

Final Conference Program

International Conference and Exhibition on Integration and Commercialization of Micro and Nanosystems

Sponsored By



Micro and Nanotechnology
Commercialization
Education Foundation ®

Sponsoring Organization



The International Asia Pacific Convention
Center & HNA Resort Sanya
Sanya, Hainan, China

January 10-13, 2007



Conference Chairs:

Professor Gang Chen, Massachusetts Institute of Technology, USA

Professor Liding Wang, Dalian University of Technology, China

Professor Robert Warrington, Michigan Technological University, USA

Professor Xianfan Xu, Purdue University, USA

Conference Track Chairs:

Track 1: Micro and Nano Systems

Professor Nicholas Fang, University of Illinois at Urbana-Champaign, USA

Track 2: Micro and Nano Devices

Professor Steven Walsh, University of New Mexico, USA

Track 3: Micro and Nano Mechanics

Professor Wei Lu, University of Michigan, USA

Track 4: Energy and Micro and Nano Scale Heat Transfer

Professor Timothy Fisher, Purdue University, USA

Track 5: Micro and Nano Fluidics

Professor Hongbin Ma, University of Missouri, USA

Track 6: Micro and Nano Manufacturing

Professor Yongfeng Lu, University of Nebraska-Lincoln, USA

Professor Xinwei Wang, University of Nebraska-Lincoln, USA

Track 7: Metrology and Control

Professor Bin Yao, Purdue University, USA

Track 8: Commercialization of Micro and Nano technology

Professor Steven Walsh, University of New Mexico, USA

Instruction for Authors

Dear Authors,

Thank you for your contribution to the International Conference and Exhibition on Integration and Commercialization of Micro and Nanosystems to be held in Sanya, China, from January 10 – 13, 2007. We have put together an exciting program, including keynote and invited presentations from leaders in academics and industry. Because of the large number of papers we have received, the contributed papers are arranged for both oral and poster presentations, with the majority of the papers in poster sessions.

Please follow the instructions below carefully:

CHECK THE PROGRAM TO IDENTIFY WHETHER YOUR PAPER IS IN THE ORAL OR THE POSTER SESSION SECTION OF THE PROGRAM.

Keynote presentations are about 40 to 45 minutes, depending on the number of papers in the session. Invited presentations have a total of 25 minutes to speak, with about 22 minutes for presentation and 3 minutes for discussions. For contributed oral presentations, the total duration is about 13 minutes. You should prepare your talk for about 11 minutes, leaving 2 minutes for discussion.

For posters, the size of the poster board is 1.2 m (wide) x 2 m (high). Please visit the ASME website (<http://asmeconferences.org/MicroNanoChina07/PosterPresentations.cfm>) for further instructions on poster preparation. Best poster paper awards will be chosen among poster entries based on both technical content and presentation style.

All accepted papers, including full-length papers and short papers will be published in the conference proceedings (EI and SCI indexed). Most of the submitted papers have been accepted while some require revisions. Please note that final papers must be submitted by January 8th, 2007, and **must follow the ASME paper format**, which can be found at: <http://asmeconferences.org/MicroNanoChina07/FinalPaperReq.cfm>. To have your paper published in the conference proceedings, it is imperative that ALL AUTHORS of the paper sign the ASME copyright form. Please visit the website: <http://asmeconferences.org/MicroNanoChina07/PubForms.cfm> to download the copyright form.

We look forward to seeing you in beautiful Sanya, China.

Conference Organizers

Wednesday, January 10, 2007	
8:00 am - 7:00 pm	Registration
10:00 am – 8:00 pm	Exhibits Open
9:00 am – 12:00 pm	Tutorial - Seoul Room <ul style="list-style-type: none"> ▪ <i>Professor Da-Jeng Yao, National Tsinghua University, Taiwan, Fundamental of Microfabrication</i> ▪ <i>Professor Tony Huang, University of Pennsylvania, USA, Micro-Electro-Mechanical-Systems and Microfluidics</i> ▪ <i>Professor Bao Yang, University of Maryland, USA, Thermal Transport in Nano-structured Materials</i> ▪ <i>Professor Yongfeng Lu, University of Nebraska-Lincoln, USA, Laser-induced Micro and Nano Processing of Materials</i>
12:00 – 1:00 pm	Lunch
1:00 – 1:10 pm	Opening Remarks – Beijing Room <ul style="list-style-type: none"> ▪ <i>Professor Gang Chen, Massachusetts Institute of Technology, Cambridge, MA, USA</i> ▪ <i>Professor Robert Warrington, Michigan Technological University, Houghton, MI, USA</i>
1:10 – 3:30 pm	Keynote Session 1: Commercialization (Invited Session) – Beijing Room Chair: Professor Robert Warrington, Michigan Technological University, Houghton, MI, USA Keynote Talks (40 Minutes each) <ul style="list-style-type: none"> ▪ <i>“No One Has It All – Collaboration Is The Key”, Clive Davenport, CEO, Small Tech Clusters, Australia</i> ▪ <i>Probing Below 100nm: Electrical, Mechanical, and Biological, Jim von Ehr, Zyvex Corp., USA</i> Invited Talks (25 minutes each) <ul style="list-style-type: none"> ▪ <i>Suss Microtec, Europe (30 minutes)</i> ▪ <i>History of Successful Business Development in Microsystems, Rainer Wechsung, STEAG Microparts, Europe</i>
3:30-4:00 pm	Coffee Break
4:00-6:30 pm	Commercialization Session - 1 – Beijing Room Chair: Clive Davenport, Small Tech Clusters, Australia <ul style="list-style-type: none"> ▪ <i>Rewards and Benefits of Using the Patent System, Michael Schulmann, HSML, USA</i> ▪ <i>Commercialization of MNT-Based Products in an Established Market, James Wyld, CSM Analytical, USA</i> ▪ <i>Dan Gale, Canadian Microsystems, USA</i> ▪ <i>Junji Adachi, MEMS Industry Forum/Matsushita, Asia</i> ▪ <i>The Global MEMS Supply Chain: A Foundry’s Perspective, Bruce Alton, Micralyne, USA</i> ▪ <i>MEMS Foundry Activities in Greater China, Albert Chang, Asia Pacific Microsystems, Inc., Hsinchu, Taiwan</i> ▪ <i>Evolution and Trends in High Volume Production of MEMS, Henne van Heeren, EnablingM3, Europe</i> Keynote: Harnessing the Power of Asia for Worldwide Small Tech Commercialization, Steven Walsh, University of New Mexico, USA
6:30 pm – 8:30 pm	Reception and Dinner

Thursday, January 11, 2007	
8:30 am–8:40 am	<p>Welcome Remarks Asia Pacific Ballroom</p> <ul style="list-style-type: none"> ▪ Professor Liding Wang, <i>Micro/Nano Manufacturing Technology Institution, CMES, Dalian University of Technology, China</i> ▪ Professor Xianfan Xu, <i>Purdue University, West Lafayette, IN, USA</i>
8:40–10:10 am	<p>Keynote Session 2 Asia Pacific Ballroom Chair: Professor Gang Chen, <i>Massachusetts Institute of Technology, Cambridge, MA, USA</i></p> <ul style="list-style-type: none"> ▪ MNC2007-21600: Development of MEMS Research in China, Professor Liding Wang, <i>Micro/Nano Manufacturing Technology Institution, CMES, Dalian University of Technology, China</i> ▪ MNC2007-21623: Application of Technologies to Study Biological Sciences, Professor Chih-Ming Ho, <i>Ben Rich-Lockheed Martin Chair Professor, UCLA, USA</i>
10:00 am – 8:00 pm	Exhibits Open
10:10 – 10:30 am	Refreshment Break
10:30 – 12:30 am	<p>Keynote Session 3 Asia Pacific Ballroom Chair: Professor Xianfan Xu, <i>Purdue University, West Lafayette, IN, USA</i></p> <ul style="list-style-type: none"> ▪ MNC2007-21606: Cyberinfrastructure and Economic Development, Prof. Sangtae Kim, <i>Donald W. Feddersen Distinguished Professor of Mechanical Engineering and Distinguished Professor of Chemical Engineering, Purdue University, West Lafayette, IN, USA</i> <i>Purdue University, West Lafayette, IN, USA</i> ▪ MNC2007-21634: Producing And Probing Nanostructures With Laser Light: From Tailoring Dimensions to Ultrafast Electron Dynamics and Self Assembly, Professor Frank Träger, <i>Editor-in-Chief, Journal of Applied Physics B, Director, Center for Interdisciplinary Nanostructure Science and Technology, University of Kassel, Germany</i> ▪ MNC2007 – 00000: NSF's US-China Scientific Cooperation, Dr. William Chang, <i>Director, National Science Foundation Beijing Office, China</i>
12:30 1:30 pm	Lunch and Poster Set Up
1:30 – 3:00 pm	<p>Technical Session 1 - Micro/Nano Electrical Mechanical Systems – 1 Seoul Room Chair: Professor Tony Huang, <i>Pennsylvania State University, PA, USA</i> Co-Chair: Professor Weizheng Yuan, <i>Northwestern Polytechnical University, China</i></p> <ul style="list-style-type: none"> ▪ MNC2007-21138: Preparation and Characterization of Tricolor CdSe-tagged Microbeads for Bio-detection, Jin Chang, <i>Tianjin University, China</i>

- MNC2007-21214: **AFM Single-Walled Carbon Nanotube Tips**, *Rui Wang, Xu Huaming, Gong Qianming, Liang Ji, Tsinghua University, China*
- MNC2007-21218: **A Novel Biochip for Single Strand Nucleic Acid Detection**, *J. H. Chien, Y. T. Cheng, C. Y. Tsai, P. Y. Wang, D. S. Lee, P. H. Chen, National Taiwan University, Taipei*
- MNC2007-21246: **Bubble Based Micro/Nano Fabrication Method**, *Xiao-Dan Bai, Jing Liu Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China*
- MNC2007-21415: **Study on Novel MEMS Hollow Microneedle Array**, *Shuhai Jia, Yigui Li, Xiao Sun, Jun Zhu, Xi'an Jiaotong University, Xi'an, Shanghai, China*
- MNC2007-21578: **Invited Paper: Two-Dimensional Array of Epitaxial Quantum Dots: A New Architecture for Biosensing**, *Jan J. Dubowski, Université de Sherbrooke, Sherbrooke, QC, Canada*

**Technical Session 2- Energy and Micro and Nanoscale Heat Transfer – 1
Hong Kong Room**

Chair: *Professor Tim Fisher, Purdue University, USA*

Co-Chair: *Professor Yiming Xuan, Nanjing University of Science & Technology, China*

- MNC2007-21072: **The Experimental Study On Ignition Mechanism And Combustion Characteristics Of Micro Gas Engine**, *Taian Ren, Zhuang D. Jiang, Dejiang Lu, Mingzhi Zhu, Institute Of Precision Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China*
- MNC2007-21132: **The Simple Fabrication And Packaging Of Micro DMFC Fabricated By MEMS Technology**, *Da-Jeng Yao, National Tsing Hua University, Hsinchu, Taiwan*
- MNC2007-21471: **Fuel Cell Stacks Based On Micro Fuel Cell Units For A Substantially Increased Power Density**, *Yiding Cao, Florida International University, Miami, FL, United States*
- MNC2007-21615: **Invited Paper: Further Experimental Studies On Flow Boiling Instabilities In Parallel Microchannels**, *Ping Cheng, Guodong Wang, Huiying Wu, Shanghai Jiaotong University, Shanghai, China*
- MNC2007-21446: **Invited Paper: Nanoscale Energy Conversion And Its Applications**, *Zhiyu "Jerry" Hu, Oak Ridge National Laboratory, Oak Ridge, TN, USA*

**Technical Session 3 - Nanoscale Fabrication
Shanghai Room**

Chair: *Professor Yongfeng Lu, University of Nebraska-Lincoln, USA*

Co-Chair: *Professor Min Zhou, Jiangsu University, China*

- MNC2007-21322: **Microfabrication of 3D-Polymeric Structures Using Soft Lithography for Tissue Engineering**, *Xishan Guo, Xianglong Yang, Yuquan Chen, Liren Wang, Zhejiang University, China*
- MNC2007-21373: **(Invited Paper) Synthesis of Nano-Structured Materials by Laser Ablation for Advanced Sensor Applications**, *Tatsuo Okada, Junya*

Suehiro, Kyushu University, Fukuoka, Japan

- MNC2007-21425: **Effects of Laser Pulse Energy on Nanostructuring with a Laser-Assisted Scanning Tunneling Microscope**, *Xuhui Feng, Xinwei Wang, University of Nebraska-Lincoln, USA*
- MNC2007-21610: **Invited Paper: Photonic Meta Materials, Nano-Scale Plasmonics and Super Lens**, *Xiang Zhang, University of California Berkeley, Berkeley, CA, USA*
- MNC2007-21628: **The UTAM Nano-patterning: A New Surface Nano-Patterning Technique in Fabricating Ordered Arrayed Surface Nanostructures**, *Yong Lei, Gerhard Wilde, University of Muenster, Muenster, Germany*

