Advance Program

ISNM 2004

2ND INTERNATIONAL SYMPOSIUM ON NANOMANUFACTURING

KAIST 2004

November 3 - 5, 2004 / KAIST, Daejeon, Korea

PROGRAM AT A GLANCE

November 3 (Wednesday)

Time	Session		
09:00-10:45	WB1	WC1	Registration & Exhibition
	Nano Bio-Devices / Self Assembly	Industrial Nano Manufacturing	
10:45-11:05	Coffee Break		
11:05-11:20	WA1: Opening Ceremony		
11:20-12:00	WA2: Plenary Talk I		
12:00-12:40	WA3: Plenary Talk II		
12:40-14:15	Lunch		
14:15-16:00	WB2	WC2	
	E-beam / Scanning Probe Processing	Nanomodeling /Simulation	
16:00-16:15	Coffee Break		
16:15-18:00	WB3	WC3	
	Nano / Soft Lithography-1	Nano Metrology / Manipulation-1	
18:30-20:00	WE: Welcome Reception		

November 4 (Thursday)

Time	Session		
09:00-10:45	TB1	TC1	Registration & Exhibition
	Nano / Soft Lithography-2	Nano Metrology / Manipulation-2	
10:45-11:00	Coffee Break		
11:00-12:45	TB2	TC2	
	Nano Materials / Devices-1	MEMS / Bio MEMS	
12:45-14:00	Lunch		
14:00-14:40	TA1: Plenary Talk III		
14:40-15:00	TA2: Plenary Talk IV		
15:00-16:15	TD: Poster Session		
16:15-18:00	TB3	TC3	
	Nano Etching / Deposition	CNT / Nano Science-1	
19:00-21:00	Banquet (Yousung Hotel)		

November 5 (Friday)

Time	Session		
09:00-10:45	FB1	FC1	Registration & Exhibition
	Nano Materials / Devices-2	MEMS / NEMS	
10:45-11:00	Coffee Break		
11:00-12:45	FB2	FC2	
	Nano Printing / Patterning	CNT / Nano Science-2	
12:45-14:15	Lunch		
13:30-19:00	Excursion		

INVITATION

On behalf of the Organizing Committee, I wish to extend a cordial invitation to the 2nd International Symposium on Nanomanufacturing to be held in KAIST, Daejoen, November 3 - 5, 2004.

The objective of this symposium is to provide high quality of research and professional interactions for the advancement of science and technology in the field of nanomanufacturing .

I believe that our technical program entertains audiences with outstanding 4 plenary speakers, excellent 33 invited speakers, and over 180 contributed papers. A technical exhibition will also be held in parallel, which will introduce the current activities of the nanomanufacturing industry.

This symposium will provide you the unique opportunity to discuss your research, interact with your colleagues and peers, and have a memorable and rewarding experience.

I look forward to your participation and hope to see you in ISNM 2004, KAIST, Korea!

Best regards,

Dae-Gab Gweon
Organizing Committee Chair
ISNM 2004

ORGANIZED BY

- National NanoFab Center, NNFC
- NanoResearch Institute, KAIST
- Korea Institute of Machinery & Materials, KIMM
- BK 21 Institute of Mechanical Engineering, KAIST

SPONSORED BY

- Korean Society of Precision Engineering (KSPE)
- Society of Manufacturing Engineers (SME)
- The Institute of Electronics Engineers of Korea (IEEK)
- Chinese Mechanical Engineering Society (CMES)
- Optical Society of Korea (OSK)
- The International Institution for Production Engineering Research (CIRP)
- The Korean Chemical Society (KCS)
- The Material Research Society of Korea (MRSK)
- The Korean Society of Mechanical Engineers (KSME)
- The Institute of Control, Automation and Systems Engineers, Korea (ICASE)

ORGANIZATION OF ISNM 2004

Advisory Council Committee

Nam Pyo Suh (MIT)
Jung-Hoon Chun (MIT)
George M. Whitesides (Harvard Univ.)
Charalabos H. Doumanidis (Cyprus Univ.)
Zhou Zhau Ying (Tsinghua Univ.)
Samuel Sunwhee Chung (SAIT)
Hyungsuck Cho (KAIST)
Dong-Yol Yang (KAIST)
John Corbett (Cranfield Univ.)
Hiroyuki Fujita (Tokyo Univ.)
Klaus Hasche (PTB)

Organizing Committee

General Chairs

Dae-Gab Gweon, Chair (KAIST)
Kyung Hyun Hwang, Co-chair (KIMM)
Hee Chul Lee, Co-chair (NNFC)

