorescence Labeling Agent
   Chin-Ping Huang¹, Hong-Wei Liu¹, Chao-Yun Tsao², Li-Te Yin², Su-Feng Chiu², Teng-Ming Chen¹*
   ¹Department of Applied Chemistry, National Chiao Tung University, and UST-CNST
   ²Center of Biomedical Engineering, Industrial Technology Research Institute
9. Chitosan Nanoparticles as Novel Transdermal Carrier for DNA
Chien-Chih Yu, Cheng-Che Yang, Frank L. Chen
Biofiber & Biotechnology Application Department, Fiber Technology Division, Union
Chemical Laboratories, Industrial technology research Institute

10. Seeding Growth Approach to the Synthesis of Highly Faceted Au Nanoparticles and
Branched Au Nanocrystals
Chun-Hong Kuo and Michael H. Huang*
Department of Chemistry, National Tsing Hua University

11. Study of Metallic Nano-particles to Clusters of Water by Using Electrospray Mass
Spectrometry
Nadeem Ahmad Khan¹, Li-Chi Lu¹, Chi-Hsien Lin¹, Bo-Min Liu¹, Hui-Fen Wu¹,²,*
¹Department of Chemistry, Tamkang University, Tamsui, Taipei Hsien, 251, Taiwan
²Graduate Institute of Life Sciences, Tamkang University, Tamsui, Taipei Hsien, 251, Taiwan

12. 60nm Resolution 3D X-ray Tomography with Phase-Contrast for Nanobiotechnology
Research
Cheng-Hao Ko¹,²*, Mau-Tsu Tang¹, Te-Hui Lee¹, Gung-Chian Yin¹, Yen-Fang Song¹,
Hsueh-Min Lin², Keng S. Liang¹ and Wenbing Yun³
¹National Synchrotron Radiation Research Center, Taiwan, R.O.C.
²Graduate School of Electro-Optical Engineering, Yuan Ze University, Taiwan, R.O.C.
³Xradia, Inc., U.S.A.

13. Multi-walled Carbon Nanotube Electrodes and its Application to Amperometric Biosensors
Yu-Chen Tsai*, Jie-Ming Chen, Shih-Ci Li
Department of Chemical Engineering, National Chung Hsing University, Taiwan

14. Specific Delivery of Peptide-Directed Quantum Dot to Tumor Cells
Chia-Mao Wu¹*, Yaw-Kuen Li², Bor-Kai Hsiung¹, Hsiu-Yiu Wang¹ and Margaret Dah-Tsyr
Chang¹
¹Institute of Molecular and Cellular Biology & Department of Life Science, NTHU
²Department of Applied Chemistry, NCTU

15. Application of Nanoparticles for Study the Efficacy of Combining β-Lapachone with
Radiotherapy in Treating Rodent Tumor.
Y. H. Ou¹, W.Y. Mao¹, F. D. Chen², David H. C. Pan³, F. I. Chou⁴
¹Inst. Of Biotechnology in Medicine, NYMU; ²Inst. Of Radiological Sciences, NYMU;
³Gamma-Knife Surgery, VGH-Taipei and NYMU; ⁴FI Chou, Director and Professor, Nuclear
Science and Technology Development Center, NTHU

19:00-21:00 Banquet
SITE: Howard Plaza Hotel Hsinchu
NO. 178, Chung-Cheng Road, Hsinchu City
TEL: 886-3-5282323 FAX: 886-3-5252300
**July 2, 2004 (Friday)**

**Plenary Session III**

**SITE**: Basement 002, Physics Building, NTHU

Chairman: Prof. Er-Terg Chiou (Dean, School of Medical Technology and Engineering, NYMU)