Commercialization Session 2

Macao Room

Chair: *Steven Walsh, University of New Mexico, USA*

- MCN2007-00000 *Noel Dunlop, Invited, Monash University, Australia*
- MCN2007-21478: **Research On Technical Standard System Constructing And Evaluating Of Micro-Nano Manufacture**, *Zhang Xizhang, Hunan University, China*
- MCN2007-21423: **Plasma Deposition of Nanometer Thin Coatings Displaying Super Hydrophobic and Oleophobic Properties**, *Stephen Coulson, P2i Ltd., Europe*
- MCN2007-21577: **Emulsified Fuel Nanotechnology**, *Thomas Houlihan, Eco-Energy Solutions, USA*

3:00-3:15 pm

Refreshment Break and Poster Set Up

3:15-4:45 pm

Technical Session 4 - Micro/Nano Electrical Mechanical Systems – 2
Seoul Room

Chair: *Professor Alice Haixia Zhang, Beijing University, Beijing, China*

Co-Chair: *Professor Da-Jeng Yao, National Tsinghua University, Taiwan*

- MNC2007-21044: **A Net Shape Microfabrication for the Alumina Micro-Components Using Soft Lithography**, *Zhigang Zhu, University Of Birmingham, Birmingham, United Kingdom*
- MNC2007-21105: **Fabrication of Nanoscale Linewidth Standards Based on Multilayer Thin Film Deposition Technique**, *Zhao Fengxia, Xi'an Jiaotong University, China*
- MNC2007-21174: **Fabrication of Nano-Electromechanical Structures Down to 20nm by Spacer Technology**, *Xiang Han, Ling Xia, Wengang Wu, Guizhen Yan, Jun Xu, Yilong Hao, Peking University, China, Beijing, China*
- MNC2007-21219: **Mechanism Analysis and System Identification of the Quadrature Error in MEMS Gyroscope**, *Jun Yang, ZhongYu Gao, Rong Zhang, ZhiYong Chen, Bin Zhou, Tsinghua University, Beijing, China*
- MNC2007-21576: **Joining Mechanism of Static Bonding Between**, *Cuirong Liu, Qingsen Meng, Lifang Hu, Taiyuan University of Science and Technology, Taiyuan, Shan Xi, China*

- MNC2007-21637: **Invited Paper: Microinstrument For Airborne Nanoparticle Detection**, *Norman Tien, Case Western Reserve University, USA*

**Technical Session 5 – Energy and Micro and Nanoscale Heat Transfer – 2
Hong Kong Room**

Chair: *Professor Ping Cheng, Shanghai Jiaotong University, China*

Co-Chair: *Professor Joon Sik Lee, Seoul National University, Korea*

- MNC2007-21034: **Near-Field Radiation Interaction with Molecules in Optical Microcavity**, *Zhixiong (James) Guo, Haiyong Quan, Rutgers, The State University of New Jersey, Piscataway, NJ, USA*
- MNC2007-21092: **Mathiessen's Rule in Polycrystalline Metallic Nanofilms**, *Qing-Guang Zhang, Bing-Yang Cao, Xing Zhang, Tsinghua University, Beijing, China, Koji Takahashi, Motoo Fujii, Kyushu University, Fukuoka, Japan, Ling-Yun Zhu, KOBELCO Research Institute, Inc., Kobe, Japan*
- MNC2007-21150: **Motion of Electron Gas and the Induced Nanofilm Electromigration**, *Bing-Yang Cao, Zhang Qing-Guang, Guo Zeng-Yuan, Tsinghua University, Beijing, Beijing, China*
- MNC2007-21410: **Molecular Dynamics Simulations of Interfacial Heat and Mass Transfer at Nanostructured Surface**, *Gyoko Nagayama, Masako Kawagoe, Takaharu Tsuruta, Kyushu Institute of Technology, Kitakyushu, Fukuoka, Japan*
- MNC2007-21418: **Design, Synthesis, and Performance of a Carbon Nanotube/Metal Foil Thermal Interface Material**, *Baratunde Cola, Xianfan Xu, Timothy Fisher, Purdue University, West Lafayette, IN, USA*
- MNC2007-21445: **Transitional Boiling Characteristics of Small Liquid Droplets On Heated Solid Surfaces**, *Gui Lu, Xiao-Feng Peng, Tsinghua University, Beijing, China, Xiao Dong Wang, Beijing University of Science and Technology, Beijing, China*

**Technical Session 6 - Manufacturing of Nanoparticles and Other Nanostructures
Shanghai Room**

Chair: *Professor Xinwei Wang, University of Nebraska-Lincoln, Lincoln, NE, USA*

Co-Chair: *Dr. Jin Liu, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*

- MNC2007-21575: **Invited Paper: Multiscale Simulation of Sintering of Nanoparticulate Micropreforms in a Microfabrication Process**, *Andryas Mawardi, Ranga Pitchumani, University of Connecticut, Storrs, CT, USA*
- MNC2007-21216: **Invited Paper: Functionalization of Microcantilever Sensors Using Inkjet Drop-on-Demand**, *Nick Post, George Chiu, Purdue University, West Lafayette, IN, USA*
- MNC2007-21351: **Fabricating Biomimetic Super-Hydrophobic Micro- and Nanoarray Surface by Soft Lithography**, *Zhou Ming, Jiangsu University, Henjiang, China*
- MCN2007-21441: **Variation of Macroscopic Shape and Microstructure of Silver Nanoparticle Suspension Droplets Using Ink-Jet Printing**, *Ming Hsiu Tsai, Weng Sing Hwang, National Cheng Kung University, Hao Long Chen, Kao Yuan University*
- MCN2007-21205: **A Study on the Flow Characteristics of the Nano Fountain-Pen Using Membrane Pumping**, *Youn-Jea Kim, Jin-Hyoung Lee, Himmoo Kim*

<i>Sungkyunkwan University</i>	
4:45 – 7:45 pm	Poster Sessions – Beijing Room
7:15 – 9:15 pm	Dinner
Friday, January 12, 2007	
8:30-10:30 am	<p>Keynote Session 4 Asia Pacific Ballroom Chair: Professor Liding Wang, Micro/Nano Manufacturing Technology Institution, CMES, Dalian University of Technology, China Co-Chair: Professor Chih-Ming Ho, UCLA, USA</p> <ul style="list-style-type: none"> ▪ MNC2007 – 00000: Fabrication, Structure And Properties Of Carbon Nanotubes Rings, Dr. Sishen Xie, Chinese Academy of Science, China ▪ MNC2007 – 21632: Critical-Dimension Metrology Of Nanostructures On Or Inside A Multilayer Film, Dr. Yia-Chung Chang, Director, Applied Research Center, Taiwan ▪ MNC2007 – 0000: Transition from MEMS Technology to Nano Fabrication, H. Kirchberger, EVGroup, Europe
10:00 am-5:00 pm	Exhibits Open
10:30-10:50 am	Refreshment Break
10:50-12:20 pm	<p>Technical Session 7 Micro/Nano Electrical Mechanical Systems –3 Seoul Room Chair: Professor Tony Huang, Pennsylvania State University, PA, USA Co-Chair: Professor Yong Chen, UCLA, USA</p> <ul style="list-style-type: none"> ▪ MNC2007-21613: Invited Paper: An Organic/Silicon Configurable Transistors, Yong Chen, Maggie Qianxi Lai, UCLA, Los Angeles, CA, USA, Zhiyong Li, Hewlett-Packard, Palo Alto, CA, USA, Xuema Li, R. Stanley Williams, Hewlett-Packard Laboratories, Palo Alto, CA, USA, Zuhua Zhu, UCLA, USA ▪ MNC2007-21035: Development of a Novel Microgripper Integrating Tri-axial Force Sensor, Jiachou Wang, Weibin Rong, Lining Sun, Hui Xie, Wei Chen, Harbin Institute of Technology, Harbin, Heilongjiang, China ▪ MNC2007-21178: The Fabrication of 16*16 MEMS-based Optical Switch with Accurate Optical Fiber Grooves Integration, Chen Qinghua, Wengang Wu, Guizhen Yan, Hao Yilong, Peking University, Beijing, China ▪ MNC2007-21240: Fabrication and Test of PECVD SiC Resonator, Yu Wang, Hui Guo, Alice Haixia Zhang, Peking University, Beijing, China ▪ MNC20070-21385: Research on Micro Accelerometer Array, Jijun Xiong, Haiyang Mao, North University of China ▪ MNC2007-21029: Overview of Micro-Manufactured-Based Micro Direct Methanol Fuel Cell Development for Portable Applications, Jiusheng Guo, Nanotek Instruments, Inc, Dayton, OH, USA <p>Technical Session 8 - Micro and Nano Fluidics Hong Kong Room Chair: Professor Hongbin Ma, University of Missouri, USA</p>

Co-Chairs: Professor Xiao-Feng Peng, Tsinghua University, Beijing, China
Professor Yiding Cao, Florida International University, Miami, FL, USA

- MNC2007-21091: **Influence of SDBS on Stability of Copper Nano-Suspensions**, *Xinfang Li, Jinwei Gao, Dongsheng Zhu, Wang Xianju South China University of Technology, Guangzhou, China, Professor Gang Chen, Massachusetts Institute of Technology, Cambridge, MA, USA*
- MNC2007-21210: **Molecular Dynamics Study of Wetting on Brushlike Nanopillar and Wavelike Nanorough Surfaces**, *Claudiu Valentin Suci, Fukuoka Institute of Technology, Fukuoka, Japan*
- MNC2007-21295: **Microfluidic System Simulation including the Electro-Viscous Effect**, *Chien-Pin Chen, Eileen Rojas, University of Alabama in Huntsville, Huntsville, AL, USA, Alok Majumdar, NASA Marshall Space Flight Center, MSFC, AL, USA*
- MNC2007-21315: **A Study For Flow Characteristics Of Liquid Slip Flow In Rectangular Microchannels**, *Jie Jiang, Yingli Hao, Jinli Lu, Southeast University, Nanjing, Jiangsu, China*
- MNC2007-21330: **Simulation of Fluid Mixing in Microchannel Under Heterogeneous Distributed Zeta-Potential Effect by Lattice-Boltzmann Method**, *Jinfen Kang, Dong-A University, Pusan, Korea (Republic), Hyeung Seok Heo, Yong Kweon Suh, Dong-A University, Busan, Kazakhstan*
- MNC2007-21331: **Nanofluids Containing Hybrid Sphere/Carbon Nanotube Particles**, *Zenghu Han, Bao Yang, Soo H. Kim, Michael R. Zachariah, University Of Maryland, Silver Spring, MD, USA*

Technical Session 9 - Laser and Optics and Micro/Nano Fabrication
Shanghai Room

Chair: Professor Xiaoyan Zeng, Huazhong University of Science and Technology, China

Co-Chair: Professor Yongfeng Lu, University of Nebraska-Lincoln, USA

- MNC2007-21076: **The Role of Thermal Excitation of D Band Electrons in Ultrafast Laser Interaction with Noble (Cu) and Transition (Pt) Metals**, *Zhibin Lin, Leonid V. Zhigilei, Department of Materials Science and Engineering, University of Virginia, Charlottesville, VA, USA*
- MNC2007-21186: **PZT Film and Si Substrate Two-Layer System Patterning Morphology by Femtosecond Pulsed Laser**, *Xiao Shizhou, University of Science and Technology of China*
- MNC2007-21365: **Invited Paper: Hybrid Integration In Photosensitive Glass Using 3D Fem to Second Laser Micromachining and its Commercial Potential**, *Ya Cheng, Zhizhan Xu, State Key Laboratory of High Field Laser Physics, Shanghai, Shanghai, China*
- MNC2007-21451: **Controlled Growth and Mechanism Study of Carbon Nanofiber/Nanotube by Laser-Assisted Chemical Vapor Deposition**, *Yongfeng Lu, J Shi, University of Nebraska-Lincoln, Lincoln, NE, USA*
- MNC2007-21611: **Invited Paper: A Novel Method for Direct Fabrication of Electronic Components and MEMS by Laser Micro-Cladding Electronic Pastes**, *Xiaoyan Zeng, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China*