Technical Program Committee

Yong-Hee Lee, Chair (KAIST)
Sang Rok Lee, Co-chair (KIMM)
Robert S. Langer, Co-chair (MIT)
Seung-Woo Kim (KAIST)
Lyons Kevin, Co-chair (NIST)
Kukjin Chun, Co-chair (Seoul Nat'l Univ.)
George Barbastathis (MIT)

Zhuang De Jiang (Xi'an Jiaotong Univ.)
Gunter Wilkening (PTB)
Ki-Bum Kim (Seoul Nat'l Univ.)
Jong Wook Bu (LG CIT)
Je-Kyun Park (KAIST)
Katsuo Kurabayashi (Univ. of Michigan)
Yasuhiro Horiike (Univ. of Tokyo)
Jo-Won Lee (TND)
Woo Sung Han (Samsung Electronics Co., Ltd.)
Insung S. Choi (KAIST)
CJ Kim (UCLA)

Finance Committee

Hak Kyung Sung, Chair (Samsung Electronics Co., Ltd.)
Heui-jae Pahk (Seoul Nat'l Univ.)
Hyeon-Seok Oh (LG PRC)
Jae Won Hahn (Yonsei Univ.)
June Ho Park (Jiwoo Techniques Korea)
Dae Won Moon (KRISS)
Hon-Zong Choi (KITECH)

Publicity Committee

Haiwon Lee, Chair (Hanyang Univ.)
Sang-Gook Kim, Co-chair (MIT)
Attilio Sacconi, Co-chair (IMGC-CNR)
Yoon-Ha Jeong, Co-chair (POSTECH)
Placid M. Ferreira (UIUC)
Moungi G. Bawendi (MIT)
Paulo P. Freitas (INESC)
Shuichi Shoji (Waseda Univ.)
Xiang Zhang (NSEC, UCLA)
Beomjoon Kim (Univ. of Tokyo)
Gang Chen (MIT)
Julie Chen, Co-chair (NSF)
Jing-Feng Li, Co-chair (Tsinghua Univ.)
Bradly Nelson (ETH)
Fumihito Arai (Nagoya Univ.)
Papazian John M. (Northrop Grumman)
Ravi Sharma (Eastman Kodak)
Wei Gao (Tohoku Univ.)
Luke P. Lee (UC Berkeley)
Rudolf Thalman (METAS)

Publication Committee

Eung Sug Lee, Chair (KIMM)
SungWoo Hwang (Korea Univ.)
Cheon Il Eom (KRISS)
Jeunghee Park (Korea Univ.)

Local Arrangement Committee

Byung Tae Ahn, Chair (KAIST)
Juhyoun Kwak (KAIST)
Kyung Chun Kim (Pusan Nat'l Univ.)
Seyoung Im (KAIST)
Sung-Min Choi (KAIST)
Jong Hyun Lee (GIST)

Secretariat

Seung S. Lee (KAIST)
Doo-Sun Choi (KIMM)

TECHNICAL PROGRAM

Information on Technical Program

Information for Oral Presentation

Presenters at all sessions are required to show up at the session 10 minutes in advance of the first paper. Each invited speaker will have 30 minutes for presentation and discussion. Each speaker will have 15 minutes for presentation and discussion. The session chair will ring the bell once 5 minutes before the end of allocated time.

It is important to stay on schedule so people moving between sessions can see the presentations they make a special effort to attend. At the session room, there will be equipped with an overhead projector (OHP) and also a laptop computer with a LCD projector. Presenters are expected to load their presentations off their own CD-ROMs or USB memory stick during the 10 minutes period before the beginning of the session.

Information for Poster Presentation

Please mount your poster during the lunch time on November 3, 2004 and remove it after the poster session. All presenters are required to preside at their poster panel throughout the session (November 4, 2004, 15:00-16:15) for anticipated discussion with participants. The board of size 90cm (width) by 240cm (height) will be provided for the display for the each paper. Each paper s code will be shown up on the board. You can put your poster on the board by using the adhesive tape.