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<tr>
<td>08:20-09:00</td>
<td><strong>A Study of the Growth Behavior and Properties of Nanoclusters, 2D Quantum Islands and Atom-Perfect Nanotips on Solid Surfaces</strong></td>
<td>Prof. Tien Tzou Tsong (Institute of Physics, Academia Sinica)</td>
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<tr>
<td>09:00-09:40</td>
<td><strong>The Nanometer Energy Transducer of the Biological Cell: Catalytic Wheel, Ion Pump, and the Brownian Motor</strong></td>
<td>Prof. Tian Yow Tsong (Institute of Physics, Academia Sinica)</td>
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<tr>
<td>09:40-10:20</td>
<td><strong>Nanostructuring of Transparent Materials by Ultrashort Light Pulses</strong></td>
<td>Prof. Peter G. Kazansky (Optoelectronics Research Center, University of Southampton, UK)</td>
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<tr>
<td>10:20-10:50</td>
<td>Coffee Break</td>
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<tr>
<td>10:50-11:30</td>
<td><strong>Nano-fabrication with Focused Ion Beams: An Enabling Technique for Nanoscience</strong></td>
<td>Dr. Jacques Gierak (Laboratoire de Photonique et de Nanostuctures, UPR CNRS 20, 91460, Marcoussis, France)</td>
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<tr>
<td>11:30-12:10</td>
<td><strong>Coherent Manipulations of Excitonic Qubits in InGaAs Self-assembled Quantum Dots</strong></td>
<td>Prof. Chih-Kang Shih (Department of Physics, The University of Texas at Austin, USA)</td>
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<tr>
<td>12:10-13:30</td>
<td>Lunch</td>
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<tr>
<td>Time</td>
<td>Session VII - Nanoelectronics</td>
<td>Session VIII - Nanobiotechnology</td>
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<tr>
<td>13:30-14:00</td>
<td>Synthesis of Aligned Carbon Nanotubes at Enhanced Growth Rate and Reduced Growth Temperature</td>
<td>Single Molecule Detection and Manipulation by Optical Techniques</td>
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<td>Prof. Jyh-Ming Ting (Department of Materials Science and Engineering, NCKU)</td>
<td>Prof. Ian. C. Hsu (Department of Atomic Science, NTHU)</td>
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<tr>
<td>14:00-14:30</td>
<td>Design Strategy on Electrostatic Discharge (ESD) Protection for Nano-Scale CMOS Integrated Circuits</td>
<td>Au Nanoparticle-enhanced Electrical Detection of DNA Hybridization on Silicon Chips</td>
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<td>Prof. Ming-Dou Ker (Department of Electronics Engineering, NCTU)</td>
<td>Prof. Jang-Zern Tsai (Department of Electrical Engineering, NCU)</td>
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<tr>
<td>14:30-15:00</td>
<td>Playing with Arrays of Nanochannels on Anodic Aluminum Oxide Films</td>
<td>The Superstructure of Self-assembled Melanin</td>
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<td>Dr. Yuh-Lin Wang (Institute of Atomic and Molecular Sciences, Academia Sinica)</td>
<td>Chung-Yang Lee (Institute of Nanotechnology, NCTU)</td>
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<td>15:00-15:30</td>
<td>Coffee Break</td>
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<tr>
<td>Time</td>
<td>Session IX - Nanoelectronics</td>
<td>Session X – New Nano Tools and Nano Materials</td>
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<td><strong>Site</strong>: Basement 002, Physics Building, NTHU</td>
<td><strong>Site</strong>: Basement 019, Physics Building, NTHU</td>
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<td><strong>Chairman</strong>: Prof. Kow-Ming Chang (Department of Electronics Engineering, NCTU)</td>
<td><strong>Chairman</strong>: Prof. Nyan-Hwa Tai (Chairman, Department of Materials Science and Engineering, NTHU)</td>
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<tr>
<td>15:30-16:00</td>
<td><strong>Growth of Vertically Aligned Carbon Nanotubes by ICP-CVD and in-situ Post-treatment for Field Emission Enhancement</strong>&lt;br&gt;Prof. Chuen-horng Tsai (Department of Engineering and System Science, NTHU)</td>
<td><strong>Self-Assembled Nanostructures Mediated by Au Nanoparticles on Various Substrates</strong>&lt;br&gt;Prof. Lih J. Chen (Dean, College of Engineering &amp; Department of Materials Science and Engineering, NTHU)</td>
</tr>
<tr>
<td>16:00-16:30</td>
<td><strong>Tailoring Oxide-Semiconductor Interfaces – an Enabling Sub-nano Approach for New Science and Advanced Devices</strong>&lt;br&gt;Prof. Minghwei Hong (Department of Materials Science and Engineering, NTHU)</td>
<td><strong>The Applications of Nanomaterials in TFT-LCD Fabrications</strong>&lt;br&gt;Dr. Fang-Chen Luo (VP and Chief Technology Officer of AU Optronics Corporation)</td>
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<td>16:30-17:00</td>
<td><strong>In-depth Studies on Transport Characteristics of Si Nanodots</strong>&lt;br&gt;Prof. Huey-liang Hwang (Director, Nano Technology and MEMS Center &amp; Institute of Electronics Engineering, NTHU)</td>
<td><strong>Three-Dimensional Compositional Imaging at the Atomic Scale with Local Electrode Atom Probes (LEAP)</strong>&lt;br&gt;Dr. Thomas F. Kelly (Founder, Chairman and CTO, Imago Scientific Instruments)</td>
</tr>
<tr>
<td>17:00-17:30</td>
<td><strong>Effect of ECR Plasma Exposure on Optical Constants of Se80Te20-xPb-x Thin Films</strong>&lt;br&gt;Prof. M. Husain (Department of Physics, Jamia Millia Islamia) (Central University)(INDIA)</td>
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</table>
Paper List:

2. Fabrication and Characterization of Photonic Crystals from Colloidal Processes
   Yi-Wen Chung¹,*, Ing-Chi Leu², Jian-Hong Lee¹ and Min-Hsiung Hon¹
   ¹Department of Materials Science and Engineering, National Cheng Kung University,
   ²Department of Electronic Engineering, Kun Shan University of Technology

3. InP-based Photonic Crystal Directional Couplers
   Wen-Kai Wang³, Chin-Yu Chen³, S.C. Yang³, Chii-Chang Chen³, Y.J. Chan³
   ³Department of Electrical Engineering, National Central University, Jung-Li, Taiwan

4. Synthesis and Characterization of Phosphorescent Bis-cyclometalated Ir(III) Complexes
   Yueh-Ju, Wang and Chung K. Lai*
   Department of Chemistry, National Central University

5. Enhanced Photoluminescence Observed in Core-shell Composites of Au/CdSe and Au/CdSe/ZnS Nanocrystals
   Hong-Wei Liu, Chin-Ping Huang and Teng-Ming Chen
   Department of Applied Chemistry, National Chiao Tung University and UST-CNST

6. Formation of TiN Nanowires and Nanoparticles within Mesoporous Silica SBA-15
   Han-Sheng Hsueh, Cheng-Tzu Yang, Jeffrey I. Zink, Michael H. Huang
   Department of Chemistry, National Tsing Hua University, Hsinchu 30043, Taiwan, and
   Department of Chemistry and Biochemistry, University of California, Los Angeles,
   California 90095, USA

7. Performance Evaluation of Nano Porosity on WO₃ Films for Electrochromic Applications
   C.-Y. Chen¹, Jyh-Jier Ho²*, C. -M. Huang ², W.-R. Liu², and W. J. Lee³
   ¹Dept. of C.S. & Info. Eng., Fortune Inst. of Technology, Chi-shan Town, Kaohsiung 842,
   Taiwan, R.O.C.
   ²Dept. of Electrical Eng., National Taiwan Ocean Univ. Keelung, Taiwan 202, R.O.C.

8. The Geometry Optimization of Narrowest Single-Walled Carbon Nanotubes Based on C20 Fullerene
   Leszek Stobinski¹-²*, Jerzy Peszke³, Hong-Ming Lin¹ and Chung-Kwei Lin⁴
   ¹Tatung University, Department of Material Engineering, Taipei, Taiwan
   ²Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland
   ³University of Education, Czestochowa, Poland
   ⁴Department of Material Science, Feng-Chia University, Taichung 407, Taiwan

9. Formation of Ge/Si/Ge Quantum Dots with a Thin Si Layer
   Electronics Research & Service Organization, Industrial Technology Research Institute,
   Blag. 11, 195 sec 4, Chung Hsing Rd. Chu-tung, HsinChu, Taiwan 310, R.O.C
10. Temperature Dependent Photoluminescence of highly Strained InGaAsN/GaAs Quantum Well (λ = 1.20-1.45 µm) with GaAsP Strain-compensated Layer  
M. Y. Tsai¹, H. C. Kuo¹*, Y. H. Chang¹, Y. A. Chang¹, S. C. Wang¹, N. Tansu², Jeng-Ya Yeh³,  
Luke J. Mawst³  
¹Institute of Electro-Optical Engineering, National Chiao Tung University  
²Center for Optical Technologies, Department of Electrical and Computer Engineering,  
Lehigh University  
³Reed Center for Photonics, Department of Electrical Computer Engineering, University of Wisconsin-Madison

11. Electrical Properties on Crystalline β-Ga₂O₃/GaN Metal Oxide Semiconductor Devices  
H.-M. Wu, L.-H. Peng, and J.-Y. Li  
Department of Electrical Engineering and Institute of Electro-optical Engineering  
National Taiwan University