12:20-1:30 pm	Lunch and Poster Set Up
1:30-3:00 pm	<p>Technical Session 10: Nano/Micro System –1 Shanghai Room Chair: Professor Nicholas Fang, University of Illinois, IL, USA Co-Chair: Professor Junhong Chen, University of Wisconsin-Milwaukee, USA</p> <ul style="list-style-type: none"> ▪ MNC2007-21599: Invited Paper: Magnetic Nanomaterial and its Applications in Biomedicine, Ning Gu, Southeast University, Nanjing, Jiangsu, China ▪ MNC2007-21244: Fast Mixing Of Ferrofluid In Microchannels, C. W. Chang, T. H. Tsai, T.C. Chiang, P. Y. Wang, Y. F. Hsieh, C. H. Chang, Ping-Hei Chen, National Taiwan University, Taiwan ▪ MNC2007-21301: Engineering Gas Sensors with Aerosol Nanocrystals, Ganhua Lu, Liying Zhu, Stephen Hebert, Edward Jen, Junhong Chen, University of Wisconsin-Milwaukee, Milwaukee, WI, USA, Leonidas Ocola, Argonne National Laboratory, Argonne, IL, USA ▪ MNC2007-21305: Design and Manufacturing of 3D Microbioreactors, Chunguang Xia, Professor Nicholas Fang, University of Illinois at Urbana-Champaign, Urbana, IL, USA ▪ MNC2007-21406: Theoretical Investigation on Nano Tio2 Photocatalytic Oxidation of Vocs, Huili Yu, Ocean University of China, Qingdao, China, Kaili Zhang, Carole Rossi, LAAS-CNRS, Toulouse, France ▪ MNC2007-21602: Mos Capacitor Micro Sensor Array for Hydrogen Gas Measurement, Cheng Hu, Xidong Qu, National Research Council Institute for Fuel Cell Innovation, Vancouver, BC, Canada, Jonathan Wu, University of Windsor, Windsor, ON, Canada, Glenn Chapman, Simon Fraser University, Burnaby, BC, Canada <p>Technical Session 11 - Micro and Nano systems – 2 Hong Kong Room Chair: Professor Bin Yao, Purdue University, West Lafayette, IN, USA Co-Chair: Professor George Chiu, Purdue University, USA</p> <ul style="list-style-type: none"> ▪ MNC2007-21111: A 6-DOF Compliant Joints-Based Precision Parallel Positioner System Driven by Dual Piezoelectric Actuators, Wei Dong, Zhi Jiang Du, Lining Sun, Harbin Institute of Technology, Harbin, Heilongjiang, China ▪ MNC2007- 21159: Experimental Investigation Of Loop Heat Pipe With Nano-Ferrofluid, T.C. Chiang, C. W. Chang, Ping-Hei Chen, National Taiwan University ▪ MNC2007-21298: Synthesis And Properties of Metal Nanowires, Jianyu Liang, Worcester Polytechnic Institute, Worcester, MA, USA, Zhenhai Xia, University of Akron, OH, USA ▪ MNC2007-21310: Ultra Precision Motion Control of Linear Motor Drive Systems with Dynamic Friction Compensation for Nano-Positioning, Bin Yao, Yun Hong, Purdue University, West Lafayette, IN, USA, Chuxiong Hu, Qingfeng Wang, Zhejiang University, Hangzhou, Zhejiang, Zhejiang, China

- MNC2007-21472: **Effect of Al₂O₃ Microparticles on the Heat Transport Capability in an Oscillating Heat Pipe**, *Hongtao Gao, Xiangyang Gao, Anjun Jiao* Dalian Maritime University, Dalian, China, *Hongbin Ma*, University of Missouri, USA
- MNC2007-21626: **Invited Paper: Heat Transfer Physics in Nanosystems and Nanocomposites**, *Sebastian Volz*, Ecole Centrale Paris, Châtenay Malabry, France

Technical Session 12 - Micro and Nano Mechanics

Seoul Room

Chair: *Professor Jianbin Luo*, Tsinghua University, China

co-Chair: *Professor Jianguo Lin*, University of Birmingham, USA

- MNC2007-21280: **Specimen Size Effect on Fatigue Properties of Surface-Micromachined Al-3%Ti Thin Films**, *Jun-Hyub Park*, TongMyong University, Busan, Korea (Republic), *Yun-Jae Kim, Man Sik Myung*, Korea University, Seoul, Korea (Republic)
- MNC2007-21476: **Investigation of the Adsorption Mechanism of Water Nanocluster on the Substrate: The Interaction Strength Effect**, *Jenn-Sen Lin*, National United University, Taiwan
- MNC2007-21479: **The Uniaxial Tension Properties of Silver Nanorod by Molecular Dynamics Simulations**, *Li Chen, Heng Liu, Lie Yu*, Xi'an Jiaotong University, China
- MNC2007-21504: **A Hybrid Parallelizable Algorithm for Computer Simulation of Rigid Body Molecular Dynamics**, *Shanzhong (Shawn) Duan*, South Dakota State University, Brookings, SD, USA
- MNC2007-21556: **Experimental Study on the Fracture Mechanism of Carbon Nanotubes**, *Huali Zhang, Feihu Zhang* Harbin Institute of Technology, Harbin, Heilongjiang, China
- MNC2007-21561: **Characterization of Piezoelectric Response of PZT Nanofibers**, *Shiyou Xu, Yong Shi*, Stevens Institute of Technology, Hoboken, NJ, USA

3:00-3:15 pm	Refreshment Break Poster Set Up – Beijing Room Exhibits – Beijing Room
3:15-6:15 pm	Friday Poster Sessions – Beijing Ballroom
6:30-9:30 pm	Conference Banquet
Saturday, January 13, 2007	
7:30am-8:00pm	Full-day tour of Sanya. \$55 per person. Bus departs and returns to the HNA Resort Sanya. Two meals are included.

Poster Sessions

All posters need to fit a 1.2 m (wide) x 2 m (high) poster board

Thursday Poster Sessions

Beijing Ballroom

5:30 – 8:30 PM

Track 1: Micro and Nano Systems

Track Chair: *Professor Nicholas Fang, University of Illinois at Urbana-Champaign, Urbana, IL, USA*

Session Chair: *Professor Weizheng Yuan, Northwestern Polytechnical University, Xi'an, China*

MNC2007-21033: **Thermal Transport Properties of Carbon Nanotube Arrays,** *Huaqing Xie, Shanghai Second Polytechnic University, Shanghai, China*

MNC2007-21503: **Desorption Electrospray Ionization Mass Spectrometry Using a Gold-Coated Porous Alumina Surface,** *Ashis Sen, Jeff Darabi, University of South Carolina, Columbia, SC, USA, Daniel Knapp, Medical University of South Carolina, Charleston, SC, USA*

MNC2007-21098: **System Design and Kinematics Simulation of Electrochemical Machining Equipment for Micro-holes,** *Jishun Jiang, shandong university of technology*

MNC2007-21107: **Performance of Tesla Microfluidic Valves,** *S. Zhang, S.H. Winoto, H. T. Low, National University of Singapore, Singapore, Singapore*

MNC2007-21169: **Multi-objective Optimization for Electrostatic-feedback Micro-Sensor Based on Genetic Algorithm,** *Yongquan Wang, Xi'an Jiaotong University*

MNC2007-21175: **Topology Optimization of MEMS-Based Biodegradable Controlled Drug Delivery System for Combination Therapy,** *Ruixia Yu, Hualing Chen, Tianning Chen, Hairong Wang, Xi'an Jiaotong University, Sian, Shanxi, China*

MNC2007-21188: **Opto-Electro-Mechanical Mixed-Signal System-Level Modeling of Micro Deformable Mirror,** *Yang He, Northwestern Polytechnical University*

MNC2007-21191: **A Power Flow Analysis and Control Methodology for Cycloid Gear Train in Precision Transmission,** *Wujiao Xu, Chongqing University, Chongqing, Chongqing, China, Yu Fu, Ru Xu Du, Chinese University of Hongkong, Hong Kong, China*

MNC2007-21194: **Design and Test of Small-scale Rotary Engine Power System,** *Yisheng Liu, Zhejiang University*

MNC2007-21199: **Cell-Based Drug-Screening Method Using Total Internal Reflection Microscopy,** *Yongku Lee, Sangmo Koo, Jung Y. Yoo, Seoul National University, Seoul, Korea (Republic)*

MNC2007-21242: **Measurement of Glucose Lever by Miniature Surface Plasmon Resonance Biological Sensor with Microfluidic Platform,** *Dachao Li, Tianjin University*

MNC2007-21245: **A SiN Tube Formed using TMAH Etching,** *Huijun Chen, Peking University*

MNC2007-21253: **Finite Element And Experimental Analysis On Micro-Vibration Of Ultra Precision Air Bearing Linear Motion Stage And Methods Of Its Elimination,** *Zhang Ming, Tsinghua University*

MNC2007-21255: **Application of nanometer TiO₂ Photocatalysis Material in Air Purifition,** *Haiyan Hou, South China University of Technology, China*

MNC2007-21274: **Design And Experiment For High Overloading Piezoceramic Actuator Based On Adaptive Munition**, *Yunbo Shi National Key Laboratory for Electronic Measurement Technology*

MNC2007-21294: **Multiobjective Topology Optimization Of Compliant Microgripper with Geometrically Nonlinearity**, *Zhaokun Li, South China University Of Technology, Guangzhou, China*

MNC2007-21300: **A High Sensitivity Piezoresistive Pressure Sensor**, *Ahsan Mian, Montana State University*

MNC2007-21307: **Design and Simulation of Quartz Tuning Fork Temperature Sensor**, *Jun Xu, Harbin University of Science and Technology*

MNC2007-21321: **Characterization of a Micropump Actuated by Ternary TiNiCu shape memory thin films**, *Zhang Huijun, The Key Lab of Integrated Circuit, Heilongjiang University*

MNC2007-21360: **Improvement of Micro Turbine Engines for IEM**, *Anatoly Soudarev, NIZ KTD, LTd*

MNC2007-21481: **Comparative Study of Effect of Various Reducing Agents on the Size and Shape of Gold Nanoparticles**, *Abhishek Kumar, Punjab Engineering College, Chandigarh, Punjab, India, Gerard Eddy Poinern, Division of Science and Engineering, Murdoch University, Perth, Western Australia, Western Australia, Australia*

MNC2007-21483: **Embedding Of Carbon Nanotubes On P-Type Silicon For Use In Solar Cells And PV Devices**, *Abhishek Kumar, Punjab Engineering College*

MNC2007-21514: **A Micromachined Integrated Sensor for Pressure, Temperature and Humidity**, *Yulong Zhao, Xi'an Jiaotong University*

MNC2007-21518: **A High g Accelerometer Based on SOI Piezoresistive Material with Cantilever Beam**, *Yulong Zhao, Xi'an Jiaotong University*

MNC2007-21519: **Rfid as a Thermodynamic System**, *David N. Ivester, Ivester Energy Engineering, Clarkesville, GA, USA*

MNC2007-21520: **Nonlinear Vibration of Electrostatically Actuated MEMS Resonators Under Parametric and External Excitations**, *Zhang Wen-Ming, Shanghai Jiao Tong University*

MNC2007-21538: **An Enhanced Model for Hysteresis Compensation in Piezo Actuator**, *Wang Wen, Xinxin Li, Zichen Chen Zhejiang University, Hangzhou, Zhejiang, China*

MNC2007-21543: **Several Key Technologies to Improve Silicon Microgyro Performance**, *xia dunzhu, Department of Instrument Science and Engineering, The Southeast University*

MNC2007-21548: **Preparation Natural Brucite Nano-fibers**, *xu li, civil and environment engineering school of University of Science and Technology Beijing*

MNC2007-21551: **An Integrated Microsystem for Environmental Sensing Powered by Energy Scavenging**, *Pamela Obiomon, Prairie View A&M University*

MNC2007-21563: **Quantum Dot Enabled Fiber Optic Biosensing with Biochemical Amplifications**, *Gary Cheng, Chengzhi Cai, Gangbing Song, University Of Houston, Houston, TX, USA*

MNC2007-21581: **Micro Channel Structure With Strengthened Rough Surface In an Ethanol Reforming Hydrogen Generator**, *Dashi Su, South China University of Technology*

MNC2007-21603: **Properties of HDPE/Clay/Wood Nanocomposites**, *Qinglin Wu, Louisiana State University*

MNC2007-21605: **Large-scale Synthesis of Monodispersed Nanocrystals via Microreaction**, *Hongwei Yang, Weiling Luan, Shan-Tung Tu, East China University of Science and Technology, Shanghai, China*

MNC2007-21609: **Molecular Dynamics Simulation of Au Cluster Depositing on Au Surface**, *Hong Gao, Liangju Zhao, Danling Zeng, Lijuan Gao, Chongqing University, Chongqing, China*

MNC2007-21639: **An Integrated Approach For Virtual Microstructure Generation And Micro-Mechanics Modeling For Micro-Forming Simulation**, *Jianguo Lin, University of Birmingham, UK*

Track 2: Micro and Nano Devices

Chair: *Professor Steven Walsh, University of New Mexico, USA*

Session Chair: *Professor Tony Jun Huang, The Pennsylvania State University, University Park, PA, USA*

MNC2007-21002: **Active Mixers Using Electroactive Polymers**, *Wassim Abu-Zent, Mohammad Masurour Alam, University of Toronto, Toronto, ON, Canada*

MNC2007-21003: **On Improving the Accuracy of Micromachined Gyroscopes Based on Multi-Sensor Fusion**, *Honglong Chang, Peng Zhang, Min Hu, Weizheng Yuan, Northwestern Polytechnical University, Xi'an, China*

MNC2007-21010: **Fabrication of Micro-Array of Zinc Oxide Semiconductors**, *Qixin Guo, Saga University, Saga, Saga, Japan*

MNC2007-21018: **Mechanical-Electrostatic Distortion Analyze and Simulation for Mems Line Vibration Gyroscope**, *Sun Feng, Guo Qiufen, Ge Yuansheng, Ma Longhua, Harbin Engineering University, Harbin, Heilongjiang, China*