How to Understand the Session Identification Number

	Day	Room or Place	Session Order
WA1	**W** Wednesday	**A** Dream Hall	**1** 1st Session
	T Thursday	**B** Room B (Oral)	**2** 2nd Session
	F Friday	**C** Room C (Oral)	**3** 3rd Session
		D Room D (Poster)	
		E Lobby	

/For example/ **WC2**: 2nd Session of "Room C" on Wednesday

Technical Sessions

Wednesday, November 3, 2004

WB1: Nano Bio-Devices / Self Assembly

Chair: George Barbastathis (MIT, USA)

09:00-09:30 **(Invited)** Generation and Immobilization of Quantum Dots and Quantum Wires within Zeolites
Kyung Byung Yoon (Sogang Univ., Korea)

09:30-10:00 **(Invited)** Biological Detection System Using the Combination of Microfluidics and Nanotechnology
Je-Kyun Park (KAIST, Korea)

10:00-10:15 Nanoburgers: Engineering Surface Enhanced Raman "Hot-Spots"
Kyle Su, Qihuo Wei, Stephane Durant, and Xiang Zhang (UCLA, USA)

10:15-10:30 Electrical Conduction of Thiol Modified 60 bp Poly(dG)-Poly(dC) DNA Molecules through Au Nanoparticles
J. S. Hwang, S. H. Hong, H. K. Kim, S. W. Hwang, and D. Ahn (Univ. of Seoul, Korea)

10:30-10:45 Nanostructured Origami™ 3D Fabrication and Assembly Process using Strain Induced Folding
Will Arora, Hyun Jin In, Henry I. Smith, and George Barbastathis (MIT, USA)

WC1: Industrial Nano Manufacturing

Chair : Gang Chen (MIT, USA)

09:00-09:30 **(Invited)** Nano Manufacturing - Products and Technologies
Leo Alting and Hans Nørgaard Hansen (Technical Univ. of Denmark, Denmark)

09:30-09:45 Alkali- and Alkali Earth Vapor Sources and Getters for Nanomanufacturing
Thomas Stenitzer (Konstantin Technologies GmbH, Austria)

09:45-10:00 6-Axis Control Ultraprecision Microgrooving on a Sculptured Surface
Yosuke Yoneyama (Osaka Univ., Japan), Tomohiko Kawai (FANUC Co., Japan), and Yoshimi Takeuchi (Osaka Univ., Japan)

10:00-10:30 **(Invited)** Chemical Mechanical Polishing for Micro-and Nano-scale Manufacturing
Jung-Hoon Chun (MIT, USA)

10:30-10:45 Measurement of Nanostructure on a Silicon Wafer Surface Using System for Measuring Nanoparticle Diameter by Light Scattering
Hiroshi An (OECU, Japan), Satoshi Sasaki, Katsuyoshi Endo, and Yuzo Mori (Osaka Univ., Japan)

WA2: Plenary Talk I

Chair: Yong-Hee Lee (KAIST, Korea)

11:20-12:00 Carbon Nano Tubes for HDTVs
Jong Min Kim (SAIT, Korea)

WA3: Plenary Talk II

Chair: Yong-Hee Lee (KAIST, Korea)

12:00-12:40 How Do We Go from Here to There in Nanomanufacturing?
Nam Pyo Suh (MIT, USA)

WB2: E-beam / Scanning Probe Processing

Chair : Hans U. Danzebrink (PTB, Germary)

14:15-14:45 **(Invited)** Micro/Nano-Scale Fabrication and Integration of Polymer Waveguide Arrays for Optical Printed Circuit Board (O-PCB) and VLSI Photonic Application
El-Hang Lee (Inha Univ., Korea)

14:45-15:15 **(Invited)** R & D Activities for Nanoscale Manufacturing Processes and Related Equipments in Korea
Sang Rok Lee (KIMM, Korea)

15:15-15:30 Nanohole Fabrication Using FIB, EB and AFM for Biomedical Applications
Jack Zhou and Guoliang Yang (Drexel Univ., USA)

15:30-15:45 Laser Nano-machining Using Near-field Nano-optics
Haseung Chung, Suman Das, Katsuo Kurabayashi (Univ. of Michigan, USA)

15:45-16:00 A Route to Ordered Macroporous Polymers by Electron Irradiation of Polymethyl Methacrylate Colloidal Crystals
Sung Oh Cho and Hye Young Jun (KAIST, Korea)

WC2: Nanomodeling / Simulation

Chair: Seyoung Im (KAIST, Korea)

14:15-14:45 **(Invited)** Exploiting Nanoscale Heat Transfer Effects for Nanomanufacturing
Gang Chen (MIT, USA)

14:45-15:00 Development of a Coarse-graining Model for Multi-Walled Carbon Nanotubes
Jong Youn Park, Young-Sam Cho,Sung Youb Kim, Youngmin Lee, Sukky Jun, and Seyoung Im (KAIST, Korea)

15:00-15:15 Hydrogen Adsorption on Single-Walled BN Nanotubes
Sang Soo Han (KAIST, Korea), William A. Goddard III (CALTECH, USA), and Hyuck Mo Lee (KAIST, Korea)