12. Intercalation and Exfoliation of Bismuth Selenide  
Fong-Li Chang, How-Wa Chang, Shu-Chuan Huang*  
Department of Chemistry, National Dong Hwa University, Hualien, Taiwan R.O.C

Yueh-Hsun Lee⁹, Chih-Wei Kuo⁹, Kuan-Zong Fung⁹, *, Moo-Chin Wang b, c  
a, * Department of Materials Science and Engineering, National Cheng Kung University,  
1 Ta-Hsueh Road, Tainan 70101, Taiwan  
b Department of Mechanical Engineering, National Kaohsiung University of Applied  
Sciences, 415 Chien-Kung Road, Kaohsiung 80782, Taiwan  
cDepartment of Materials and engineering, National United University, 1 Lein-Da,  
Kung-Ching Li, Miao-Li 36003, Taiwan

14. Metal Hole-array Membrane Fabricated by Two-step Replication for the Application in SOFCs  
Department of Materials Science and Engineering, National Cheng Kung University, No.1,  
Ta-Hsueh Road, Tainan 70101, Taiwan

15. Demonstration of Atomically Abrupt Interface of HfO₂ High κ Gate Dielectrics with Si for Nano CMOS  
Wei-Jin Lee⁴,*, Yi-Jun Lee¹, Ya-Ling Hsu², Kuen-Yu Lee¹, Chi-Hsin Chu¹,  
Chien-Chung Huang⁵, Y. L. Huang¹, T. Gustafsson³, E. Garfunkel³, Sidhu Maikap⁴, L. S.  
Lee⁴, Shi-Yen Lin⁵, Mengwei Hong¹, and Raynien Kwo²  
¹Department of Materials Science and Engineering, National Tsing Hua University, Hsin  
Chu Taiwan 300  
²Department of Physics, National Tsing Hua University, Hsin Chu Taiwan 300  
³Physics Department, Rutgers University  
⁴Electronic Research and Service Organization,  
⁵Opto-electronic Research and Systems Laboratories, Industrial Technology Research  
Institute, Hsin Chu Taiwan 300
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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker</th>
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<tr>
<td>09:00-09:40</td>
<td><strong>Toward Heterogeneous Integration of Nanosystems</strong></td>
<td>Prof. Kang L. Wang (Director, MARCO Focus Center on Functional Engineered Nano Architectonics, UCLA)</td>
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<tr>
<td>09:40-10:20</td>
<td><strong>Bio-informatics-Nano (BIN) Fusion</strong></td>
<td>Prof. Chih-Ming Ho (Institute for Cell Mimetic Space Exploration, School of Engineering and Applied Science, UCLA, USA)</td>
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<td>10:20-10:40</td>
<td>Coffee Break</td>
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<tr>
<td>10:40-11:20</td>
<td><strong>Nanoimprint and its Applications in Photonics and Biotechnology</strong></td>
<td>Prof. Lingjie (Jay) Guo (Department of Electrical Engineering &amp; Computer Science, University of Michigan, USA)</td>
</tr>
<tr>
<td>11:20-12:00</td>
<td><strong>Ferromagnet/Semiconductor Nanostructures for Spintronics and New Magnetologic Concepts</strong></td>
<td>Prof. Klaus H. Ploog (Director of Paul-Drude-Institut für Festkörperelektronik, Germany)</td>
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<tr>
<td>12:00-12:10</td>
<td>Closing</td>
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<td>12:10-13:30</td>
<td>Lunch</td>
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UST CNST Steering Committee Meeting 2004

TIME: 14:00-16:00
SITE: Room 207, Physics Building, NTHU

Name List:

- Prof. Chao-Han Liu (Chancellor of University System of Taiwan)
- Prof. Wen-Tsuen Chen (Vice Chancellor, University System of Taiwan)
- Prof. Cheng-Chung Chi (Director, Center for Nano Science and Technology, University System of Taiwan / Department of Physics, NTHU)
- Prof. Kang L. Wang (Director, MARCO Focus Center on Functional Engineered Nano Architectonics, UCLA)
- Prof. Chih-Ming Ho (Institute for Cell Mimetic Space Exploration, School of Engineering and Applied Science, UCLA, USA)
- Dr. Chang-Chyi Tsuei (IBM Thomas J. Watson Research Center, USA)
- Prof. Koung An Chao (Department of Physics, Lund University, Sweden)
- Prof. Tian Yow Tsong (Institute of Physics, Academia Sinica)
- Dr. Chenming Hu (TSMC, R.O.C.)