MNC2007-21024: **Forced Response of Electromechanical Integrated Electrostatic Harmonic Drive to Voltage Excitation**, *Lizhong Xu, Yanshan University, Qinhuangdao, Hebei, China*

MNC2007-21031: **Sensing Flow Separation on a Typical Aerofoil by MEMS Flexible Thermal Sensor Array**, *Kui Liu, Weizheng Yuan, Jin-jun Deng, Bing-he Ma, Cheng-yu Jiang, Northwestern Polytechnical University, Xi'an, Shaanxi, China*

MNC2007-21037: **Design a System of Ar-Ion Laser Enhanced Anisotropic Etching**, *Dianzhong Wen, Heilongjiang University, Harbin, Heilongjiang, China*

MNC2007-21039: **Optical Property Analysis Of Micro-Bolometer Based On MEMS**, *Shibin LI, University Of Electronic Science And Technology Of China(UESTC)*

MNC2007-21046: **The Mechanism and Process of Anodic Bonding for Glass and Aluminium**, *Qingsen Meng, Cuirong Liu, Lifang Hu, Yude Li, Taiyuan University of Science and Technology, Taiyuan, Shanxi, China*

MNC2007-21054: **Structure Design and Dynamic Analysis of a FPSM of ATP System for Free Space Optical Communication**, *Lining Sun, Bing Shao, Dongsheng Qu, Harbin Institute Of Technology, Harbin, Heilongjiang, China*

MNC2007-21067: **Research and Fabrication on Eddy Current Sensor Based on UV-LIGA**, *Zheng Xiaohu, Huaiying Institute of Technology, HuaiAn, China*

MNC2007-21078: **Modeling of an Electrostatic Micromotor Based on a Levitated Rotor**, *Xi Chen, Fengtian Han, Yunfeng Liu, Tsinghua University, Beijing, Beijing, China*

MNC2007-21079: **Numerical Simulation Of Gaseous Flow Characterstics In Microchannels**, *Li Jia, Tiantian Zhang, Beijing Jiaotong University, China*

MNC2007-21080: **Design and Simulation of MEMS-Based CPW-fed Microstrip Dipole Antenna**, *Donghua Gu, Guifu Ding, Shanghai Jiaotong University, Shanghai, Shanghai, China*

MNC2007-21082: **Investigation of Contribution Ratio Between NBTI and HC Effects in PMOSFETs Under Deep-Submicron Process**, *Mu-Chun Wang, Ming-Hsin University of Science and Technology, Hsin-Chu, Taiwan*

MNC2007-21083: **Design Of A 0.18um Stable Non-Volatile Boost Circuit In High/Low Temperature Operation**, *Mu-Chun Wang, Ming-Hsin University Of Science And Technology*

MNC2007-21085: **A 2.4-GHz 0.18um Full-CMOS Single-Stage Class-E Power Amplifier with Temperature Effect for ISM Band Wireless Communication**, *Mu-Chun Wang, Chieu-Ying Hsu, Ming-Hsin University of Science and Technology, Taiwan, Zhen-Ying Hsieh, Shuang-Yuan Chen, Heng-Sheng Huang, National Taipei University of Technology, Taiwan*

MNC2007-21086: **A 5.8GHz Bandpass Filter with an Active Inductor through 0.18um Full-CMOS Process for Wireless Transceivers**, *Mu-Chun Wang, Ming-Hsin University of Science and Technology, Hsin-Chu, Taiwan*

MNC2007-21099: **Conceptual Analysis Of An Evaporation-Based Micropump Consisting Of A Gradient-Capillary Microstructure Surface**, *Xiao-Ze Du, North China Electric Power University*

MNC2007-21100: **Study On The Uniformity Of Micro Electroforming Mold Insert Used In Micro Fluidic-Chip Fabrication**, *Liqun Du, Haijun Liu, Jiang Qin, Chong Liu, Dalian University of Technology, China*

MNC2007-21137: **Research on the Structure and Performance of Bacterial Magnetic Nanoparticles**, *Jin Chang, Tianjin University, Tianjin, China*

MNC2007-21141: **Synthesis And Characterization Of Lysine Modified Chitosan Magnetic Microspheres: A Novel Gene Delivery System**, *Jin Chang, Tianjin University, Tianjin, China*

MNC2007-21146: **The Analysis Of The Output Voltages For Piezoelectric Cantilever Generator Base On Vibration Energy Harvesting**, *Xiaozhen Du, Dalian University Of Technology*

MNC2007-21149: **Study on Fabrication and Characterization of Nanometer Scale MIM Tunneling Junction**, *Qinggang Liu, Tianjin University, China*

MNC2007-21152: **Design Of Decouple On MEMS Tunneling Gyroscope**, *Wenwang LI, Xiamen University Of Technology*

MNC2007-21168: **Topological Optimization Design and Manufacture of Microactuator Based on The Nodal Density Method**, *Zhen Li, Baoyuan Sun, Min Qian, Jun Zhang, Dalian University of Technology, Dalian, China*

MNC2007-21171: **Design Of Pulsed Jet On-Off Valve Based On Giant Magnetostrictive Actuator**, *Aihua Meng, Hangzhou Dianzi University, Hangzhou, China*

MNC2007-21181: **Micro/Nano Piezoelectric Composites for Advanced M/NEMS**, *Xiaoning Jiang, Kevin Snook, Wesley Hackenberger, TRS Technologies, Inc., State College, PA, USA, Jian R. Yuan, Boston Scientific Corporation, Fremont, CA, USA, An Cheng, The Pennsylvania State University, University Park, PA, USA*

MNC2007-21198: **Humidity Sensor Based on Polymer Coated Quartz Crystal Microbalance QCM**, *Zhihua Ying, University of Electronic Science and Technology of China, Chengdu, China*

MNC2007-21201: **A New Structure Of Cantilever-Based FPA**, *Xin Wang, Peking University*

MNC2007-21204: **Simulation Research on Dynamic Characteristics of Micro Magnetic Acceleration Switch Based on Finite Element Method**, *Yingmin Zhu, Jianyuan Jia, Kangqi Fan, Xidian University, Xi'an, Shaanxi, China, Chunyue Huang, Guilin University of Electronic Technology, Guilin, Guangxi, China*

MNC2007-21220: **A Universal Interface Circuit for Capacitive Vibratory Microgyroscopes**, *Qinghua Jiang, Weizheng Yuan, Honglong Chang, Northwestern Polytechnical University, Xi'an, China*

MNC2007-21226: **Micromachined Pressure Sensor Based on GaAs/AlAs/In_xGa_{1-x}As Resonant tunneling Effect**, *Wendong Zhang, Jian Wang, Chenyang Xue, Jijun Xiong, Zhaomin Tong, Lina Zheng, North University of China, China*

MNC2007-21227: **A Novel Integrated Microfluidic Biochip For DNA Detection**, *Y. T. Cheng, Department Of Mechanical Engineering, National Taiwan University*

MNC2007-21234: **Monolithic Integration of Micro-cantilever and Read-out Circuits**, *Yaquan Tang, Peking University., Beijing, China*

MNC2007-21265: **Numerical Simulation of Micro Air Vehicles with Membrane Wings**, *Xiaoqin Zhang, Ling Tian, Tsinghua University, China*

MNC2007-21266: **Numerical Evaluation on the Cooling Capability of MEMS Based Liquid Metal Cooling Device Used in Harsh Environment**, *Zhong-Shan Deng, Jing Liu, Yi-Xin Zhou, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China*

MNC2007-21270: **An Orthogonal-Beam Tunnel-Effect Mems Gyroscope**, *Liu Jun, Li Jingmin, Shi Yunbo, National Key Laboratory For Electronic Measurement Technology, Taiyuan, Shanxi, China, Luo Yuanyuan, North University Of China, Taiyuan, Shanxi, China, Ma Fai, Department Of Mechanical Engineering University Of California, USA*

MNC2007-21277: **Optimization in Design of High-g Accelerometers**, *Liu Jun, Qi Xiaojin, Shi Yunbo, National Key Laboratory For Electronic Measurement Technology, Taiyuan, China, Ma Fai, Department Of Mechanical Engineering University Of California, California, CA, USA*

MNC2007-21278: **The Mechanism and Bonding Process of Field-Assisted Bonding of Borosilicate Glass to Kovar Alloy**, *Lifang Hu, Qingsen Meng, Cuirong Liu, Xiaoying Lu, Taiyuan University Of Technology, Taiyuan, Shanxi, China*

MNC2007-21281: **Testing The MEMS Device S Internal Structure Topography Based On Transmission And Interference Technique**, *Chenyang Xue, North University Of China*

MNC2007-21289: **Macromodeling Method of Fluid-Structure Interacting MEMS Based on Modal Analysis and Proper Orthogonal Decomposition**, *Wentao Hao, Ling Tian, Bingshu Tong, Tsinghua University, Beijing, Beijing, China*

MNC2007-21292: **An Experimental Study of TMAH Etching Silicon for MEMS**, *Feiyan Chen, Jimei University, Xiamen, China, Guoqing Hu, Xiamen University, Xiamen, China, Baihai Wu, Guangdong University of Technology, Guangzhou, China*

MNC2007-21299: **Influence Of Substrate Roughness On The Bond Strength Of Laser Fabricated Microjoints**, *Ahsan Mian, Montana State University, Bozeman, MT, USA, Taslema Sultana, Greg Auner, Golam Newaz, Wayne State University, Detroit, MI, USA*

MNC2007-21306: **Reliability Assessment of MEMS Structure of Su-8 Thin Film**, *Jun-Hyub Park, TongMyong University, Busan, Korea (Republic), Yun-Jae Kim, Joong-Hyok An, Korea University, Seoul, Korea (Republic), Sang-Hyun Kim, Hee Yuel Roh, Micro Device & Systems Lab. Samsung Advanced Institute of Technology, Suwon-Si, Korea (Republic)*

MNC2007-21309: **Simulation and Test of a Doubly Decoupled Lateral Axis Gyroscope**, *Xuesong Liu, Bo Lv, Zhenchuan Yang, Haitao Ding, Guizhen Yan, Peking University, Beijing, Beijing, China*

MNC2007-21349: **A Bulk Micromachined Si-on-Glass Tunneling Accelerometer**, *Min Miao, Qifang Hu, Peking University, Beijing, China, Yilong Hao, Peking University, China, Beijing, China, Haifeng Dong, Alice Haixia Zhang, Peking University, Beijing, China*

MNC2007-21382: **The Property of Ni-Fe Electrodeposits for Mems**, *Zheng Xiaohu, Huaiking Institute of Technology, Huaian, China*

MNC2007-21400: **A Novel Demodulation Scheme in the Digital Readout System for a Micro-Machined Gyroscope**, *Lu Liu, YiChao Song, Peking University, Beijing, China*

MNC2007-21407: **Precisely Controlling Assembly Angle of Surface Tension Powered Self-Assembly for MEMS Microstructures**, *Pan Kailin, Guilin University Of Electronic Technology, Guilin, Guangxi, China*

MNC2007-21414: **Design and Simulation of Novel MEMS Optical Acceleration Sensor**, *Shuhai Jia, Weijun Kong, Jia Yang, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Yigui Li, Shanghai Jiaotong University, Shanghai, China*

MNC2007-21460: **A Feasibility Study on Micro Silicon Cantilever Beam for High Isolation RF MEMS Switch**, *Lingling Lin, Guoqing Hu, Wenyan Liu, Feiyan Chen, Jimei University, Xiamen, China, Xiamen University, Xiamen, China, Baihai Wu, Guangdong University of Technology, Guangzhou, China*

MNC2007-21496: **Polymer-based Resonator for Ultrasonic Imagine Applications.**, *Ming-Wei Chang, Industrial Technology Research Institute, Hsin Chu, Taiwan*

MNC2007-21506: **Preparation of Fe-Mn-Si Ferromagnetic Shape Memory Alloys Nano-Films by Magnetron Multi-Sputtering**, *He Liang, Shi Qiang Qian, Wang Wei, Shanghai University of Engineering Science, Shanghai, China*

MNC2007-21517: **Design and Fabrication of a High Temperature Pressure Sensor**, *Libo Zhao, Yulong Zhao, Xi'an Jiaotong University, Xi'an, China, Zhuang D. Jiang, Institute of Precision Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

MNC2007-21527: **Co-rich Amorphous Wire Study for GMI Micro Geomagnetic Sensors**, *Zhao Lin, Xia Linlin, Nie Qi, Harbin Engineering University, Harbin, Heilongjiang, China*

MNC2007-21533: **Enabling Micro Synthetic Jets Actuators in Boundary Layer Separation Control Using Flow Instability**, *Guang Hong, University of Technology Sydney, Sydney, NSW, Australia*

MNC2007-21536: **Structural Design And Porting Parameters Calculation Of A Micro Engine For Power Generation**, *Jiuhong Wang, Dejiang Lu, Zhuang D. Jiang, Institute of Precision Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

MNC2007-21539: **The Electronic Structure of Truncated-Conical Shaped InAs/GaAs Quantum Dot With Wetting Layers**, *Yumin Liu, ZHongyuan Yu, Beijing University of Posts and Telecommunications, Beijing, China*
MNC2007-21529: **Research of a High Temperature Piezoresistive Silicon Chip**, *Libo Zhao, Xi'an Jiaotong University, Xi'an, China*

MNC2007-21545: **Automatic Flexible Wire Bonder for MEMS Sensor Packaging Based on Zoom Lens System**, *Liguo Chen, Harbin Institute of Technology, Harbin, Heilongjiang, China*

MNC2007-21560: **Dual-Layer Photoresist and Back Sputtering Applied in Lift-Off Technique**, *Lu Zhang, Le Zhang, Ying Wang, Zhenchuan Yang, Guizhen Yan, Peking University, Beijing, Beijing, China*

MNC2007-21566: **Optical Limiting Performance of ZnS Nanotube**, *Qing Chang, Cun Chang, Hongan Ye, Yinglin Song, Harbin Institute Of Technology, Harbin, Heilongjiang, China*

MNC2007-21567: **Novel Vanadium Oxide Nanotubes**, *Abhishek Kumar, Punjab Engineering College, Chandigarh, Punjab, India, Gerard Eddy Poinern, Philip Jennings, Murdoch University, Perth, Western Australia, Perth, Western Australia, Australia*

MNC2007-21569: **Nanoporous Silicon Prepared From Anodic Electrochemical Etching**, *Abhishek Kumar, Punjab Engineering College, Chandigarh, Punjab, India, Gerard Eddy Poinern, Philip Jennings, Division of Science and Engineering, Murdoch University, Perth, Western Australia, Western Australia, Australia*

MNC2007-21571: **Ion Bombardment as Dominant Factor in Plasma Cryo-etching for High Aspect Ratio Silicon Structures**, *Dejiang Lu, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

MNC2007-21579: **Mechanism for Size Dependence of Light Emission from ZnO Nanocrystallites**, *Fuli Zhao, Xiaofang Wang, Ningsheng Xu, Sun Yat-Sen University, Guangzhou, Guangdong, China, Pingbo Xie, College Of Materials Science And Engineering, South China University Of Technology, Guangzhou, China, Zhizhan Xu, State Key Laboratory Of High Field Laser Physics, Shanghai, Shanghai, China*

MNC2007-21607: **Micro Hydrogen Sensor Based On Thermoelectric Films**, *Hu Huang, Weiling Luan, Jiansong Zhang, Shan-Tung Tu, East China University of Sci. & Tech., Shanghai, Shanghai, China, Shang-Kuo Yang, National Chin Yi Institute of Technology, Taiping City, Taichung, Taiwan*

Track 4: Energy and Micro and Nano Scale Heat Transfer

Track Chair: *Professor Timothy Fisher, Purdue University, West Lafayette, IN, USA*

Co-Chair:

Session Chairs: *Professor Bao Yang, University Of Maryland, Silver Spring, MD, USA*

Professor Heng Ban, University of Alabama at Birmingham, USA

Professor Jing Liu, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China

Professor Ronggui Yang, University of Colorado at Boulder, Boulder, CO, USA

Professor Zhixiong (James) Guo, Rutgers, The State University of New Jersey, Piscataway, NJ, USA

Professor Yimin Xuan, Nanjing University of Science & Technology, Nanjing, Jiangsu, China

MNC2007-21052: **Enhancement of Single-Phase Refrigerant Mixture (R-407C) flow in Meso-Scale Heat Exchangers Using Micro-Coils**, *Yasir Shariff, Taibah University, Madina, Saudi Arabia, TS Ravigururajan, Wichita State University, Wichita, KS, USA*

MNC2007-21075: **A Microchannel Heat Sink with Unitary Circular Flow and Short-distance Heat Transfer Mode: Design and Simulation**, *Yan Wang, Shanghai Jiao Tong University, Shanghai, China*

MNC2007-21087: **Design, Fabrication and Characterization of Nanostructured Fiber Arrays for Fuel Cell Applications**, *Yong X. Gan, The Cooper Union, New York, NY, USA, Michelle L. Hyers, Massachusetts Institute of Technology, Cambridge, MA, USA*

MNC2007-21102: **Fluid Flow and Heat Transfer Characteristics of Slug Bubbly Flow in Micro Condensers**, *Jinshan Hu, Christopher Chao, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong, China*

MNC2007-21114: **Manufacture and Performance Simulation of a Visible Miniature Loop Heat Pipe**, *Yan Qu, Shandong University, Jinan, Shandong Province, China*

MNC2007-21136: **Numerical Investigations of Forced Convection from Rectangular Coiled Pipes**, *Ibrahima CONTE, Xiao-Feng Peng, Zhen Yang, Tsinghua University, Beijing, Beijing, China*

MNC2007-21145: **Three-Dimensional Discharge Simulation of Inductively Coupled Plasma**, *Jia Cheng, Yu Zhu, Guanghong Duan, Tsinghua University, Beijing, Beijing, China, Yaying Chen, Qinghua University, Beijing, China*

MNC2007-21151: **Molecular Dynamics Simulation of Non-Fourier Heat Conduction in Argon Thin Films**, *Qi-Xin Liu, Peixue Jiang, Tsinghua University, Beijing, China*

MNC2007-21153: **MD Simulations of Nanoparticle Thermal Conductivity and Nanoscale Thermal Contact Resistance**, *Heng Xiang, Pei-Xue Jiang, Qi-Xin Liu, Tsinghua University, Beijing, Beijing, China*

MNC2007-21195: **Prediction Method for Thermal Conductivity and Electric Conductivity of Nanofluids Based on Particles Aggregation Theory**, *Guo-liang Ding, Shanghai Jiaotong University*

MNC2007-21211: **Experimental Investigation on Laminar Forced Convection Heat Transfer Enhancement of Microencapsulated Phase Change Suspension with Constant Heat Flux**, *Binjiao Chen, Xin Wang, Yinpeng Zhang, Tsinghua University, Beijing, Beijing, China*

MNC2007-21243: **Simulate and Optimize Analysis for Micro-Combustor Based on Micro-Thermoelectric Generate Source**, *Song Ruiyin, Zhejiang University, China*

MNC2007-21263: **Theoretical Evaluation on the Thermal Effects of Extracellular Hyperthermia and Intracellular Hyperthermia**, *Zhong-Shan Deng, Jing Liu, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China*

MNC2007-21268: **Thin Film Profile near the Interline Region in a Capillary Tube**, *Wei Qu, Institute of Engineering Thermophysics*

- MNC2007-21293: **Theory of Photoacoustic Characterization of Thermophysical Properties of Multi-layered Nanofilms**, *Hanping Hu, University of Science and Technology of China, Hefei, Anhui, China*
- MNC2007-21308: **Microscale Vapor Bubble Interactions During Subcooled Nucleate Boiling on a Heated Wire**, *Lu Zhang, David Christopher, Tsinghua University, Beijing, China*
- MNC2007-21314: **Parametric Study For The Phase-Change Process Of Liquid Flow With Microencapsulated PCM Particles In Microchannels**, *Yingli Hao, Jinli Lu, Southeast University, Nanjing, Jiangsu, China*
- MNC2007-21376: **Two Different Types of Axially-Grooved Heat Pipes and Thermal Performance Comparison**, *Yong Chi, Yong Tang, Le-Lun Jiang, Zhen-Ping Wan, Pan Minqiang, South China University Of Technology, Guangzhou, Guangdong, China*
- MNC2007-21413: **Molecular Dynamics Simulation Of Water Behavior As A Function Of Temperatures And Monomer Numbers In Nafion 117**, *Kyung Su Oh, Seungho Park, Hongik University, Seoul, Korea (Republic), Joon Sik Lee, Seoul National University, Seoul, Korea (Republic), Ohmyoung Kwon, Korea University, Seoul, Korea (Republic), Young Ki Choi, Chung-Ang University, Seoul, Korea (Republic)*
- MNC2007-21438: **Molecular Dynamical Study on the Nanoscale Effect of Particles on the Thermal Conductivity and Viscosity in Nanofluids**, *Wen-Qiang Lu, Graduate University of Chinese Academy of Sciences, Beijing, China*
- MNC2007-21444: **Experimental Observation Of Liquid Exploding Emission In Micro Tubes**, *Di Wu, Xiao-Feng Peng, Tsinghua University, Beijing, Beijing, China*
- MNC2007-21447: **Microstructure Enhanced Heat Exchanger for Pressurized Water Reactor**, *Kun Lian, Su-Seng Pang, Zhong-Geng Ling, Cahng-Geng Liu, Min Zhang, Louisiana State University, Baton Rouge, LA, USA, Guoqiang Li, Samuel Ibekwe, Southern University, Baton Rouge, LA, USA,*
- MNC2007-21526: **A Simplified Scaling Transformation for the Numerical Simulation of Mems Devices with Thin Film Structures**, *Wei Wang, Zhihong Li, Institute Of Microelectronics, Peking University, Beijing, Beijing, China*
- MNC2007-21501: **Effect of CuO Nanolubricant on R134a Pool Boiling Heat Transfer**, *Mark Kedzierski, NIST, Gaithersburg, MD, USA*
- MNC2007-21531: **Effects Of Solid Surface With Nano-Relief On Liquid Contact Angle**, *Wei Qu, Institute of Engineering Thermophysics, Beijing, China*
- MNC2007-21538: **An Enhanced Model for Hysteresis Compensation in Piezo Actuator**, *Wen Wang, Zhejiang University*
- MNC2007-21555: **Analysis Of Anisotropic Thermal Properties Of Carbon Nanotube Bundles**, *John Shelton, Frank Pyrtle, III, University Of South Florida, Tampa, FL, USA*
- MNC2007-21588: **Performance Analysis of Composite Sorbents in Thermal Storage System**, *Dongsheng Zhu, The Faculty of Chemical and Energy Engineering South China University of Technology, Guangzhou, China, Xuebo Li, Huijun Wu, Nan Wang, South China University of Technology, Guangzhou, China*
- MNC2007-21589: **Plasmonic-Enhanced Radiative Transfer Through Nanoscale Aperture Antennas**, *Eric, X. Jin, Liang Wang, Xianfan Xu, Purdue University, IN, USA*

MNC2007-21591: **Coherent Phonon Excitation By Ultrafast Pulse Trains**, *Alex Q. Wu, Xianfan Xu, Purdue University, IN, USA*

MNC2007-21596: **Experimental Study On Characteristics Of Nanofluid For Low-Temperature Phase Change Cool Storage**, *Jianyou Long, South China University Of Technology, Guangzhou, China*

MNC2007-21635: **Solar Thermoelectric Energy Conversion**, *Professor Gang Chen, Massachusetts Institute of Technology, USA*

Track 7: Metrology and Control

Chairs: *Professor Bin Yao, Purdue University, West Lafayette, IN, USA*

Session Chair: *Professor George Chiu, Purdue University, West Lafayette, IN, USA*

MNC2007-21012: **Analysis and Design of a Three-Limb Six Degree-of-Freedom Parallel Micromanipulator with Flexure Hinges**, *Lefeng Wang, Weibin Rong, Lining Sun, Jie Jiao, Harbin Institute of Technology, Harbin, Heilongjiang, China*

MNC2007-21020: **Rapid Measuring Method of Micro-Motion Based on Time-averaged Microscopic Interferometry**, *Tong Guo, Tianjin University, Tianjin, Tianjin, China*

MNC2007-21030: **Study on A Positioning and Measuring System with Nanometer Accuracy**, *Qi Yongyue, Zhao Meirong, Lin Yuchi, Tianjin University, Tianjin, China*

MNC2007-21060: **Current Control Amplifier For Piezoelectric Actuator In Precision Positioning Control**, *Changhai Ru, Harbin Engineering University*

MNC2007-21197: **A Robust Multiscale Algorithm for Motion Measurement with High Accuracy**, *Qinghua Lu, Xianmin Zhang, College of Mechanical Engineering, South China University of Technology, Guangzhou, China*

MNC2007-21207: **Development Of Double Equipotential Ring Capacitance Sensor In Ultra-Precise Optical Measurement**, *Zhang Jianhuan, Gao Xuemin, Xiamen University, Xiamen, Fujian, China*

MNC2007-21241: **Theoretical Analysis And Experiment Study Of Carbon Nanotube Probe And Conventional Atomic Force Microscopy Probe On Surface Characterization**, *WANG Jinghe, Harbin Institute Of Technology*

MNC2007-21323: **Spatio-Temporal Mapping Of Transient Electric Fields With Ultrafast Scanning Tunneling Microscope**, *Tian Lan, Beijing Institute Of Technology*

MNC2007-21327: **The Research On The Redundant Actuated Parallel Robot With Full Compliant**, *Guangping HE, North China University Of Technology*

MNC2007-21335: **Sliding Mode Based Controller For Magnetostrictive Actuator In Precision Positioner**, *Xinxin Li, Zhejiang University*

MNC2007-21380: **Control Over Air Gap of Active Magnetic Bearing Based on DSP**, *Ren Shuangyan, Bian Chunyuan, Liu Jie, Northeastern University, Shenyang, Liaoning, China, Wang Zhiqiang, Beihang University, Beijing, Beijing, China*

MNC2007-21429: **Research Of Nanometer Positioning Stage With Six Degree Of Freedom Based On Binary Actuation Principle**, *Sun Shufeng, Wenzhou University*

MNC2007-21570: **Image-Based Displacement Measurement System For The Characterization Of Mechanical Properties Of Thin Films**, *J.E. Ha, Seoul National University Of Technology*

MNC2007-21583: **Research Progress and Problems of Heat-Transfer Properties of Nanofluids**, *Dongsheng Zhu, Xinfang Li, South China University of Technology, China*

Friday Poster Sessions
Beijing Ballroom
3:30 – 6:30 PM

Track 3: Micro and Nano Mechanics

Chair: Professor Wei Lu, University of Michigan, Ann Arbor, MI, USA

Session Chair: Professor Jianbin Luo, Tsinghua University, Beijing, Beijing, China

MNC2007-21032: **Hardness Determination Of Au Thin Film By Nanoindentation Technique A Comparative Study On Various Characterizing Methods**, *Xiangyang Zhou, Institute of Precision Engineering, Xi an Jiaotong University*

MNC2007-21041: **Comparison Between Nonlocal Elastic Shell Model and Strain Gradient Shell Model in Dealing with Longitudinal Wave Dispersion**, *Lifeng Wang, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

MNC2007-21050: **Identification and Analysis of Electro-Mechanical Properties of Micro Structured Thin Films**, *Neeraj Singh, Indian Institute of Technology, Kharagpur, Kharagpur, India*

MNC2007-21121: **Experimental Study on Running-in of Steel Gear Pairs with Micro- and Nano-Materials**, *Zegui Wang, South China University of Technology, China*

MNC2007-21122: **Experimental Study on Fullerene Formation Process in Toluene Flame at Low Pressure Condition**, *Masahiko Shibahara, Osaka University*

MNC2007-21184: **Design of a Micro Tensile Testing Structure to Restrain Non-axial Alignment Errors**, *Duanqin Zhang, Dalian University of Technology*

MNC2007-21202: **The Investigation of the Microstructure and Properties of Ni/CNTs Nanocrystalline Coating Deposited by Brush Plating**, *Jun Tan, National Key Laboratory for Remanufacturing Academy of Armored Force Engineering*

MNC2007-21203: **Adhesive Force in Micro- and Nano-systems**, *Kangqi Fan, Xidian University*

MNC2007-21233: **Characterization of Surface Layer of Silicon Wafer by Using Nano Indenter**, *Yu-li Sun, Nanjing University of Aeronautics and Astronautics*

MNC2007-21258: **Incorporate Research on Scratching and Uniaxial Tension of Three-Dimensional Microconstruction Simulation Based on Molecular Dynamics**, *Yingchun Liang, Harbin Institute of Technology*

MNC2007-21325: **Tensile Properties and Dislocation Strengthening of the Nanostructured CP-Ti Prepared by Equal-Channel Angular Pressing at 723K**, *Xiaojing Xu, Jiangsu University*

MNC2007-21356: **Study on the Damage of Magnetic Recording Media**, *Jibin Li, Shenzhen University*

MNC2007-21370: **Numerical Analysis the Strain Distribution of GaN/AlN Self-Organized Pyramid Quantum Dot**, *Yumin Liu, Beijing University of Posts and Telecommunications*

MNC2007-21371: **Analytic Calculation About the Strain Distribution of Any-Shaped Self-Organized Growth Quantum Dot**, *Yumin Liu, Beijing University Of Posts And Telecommunications*

MNC2007-21421: **An Instrument For Measuring Mechanical Properties Of Mems Materials By Nanoindentation And Micro-Beam-Bending**, *Hairong Wang, Mechanical Engineering School, Xi'an Jiaotong University*

MNC2007-21461: **A Feasibility Study on Micro Silicon Cantilever Beam for High Isolation RF MEMS Switch**, *Feiyan Chen, Jimei University*

MNC2007-21479: **The Uniaxial Tension Properties of Silver Nanorod by Molecular Dynamics Simulations**, *Li Chen, Heng Liu, Lie Yu, Xi'an Jiaotong University, Xi'an, China*

MNC2007-21499: **Residual Vibration Control of Electrostatically Actuated Microswitch**, *Jao-Hwa Kuang, National Sun Yat-Sen University, Kaohsiung, Taiwan, Chao-Jung Chen, Quanta Computer Inc., Taoyuan, Taiwan*

MNC2007-21535: **A New Friction Estimation Approach for Ultra-Precision Positioner**, *Wen Wang, Zhejiang University*

MNC2007-21553: **Nanotensile Study of Materials with Three-dimensional Force and Displacement Control and Measurement**, *Dehua Yang, Qiang Xiao, Tiejun Hu, Fred Tsuchiya, Thomas J. Wyrobek, Hysitron, Inc., Minneapolis, MN, USA*

MNC2007-21557: **Nanoscale Plastic Deformation And Fracture Of Freestanding Polymer Thin Films Studied By In Situ Nanoindentation In A Transmission Electron Microscope**, *Jing Zhou, Kyriakos Komvopoulos, University of California, Berkeley, Berkeley, CA, USA, Andrew Minor, National Center of Electron Microscopy, Lawrence Berkeley National Lab, Berkeley, CA, USA*

Track 5: Micro and Nano Fluidics

Track Chair: *Professor Hongbin Ma, University of Missouri, USA*

Session Chairs: *Professor Xiao-Feng Peng, Tsinghua University, Beijing, Beijing, China*

Professor Yiding Cao, Florida International University, Miami, FL, USA

Professor Wei Qu, Institute of Engineering Thermophysics, Beijing, China

Co-Chairs: *Professor Chien-Pin Chen, University of Alabama in Huntsville, Huntsville, AL, USA*

Professor Hongtao Gao, Dalian Maritime University, Dalian, China

Professor K Park, Korea Maritime University, Pusan, Korea (Republic)

MNC2007-21115: **Investigation on Synthesis of Magnetic Fluids Containing Carbon-coated Iron Nanoparticles**, *Liu Tonggang, China University of Mining and Technology*

MNC2007-21120: **Simulation of Rarefied Gas Flow in Microchannel Based on Vorticity-Stream Function Method**, *Xueyong Wei, University of Birmingham*

MNC2007-21133: **Modeling and Simulation of Electrostatic Droplet Manipulation for Application in Microfluidic Devices**, *Kamran Mohseni, University of Colorado, Boulder, CO, USA*

MNC2007-21144: **A Study of Fine Machining using Instantaneous Tiny Grinding Wheel Based on Electrorheological Effect**, *Jianhua Feng, Guangdong University of Technology, Guangzhou, China*

MNC2007-21147: **Numerical Simulation of Self-induced Thermocapillary Convection for Non-uniform Evaporating Meniscus in Capillary Tubes**, *Li You-Rong, Lan Bo, Peng Lan, Ying-Jie Liu, Chongqing University, Chongqing, China*

MNC2007-21148: **Design of an Electroosmosis Micromixer Using CFD**, *xiaozhang wang, Xi'an Jiaotong University*

MNC2007-21161: **Numerical Modeling of Capillary Force for Micro/Nano Interactions**, *Bo Chang, Quan Zhou, Jingrong Wang, Northwestern Polytechnical University, Xi'an, China, Heikki N. Koivo, Helsinki University of Technology, Espoo, Finland*

MNC2007-21196: **A Study on Micro Strain Electrorheological Damper Model**, *Yaying Chen, Qinghua University, Beijing, China, Yu Zhu, Guanghong Duan, Jia CHENG, Tsinghua University, Beijing, Beijing, China*

MNC2007-21206: **A Diffusion-Based Approach for Nanobead Drag Forces**, *Tim Sirk, Virginia Tech*

MNC2007-21302: **Modeling Gaseous Flows through Micro- and Nano-channels**, *Hongwei Sun, University of Massachusetts-Lowell, Lowell, MA, USA, Mohammad Faghri, Mechanical Engineering and Applied Mechanics, Kingston, RI, USA*

MNC2007-21312: **Dielectrophoretic Separation Motion of A Particle from Electrolyte Solution in Micro-channel**, *Zhenqian chen, southeast university*

MNC2007-21379: **Modeling of Flow Uniformity Among Non-Uniform Cross-Section Microchannels**, *Pan Minqiang, Yong Tang, Zhang Yihong, Zhou Wei, South China University Of Technology, Guangzhou, Guangdong, China*

MNC2007-21387: **Micro-Device For Rapid Separation Of Suspensions For Use In Micro-Total-Analysis-Systems**, *Ivano Gregoratto, University of Newcastle upon Tyne*

MNC2007-21412: **Numerical Simulation Method of Microstructure and Optical Characteristics of Magnetic Fluids**, *Yimin Xuan, Qiang Li, Bing Li, Nanjing University of Science & Technology, Nanjing 210094, Jiangsu, China*

MNC2007-21434: **Applications of Micro-PIV Technique in Visualization of Flow in Microspace**, *Ruijin WANG, Zhejiang University of Science and Technology*

MNC2007-21435: **Aanalysis of Chaotic Mixing Inside a Plug and Determination of Lagrangian Velocity**, *Wang Yifeng, Zhejiang University of Science and Technology*

MNC2007-21442: **Study on the Friction and Wear Behavior of PEEK Composites Filled with Nanometer Compounds and PTFE**, *Peng Xudong, Li Jiyun, Zhejiang University of Technology, Hangzhou, China, Zeng Qunfeng, Xi'an Jiaotong University, Xi'an, China*

MNC2007-21443: **Effects of Surface Roughness and Slip Flow on the Performance of a Spiral Groove Gas Face Seal**, *Peng Xudong, Sheng Song'en, Yin Xiaoni, Zhejiang University of Technology, Hangzhou, China*

MNC2007-21502: **Evaluation Criteria for Laminar Flow Viscous Dissipation in Microtubes**, *Mark Kedzierski, NIST, Gaithersburg, MD, USA*

MNC2007-21547: **Direct Numerical Simulation of the Electrokinetic Instability of Multilayer Fluid Flow in a Microfluidic Channel**, *Lin Wu, University of Nebraska-Lincoln, Lincoln, NE, USA*

MNC2007-21550: **Analysis of Micro Fluid Car Suspension System (MFCSS) and effect of this on comfort factor and life of system**, *Neeraj Singh, Indian Institute of Technology, Kharagpur*

MNC2007-21559: **Flow in Conical Tube at Micro Scale**, *Heng Ban, University of Alabama at Birmingham, Birmingham, AL, USA*

MNC2007-21580: **Surface Heterogeneity Induced Flow Mixing in a Microchannel**, *Hong Xue, Nathan Vuong, California State Polytechnic University, Pomona, CA, USA, Wei Xu, Mark Bachman, G.P. Li, University of California, Irvine, CA, USA*

MNC2007-21636: **A Kinetic-Theory Based 1st Order Slip Boundary Condition for Gas Flow**, *Professor Gang Chen, Sheng Shen, Massachusetts Institute of Technology, USA*

Track 6: Micro and Nano Manufacturing

Track Chairs: *Professor YF Lu, University of Nebraska-Lincoln, Lincoln, NE, USA*

Professor Xinwei Wang, University of Nebraska-Lincoln, Lincoln, NE, USA

Session Chairs: *Professor Xiaoyan Zeng, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China*

David Wallace, MicroFab Technologies, Inc., Plano, TX, USA

Professor Wenhao Huang, University of Science and Technology of China, Hefei, China

Professor Ya Cheng, State Key Laboratory Of High Field Laser Physics, Shanghai, Shanghai, China

Professor Li Yong, Tsinghua University, Beijing, China

Professor Ming Zhou, Jiangsu University, Zhenjiang, China

Professor Zhuang D. Jiang, Institute of Precision Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China

Professor Yong Lei, University of Muenster, Muenster, Germany

MNC2007-21005: **Cutting Force Analysis for Determining the Performance**, *Tae Jo Ko, Yeungnam University, Gyoungsan, Kyounbuk, Korea (Republic)*

MNC2007-21006: **Research for Metallographic Organization of Gold Nanoparticles**, *Min Han, Xiamen University of Technology, Xiamen, China*

MNC2007-21022: **Research on New Manufacturing Technique of Synthetic Gecko Foot-Hair**, *Jun Liao, Qing-xuan Jia, Han-xu Sun, Yi-gang Song, Beijing University of Posts and Telecoms, Beijing, Beijing, China*

MNC2007-21025: **The Study of Photocatalytic Degradation of Formaldehyde Under the Action of Mass Transfer**, *Yuanwei LU, Beijing University of Technology*

MNC2007-21026: **Effect of Surfactants on Nano Ni-TiN Composite Coatings Prepared by Ultrasonic-Electrodeposited Technology**, *Fa-feng XIA, Dalian University of Technology*

MNC2007-21040: **Vibration Control System for A Sub-Micro Ultra-precision Turning Machine**, *Yuxian Gai, Huiying Liu, Shen Dong, Harbin Institute of Technology at Weihai, Weihai, Shandong, China*

MNC2007-21042: **A Micro Electrical Machining CNC System Based on RTAI**, *Guo Rui, Harbin Institute of Technology, Harbin, Heilongjiang, China*

MNC2007-21051: **Ink-Jet as a MEMS Manufacturing Tool**, *David Wallace, Ting Chen, Virang Shah, Patrick Cooley, MicroFab Technologies, Inc., Plano, TX, USA, Kurt Wachtler, Texas Instruments, Inc., Dallas, TX, USA, Arunkumar Nallani, Intel Corp., Chandler, AZ, USA*

MNC2007-21059: **Electrospinning of Oriented Polymer Nanofiber Bundle**, *Dezhi Wu, Daoheng Sun, Lingyun Wang, Xiamen University, Xiamen, Fujian, China*

MNC2007-21062: **Research on Machining System Design and Machining Method of Micro Optical Aspheric Surface**, *Hao Huang, Yinbiao Guo, Xiamen University, China, Xiamen, China*

MNC2007-21063: **Study The Order Of Morphology Self-Assembled Triblock Copolymer Thin Films By FFT Of The AFM Images**, *Yongzhi Cao, Harbin Institute of Technology*

MNC2007-21066: **Study on Preparating Technology of Nano Ni-TiN Composite Layer by Ultrasonic-Electrodepositing Method**, *Meng-hua WU, Dalian University*

MNC2007-21071: **Lensless Optical System for Fabricating Holographic Photonic Crystal**, *Wei Chen, Shou Liu, Xiangsu Zhang, Ying Liu, Xuechang Ren, Xiamen University, Xiamen, Fujian, China*

MNC2007-21088: **Development and Application of a Precision Micro EDM System**, *Gang LI, Harbin Institute of Technology*

MNC2007-21093: **Influence of Microstructure on the Binder Ratio Of TCP Tissue Scaffolds Using Selective Laser Sintering**, *Lin Liulan, Hu Qingxi, Fang Minglun, Shanghai University, Shanghai, China*

MNC2007-21094: **Fundamental Research On Micro Electroforming Of Metal Microstructures By Using Shielded Anode**, *Yongbin Zeng, Di Zhu, Qu Ningsong, Hu Yangyang, Nanjing University Of Aeronautics & Astronautics, Nanjing, Jiangsu, China*

MNC2007-21096: **Effects of Substrate Properties, Film Thickness and Evaporation Rate on the Surface Roughness of Ultra Thin Titanium Films**, *Guoqiang Han, Zhuang D. Jiang, Wei X. Jing, Mingzhi Zhu, Institute of Precision Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

MNC2007-21103: **jet electrodeposited Cu-Al₂O₃ nanocomposite coatings**, *Jinsong Chen, Nanjing University of Aeronautics & Astronautics*

MNC2007-21109: **Analysis of the Loading Process with AFM Diamond Tip**, *Zhenjiang Hu, Yongda Yan, YingHua Zhang, Tao Sun, Shen Dong, Harbin Institute of Technology, Harbin, Heilongjiang, China*

MNC2007-21122: **Experimental Study on Fullerene Formation Process in Toluene Flame at Low Pressure Condition**, *Masahiko Shibahara, Tsubasa Shimizu, Nilson Kunioshi, Hiroshi Takada, Osaka University, Osaka, Japan*

MNC2007-21124: **Micro-EDM Milling of Micro Compressor prototype**, *Zhenlong Wang, Harbin Institute of Technology*

MNC2007-21127: **Electrochemical Machining of Micro Structures with Nanosecond Pulses**, *zhaoyang zhang, Nanjing University of Aeronautics & Astronautics*

MNC2007-21128: **Key Technology of Microelectrode Array Fabrication by Ultrasonic Enhanced Micro-EDM**, *Guanxin Chi, Weiliang Zeng, Desheng Dong, Harbin Institute of Technology, Harbin, Heilongjiang, China*

MNC2007-21131: **Polystyrene Nanocomposite Foams Prepared by Dynamic Foaming Process**, *Wenli Zhu, Nanqiao Zhou, South China University of Technology, Guangzhou, Guangdong, China, Hongwei Wu, University of Alberta, Edmonton, AB, Canada*

MNC2007-21135: **Micro Miniature Cold Formed Specials**, *Sethulingam S.P, Textron Global Technology Centre, Bangalore, Karnataka, India*

MNC2007-21154: **Fabrication and Characterization of Nanostructured Surface Layer of 38CrSi Steel**, *Shi-Ning Ma, National key laboratory of remanufacture technology, Armored force engineering institute*

MNC2007-21156: **Preparation and Magnetic Properties of the Exchange Coupling NdFeB Nanocomposited Permanent Magnets**, *Zongjun Tian, Nanjing University of Aeronautics and Astronautics*

MNC2007-21160: **Real-Time In Situ Compensation For Femtosecond Laser Two-Photon Micrfabrication**, *Gao Guohua, Tsinghua University*

MNC2007-21167: **Investigation on Wire Electrochemical Micro Machining**, *Kun Wang, NanJing University of Aeronautics and Astronautics*

MNC2007-21170: **Key Factors In Ultraviolet-Curing Wire Saw**, *Fuqing Liu, Chunyan Yao, Wei Peng*, The MOE Key Laboratory of Mechanical Manufacture and Automation, Zhejiang University of Technology, Hangzhou, Zhejiang, China

MNC2007-21180: **A predicted approach for determining effective constants of fiber composites with graded interphase**, *J. H. Zhao*, Beijing University of Aeronautics and Astronautics

MNC2007-21182: **Super-Smooth Grinding of SiC Ceramics by the Use of Coarse Diamond Grinding Wheel**, *Jin Xie, Shiwang Wang*, South China University, Guangzhou, Guangdong, China

MNC2007-21185: **Fluid Magnetic Abrasives Based on Micron-sized Carbonyl-iron Particles and Its Applications in the Precision Finishing Process**, *Huanwu Sun*, Taiyuan University of Technology, Taiyuan, Shanxi, China

MNC2007-21187: **Fabrication of 2D photonic crystal in n-type silicon using holographic technique**, *han lin*, Xiamen University

MNC2007-21200: **Slurry Flow in CMP Considering the Pad Roughness and Porosity**, *Chaohui Zhang*, Beijing Jiaotong University, Beijing, China

MNC2007-21209: **Research on mechanism of Ultra-precision Electrical Discharge Grinding for Engineering Ceramics**, *Lili Yu*, China University of Petroleum

MNC2007-21215: **Laser Sintering of Nano-Al₂O₃ Powders on Plasma Sprayed Ceramic Based Coatings**, *Shen Lida*, Nanjing University of Aeronautics and Astronautics

MNC2007-21238: **Micro Ablation of Optical Fibers using Vacuum Ultra Violet Laser**, *Yutang Dai*, Wuhan University of Technology

MNC2007-21239: **Study of Molecular Dynamics Simulation of Deposition in Air in Micro EDM**, *Zhenlong Wang*, Harbin Institute of Technology

MNC2007-21259: **Research of the Efficiency and Quality Problem of the Plane Model in the Two-photon Micromanufacturing**, *Wei Peng*, Tsinghua University

MNC2007-21262: **Servo Scanning EDM for 3D Micro Structures**, *Yong Li*, Tsinghua University

MNC2007-21267: **Conformal RF Ablation to Reduce "Dead Region" with Adjuvant Injection of Magnetic Micro/Nano Particles: Feasibility Study**, *Zhong-Shan Deng*, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

MNC2007-21269: **Analysis and Simulation of Micro Electro Discharge Machining Process**, *Dedong GAO*, Tsinghua University

MNC2007-21271: **The CAD/CAM Integration System of 3D Micro EDM**, *Tong Hao, Wang Yang*, Harbin Institute of Technology, Harbin, Heilongjiang, China *Cui Jing, Li Yong*, Tsinghua University, Beijing, China

MNC2007-21317: **Multi-Scale Observation Of Microscopic Protrusion Topography Of Diamond Grinding Wheel**, *Jin Xie, Zilong Tian*, South China University, Guangzhou, Guangdong, China

MNC2007-21326: **High Throughput Nanolithography For Plastic Nanoelectronics**, *Aimin Song*, University of Manchester, Manchester, United Kingdom

MNC2007-21333: **Properties Of Nanosized Tin Oxide Thin Film Prepared By Reactive Magnetron Sputtering**, *xiaodi liu*, peking university

MNC2007-21336: **A Study On The Electrodeposited Cu- Al₂O₃ Composites Coating With Laser Treatment**, *Fan Hui*, Nanjing University Of Aeronautics And Astronautics

MNC2007-21364: **Experiment Investigation of Thin Sheet Metal Microforming Process Using Soft Tools**, *Linfa Peng, Shanghai Jiaotong University, Shanghai, China*

MNC2007-21374: **Manufacturing Heat Pipe by Combined Ploughing-Extrusion Process**, *Xiaoqing Liu, South China University of Technology*

MNC2007-21378: **Constitutive Equation Modeling and Numerical Simulation of Meso Scale Machining**, *Hongtao Li, Xinmin Lai, Chengfeng Li, Zhongqin Lin, Shanghai Jiaotong University, Shanghai, Shanghai, China Jun Ni, University of Michigan, Ann arbor, MI, USA*

MNC2007-21381: **A Simulation and Study on Strain Uniformity of Equal Channel Angular Pressing**, *Jinqi Cao, Xiaojing Xu, Jiangsu University, Zhenjiang, Jiangsu Province, China*

MNC2007-21383: **Fabrication of High Aspect Ratio Periodical Structure on Metal using an Electroforming Process**, *Chi-Ting Ho, NationalFormosa University*

MNC2007-21384: **Optimization Of Machining Parameters And Fabrication Of Nanostructures Using AFM Anodic Oxidation**, *Yongda Yan, Harbin Institute of Technology*

MNC2007-21391: **Development of Micro Milling Machine and Experimental Study on Meso Scale Milling**, *Chengfeng Li, Xinmin Lai, Hongtao Li, Linfa Peng, Shanghai Jiaotong University, Shanghai, Shanghai, China, Jun Ni, University of Michigan, Ann arbor, MI, USA*

MNC2007-21393: **Research on Mechanism of Ultra-precision Electrical Discharge and Mechanical Grinding for Nonconductive Engineering Ceramics**, *Renjie Ji, China University of Petroleum*

MNC2007-21398: **Simply Analysis The Application Prospects Of Nano Surface Engineering In Remanufacturing Field Of Aero-Engine**, *Shi Hong, Shen Yang Institute of Aeronautical Engineering, China*

MNC2007-21401: **Optimization of Control Parameters in Micro Hot Embossing**, *Yong He, ZheJiang University*

MNC2007-21402: **A Simplified Stress-Strain Model of the Micro Hot Embossing Process**, *Yong He, ZheJiang University*

MNC2007-21411: **Process Monitoring in Automatic Assembly of Minilenses with Fiberscopes**, *Tian Lan, Siying Chen, Guoqiang Ni, Beijing Institute of Technology, Beijing, Beijing, China*

MNC2007-21420: **Femto Second Laser Pulse Train Effects on Optical Characteristics and Nonequilibrium Energy Transport in Metal Thin Films Considering Quantum Effects**, *Seong Hyuk Lee, Hyung Sub Sim, Joon Sik Lee, Chung-Ang University, Seoul, Korea (Republic), Seungho Park, Hongik University, Seoul, Korea (Republic), Young Ki Choi, Seoul National University, Seoul, Korea (Republic)*

MCN2007-21432: **Using Biomass as Templates to Make Unique Copper/Carbon Core/Shell Nanoparticles and Its Applications**, *Kun Lian, Qinglin Wu, Louisiana State University*

MNC2007-21449: **Preparation and Properties of Nano-calcium Carbonate Modified PVC Using Ultrasonic Irradiation**, *Shengfei Hu, Institute of Materials Science and Engineering, Wuhan University of Technology*

MNC2007-21464: **Prediction of Temperature and Stress Distribution during Micro-cutting of Ti-6Al-4V**, *Dong Lu, Jianfeng Li, Jie Sun, Zhongqiu Wang, Shandong University, Jinan, China, Yiming Rong, Worcester Polytechnic Institute, Worcester, MA, USA*

MNC2007-21468: **Study on Control Method of AFM Probe Based Nanomanipulation**, *lina hao, northeastern university*

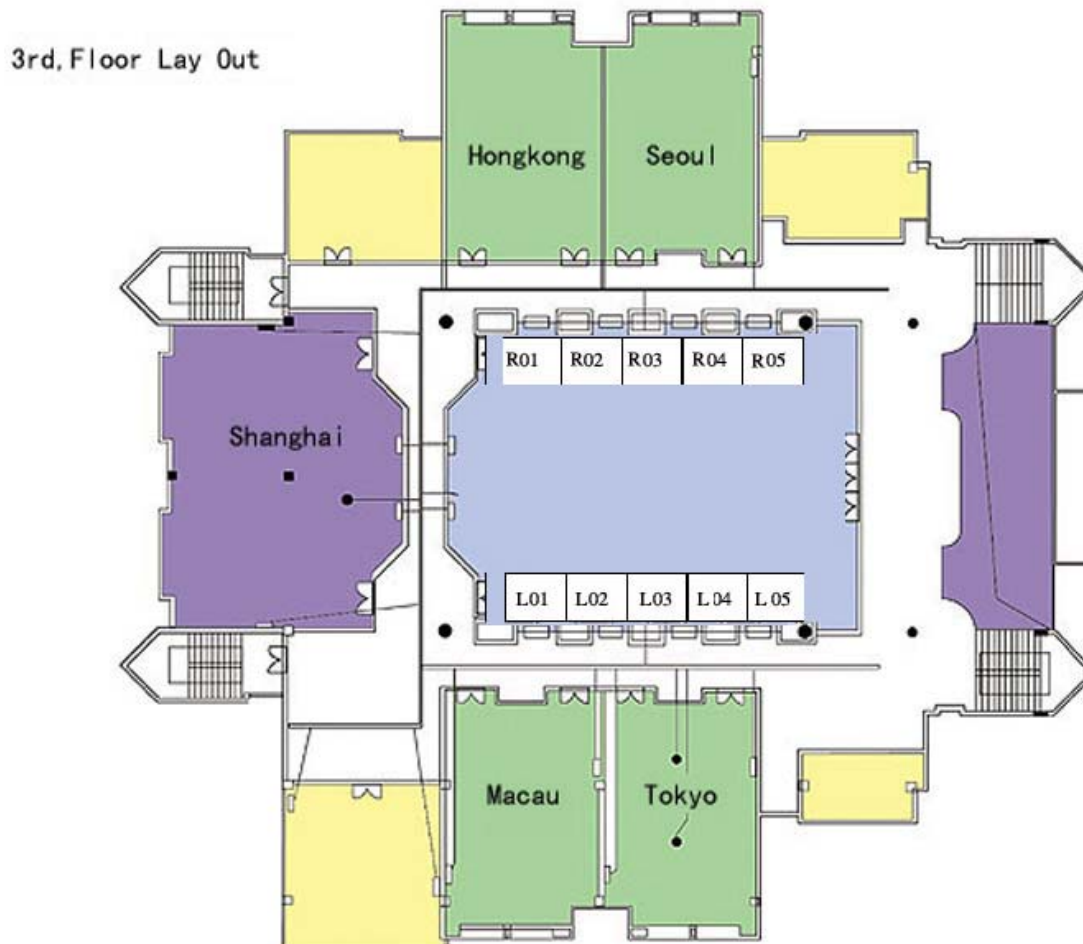
- MNC2007-21469: **Study on the Micro Milling Process of the Inertial MEMS Components**, *Bo Wang, Harbin Institute of Technology, Harbin, Heilongjiang, China*
- MNC2007-21474: **A Method of the Comprehensive Evaluation of Surface Integrity in Micro- and Nano-Machining**, *Wang Guicheng, School of Mechanical Engineering Jiangsu University, Zhenjiang, Jiangsu, China*
- MNC2007-21475: **Technique Optimization of Dual Rotation Plates Lapping Method for Ceramic Ball**, *Lv Xun, The MOE Key Laboratory of Mechanical Manufacture and Automation, Zhejiang University of Technology, Hangzhou, Zhejiang, China*
- MNC2007-21489: **A Study on Burr Formation and Controlling Technology in Precision or Super-precision Drilling**, *Y.M. Zhu, Wang Guicheng, L.J. Ma, C.Y. Zhang, Jiangsu University, Zhenjiang, China, P.K. Zhang, Taiyuan University of Science and Technology, Taiyuan, China*
- MNC2007-21494: **Investigation on Electrospinning with Multi-Spinneret Array**, *Yongyang Zhu, Xuexian Wang, Dezhi Wu, Daoheng Sun, Xiamen University, Xiamen, Fujian, China*
- MNC2007-21521: **Feasibility Study of Deep Micro-Slit EDM Machining Using Flat Electrode of Self Manufacture**, *Cui Jing, Tsinghua University, Beijing, China*
- MNC2007-21528: **A Low Temperature, Non-aggressive Wafer Level Hermetic Package with UV Cured SU8 Bond**, *Yexian Wu, Peking University*
- MNC2007-21542: **Development of Micro Dieless Incremental Forming System**, *Hye-Jin Lee, Korea Institute of Industrial Technology(KITECH)*
- MNC2007-21549: **Joining Property of EPDM Rubber/Cast Iron Treated by Functional Polymeric Nanofilm**, *Zhixin Kang, Chengwu Zhong, Fen Wang, Yuanyuan Li, South China University of Technology, Guangzhou, Guangdong, China, Hidetoshi Hirahara, Kunio Mori, Iwate University, Morioka, Iwate, Japan*
- MNC2007-21552: **Formation of Bulk Nanocrystalline Grains in Titanium by Friction Stir Processing**, *Zhili Feng, Stan A. David, Oak Ridge National Laboratory, Oak Ridge, TN, USA*
- MNC2007-21558: **Hydrophobic Surfaces Prepared by Aluminum-induced Crystallization of Amorphous Silicon**, *Ying Song, Rahul P. Nair, Min Zou, University of Arkansas, Fayetteville, AR, USA*
- MNC2007-21562: **Comprehensive Evaluation of 3D Nanometric Machining by Molecular Dynamic Simulation**, *Yixin Shi, Jing Shi, David L. Wells, Industrial and Manufacturing Eng. Dept., Fargo, ND, USA*
- MNC2007-21574: **Synthesis and Processing of Carbon Nanopaper for Lightning Strike Protection of Polymer Composite Structures**, *Jihua Gou, Roy Blanco, University of South Alabama, Mobile, AL, USA, Claudio Olmi, Gangbing Song, University of Houston, Houston, TX, USA*
- MNC2007-21595: **Study and Measurement of Micro-scale Bonding Strength in Vertical Direction**, *Dong Ning Liu, Dacheng Zhang, Peking University, Beijing, Beijing, China*
- MNC2007-21586: **Micro/Nano Structure Manufacturing Using Optical Tweezers**, *Bharath Sudharsan, Anna University, Chennai, India*
- MNC2007-21587: **High Aspect Ratio Polymer Micro/Nano-Structure Manufacturing**, *Bharath Sudharsan, Kavi Arasan, Anna University, Chennai, India*
- MNC2007-21590: **Optical Nanolithography Using Nanoscale Bowtie Apertures**, *Xianfan Xu, Purdue University, USA*

MNC2007-21592: **Study to Enhance the Micro-Level in USM**, *Baoxian Jia*, Harbin Institute of Technology Weihai, Weihai, Shandong, China

Exhibit Hall Hours:

- Wednesday, January 10, 2007
Exhibits Open from 10:00 am to 8:00 pm
- Thursday, January 11, 2007
Exhibits Open from 10:00 am to 8:00 pm
- Friday, January 12, 2007
Exhibits Open from 10:00 am to 5:00 pm

The exhibit hall is located in the Beijing Room.





Booth #R02

Alcatel Micro Machining Systems is specialized in designing, manufacturing, marketing and servicing deep plasma etching systems (DRIE) for the fabrication of Micro Electro Mechanical Systems and 3D Semiconductors. Its main application markets are the telecommunications, automotive, aerospace, computer peripherals, biomedical industries, power devices and wafer level packaging.

For further information please visit our website at:
<http://www.adixen.com/>



Booth #R04-R05

Australian Nanotechnology

Australia is looking to grow its micro-nanotechnology base.

Australia has a reputation for excellence in biomedicine, pharmaceuticals, instrumentation, and materials, a vibrant and growing economy; a broad range of industry capabilities, a strong network of world class universities and research clusters and an environment that fosters creativity and innovation.

Academic and research institutes are engaged in interdisciplinary collaborative R&D activity in nanotechnology, microtechnology and biotechnology. Australia has a growing number of specialist nanotechnology firms, and a significant number of multinational companies investing in the development and commercialisation of nano enabled Australian technologies — particularly in sectors such as medicine, cosmetics, textiles, mining, energy, automotive and environmental management.

The Australian Government is fostering leading-edge nanotechnology through investment programs for research and commercialisation purposes.

Australia's dynamic science and technology community has developed integrated and cohesive nanotechnology networks linking universities, commercial interests and government, and streamlining entry into the Australian market for foreign organisations.

For more information, please contact:
Email: nanobusiness@iird.vic.gov.au
www.business.vic.gov.au/nano
www.investvictoria.com
www.synchotron.vic.gov.au



Exhibitor & Gold Media Sponsor

Booth #R03

The collaborative research of the **enablingMNT** team (Henne van Heeren, Patric Salomon, Lia Paschalidou, and Ayman El-Fatary) has, to date, culminated in a series of in-depth intelligence reviews on the supply chain of Micro and Nano Technologies (MNT): enablingMNT Industry Reviews. All reviews include a comprehensive listing of services offered in the field (including current contact information). The emphasis is on the provision and availability of fully commercial services, infrastructure, and suppliers considered to be essential for the commercial realization of MNT-based products. enablingMNT reviews are offered at a competitive price of □280 per specialist report:

- Foundries, Processing, Packaging and Assembly Services
- Design and Engineering Companies
- Equipment Suppliers: MNT, Test and Nanofabrication
- Materials Suppliers
- MNT Web Directories and On-line Communication Channels

In addition, customized research and specific consulting services will be supplied on request.

For further information please visit our website:
<http://www.enablingmnt.com/>



Booth #L04

EV Group (EVG) is a recognized technology and market leader for wafer processing equipment. We have set worldwide industry standards for aligned wafer bonding as well as resist processing for the MEMS, Nano and Semiconductor Industry. Our technological expertise enables customers to develop and successfully commercialize their innovations by providing advanced and proven process solutions from R&D to volume production. A comprehensive range of equipment addressing R&D applications as well as fully automated processes is the result of long term, cooperative relationships with our extensive list of global customers. Headquartered in St. Florian, Austria, EV Group operates via a global customer support network, with subsidiaries in Tempe, Arizona; Albany, New York; Yokohama and Fukuoka, Japan; and Chung-Li, Taiwan.

For more information, visit www.EVGroup.com and [EVG-TECH SHOP www.EVGTECHSHOP.com](http://www.EVGTECHSHOP.com).



Booth #L01

Laserwort was founded in 1988 by three well-know and professional men. Their previous experiences a total of 50 years of semiconductor related service, technical advice and sales to the rapidly growing Far East IC industry.

Our business philosophy is based on

- Total commitment to our principal manufacturers, and
- High standard of professional service and support to our customers.

Laserwort Limited is a member of the Group of Morison Heng. We are presently representing major US, UK, France and Japan semi-conductors and MEMS related companies, including STS, AML,DNS,BTI, EKC, etc. We have three offices located in Hong Kong, Shanghai and Beijing. Hong Kong is our head office. We are not a buy and sell trading company. We are an engineering company having thirteen well-experienced service engineers. We setup a company in Shanghai for repairing ENI RF generators in 2002. We have a lot of spare parts, stored in Hong Kong and Shanghai.
<http://www.laserwort.com/>



Booth #L02

The research area of **Key Laboratory for Micro/Nano Technology and System of Liaoning Province** covers theoretical study of micro scale effect, microstructure design and microsystem simulation, micro processing techniques and testing techniques, bio-MEMS, integrated sensory microsystems, microactuators and microsensors, material and micro devices for informative opto-electronics, nano-material and devices, ultra precision gear machining and measurement instrumentation, etc.

For further information please visit our website at:
<http://www.dlut.edu.cn/dutn/dut-e/ISRL.htm>



Booth #R01

Since 1885, **Michigan Technological University** has offered educational excellence in beautiful Upper Michigan, USA. Our students create the future in computing, engineering, the sciences, business, environmental studies, technology, and arts and human sciences. Featured will be Michigan Tech's Graduate school and its highly successful Enterprise Program.

For more info, visit our website at www.doe.mtu.edu.



Booth #L05

MicroFab develops and commercializes high-payoff applications for microdispensing and precision printing using ink-jet technology. Examples include microdispensing of solder; adhesives; optical & electrical polymers; and biomedical materials.

For further information please visit our website at:
<http://www.microfab.com/>



Booth #L03

Veeco is a leading provider of Metrology and Process Equipment solutions used by manufacturers in the data storage, semiconductor and compound semiconductor/wireless industries. These industries help create a wide range of information age technology and products, such as personal computers and network servers, as well as newer technologies such as television set-top boxes, personal digital assistants and other consumer products. Our products are also critical enabling instruments used in the advancement of scientific research and nanotechnology. Veeco's Metrology tools are used to measure at the nanoscale and our Process Equipment tools help create nanoscale devices. Veeco partners with our global customers to deliver the enabling technology, experience and support they need to succeed.

In keeping with its commitment to technological product leadership and growth in each of its product lines, Veeco continually introduces new products designed to provide long-term benefits for its customers, such as increased manufacturing yield, enhanced productivity, improved quality and reduced cost-of-ownership. We serve our customers from strategically located facilities in the U.S., Europe, Japan and Asia-Pacific.

For further information please visit our website at:
<http://www.veeco.com>

Sponsored By



ASME
Nanotechnology
Institute



Micro and Nanotechnology
Commercialization
Education Foundation ®

Media Sponsor

Supporting Organizations



Gold Media Sponsor