15:15-15:45 **(Invited)** Ultimate ab Initio Study to Predict New Nanoscale Materials
Yoshiyuki Kawazoe (Tohoku Univ., Japan)

15:45-16:00 Gigahetrz Carbon Nanotube Oscillator encapsulating Metallic Ions: Molecular Dynamics Simulations
Jeong Won Kang, Ki R yang Byun, and Ho Jung Hwang (Chung-Ang Univ., Korea)

WB3: Nano / Soft Lithography-1

Chair : Insung S. Choi (KAIST, Korea)

16:15-16:45 **(Invited)** Nano Patterning of Soft Materials for Photonic Devices
Dong-Yu Kim (GIST, Korea)

16:45-17:00 Kinetic Study of Nano Patterning on Metallic Nitride Films
H. M. Tai, F. S.-S. Chien, P. C. Kuo, and J. Wen (Industrial Tech. Research Inst., Taiwan)

17:00-17:15 Top-down Meets Bottom-up : An Approach to Access 70 nm Contact Hole Patterns on 200 mm Si Substrate
Jung Hwan Hah, K. Subramanya Mayya, Mitsuhiro Hata, Hyun-Woo Kim, Sang-Gyun Woo, Han Ku Cho, Woo Sung Han, and Joo-Tae Moon (Samsung Electronics Co., Ltd., Korea)

17:15-17:45 **(Invited)** Towards CMOS Compatible Nanophotonics
Mark L. Brongersma (Stanford Univ., USA)

17:45-18:00 Soft-lithographic Lift-off and Grafting (SLLOG) Process for PDMS-on-silicon Microsystems
Yi-Chung Tung and Katsuo Kurabayashi (Univ. of Michigan, USA)

WC3: Nano Metrology / Manipulation-1

Chair: Peter So (MIT, USA)

16:15-16:45 **(Invited)** Nanometrology using Femptosecond Lasers
Seung-Woo Kim (KAIST, Korea)

16:45-17:15 **(Invited)** Frontiers in Engineering Nanotechnology
Robert J. Hocken (The Univ. of North Carolina, USA)

17:15-17:30 Critical Dimension Measurements of Photomask Using the Optical Diffractive Techniques
D. G. Lee, B. G. Kim, S. Y. Moon, S. W. Choi, and W. S. Han (Samsung Electronics Co., Ltd., Korea)

17:30-17:45 Enhanced Algorithm to Extend Bright-Field Overlay Tool Performance
A. S. Liu, C. H. Tung, and Y. S. Ku (Industrial tech. Research Inst., Taiwan)

17:45-18:00 Six-axis Reconfigurable Nanomanipulator Systems for Positioning in Nano-scale Manufacturing and Research
Martin L. Culpepper and Soohyung Kim (MIT, USA)

Thursday, November 4, 2004

TB1: Nano / Soft Lithography-2

Chair: Mark L. Brongersma (Stanford Univ., USA)

09:00-09:30 **(Invited)** Biosurface Chemistry: Controlling the Interfaces between Biological and Non-Biological Systems
Insung S. Choi (KAIST, Korea)

09:30-09:45 Mechano-chemical Scanning Probe Lithography: A Simple, Reliable and High-speed Nanolithography Technology for Post-photolithography Era
Dae-Eun Kim, In-Ha Sung, Mi-Seok Park (Yonsei Univ., Korea), and Won-Seok Chang (KIMM, Korea)

09:45-10:00 Sub-wavelength Photolithography with Silver Superlens
Joe (Hyesog) Lee, Yi Xiong, Nicholas Fang, and Xiang Zhang (UCLA, USA)

10:00-10:30 **(Invited)** Technology Trends in Nanoscale Silicon CMOS Transistors Development and Its Application
Donggun Park (Samsung Electronics Co., Ltd., Korea)

10:30-10:45 Nanofabrication Using AFM Nano-oxidation Method
JunHo Kim and Jeongyong Kim (Univ. of Incheon, Korea)

TC1: Nano Metrology / Manipulation-2

Chair : Zhuang De Jiang (Xián Jiaotong, Univ., China)

09:00-09:30 **(Invited)** Ultra-High Resolution Optical Imaging beyond the Diffraction Limit
Peter So (MIT, USA)

09:30-10:00 **(Invited)** To Be Announced
Jon Opsal (USA)

10:00-10:15 Metrological Scanning Probe Microscopes- Instruments for Dimensional Nanometrology
Hans U. Danzebrink, F. Pohlenz, G. Dai, G. Wilkening, andK. Hasche (Physikalisch-Technische Bundesanstalt (PTB), Germany)

10:15-10:30 Lateral Resolution Enhancement in Confocal Self-interference Microscopy
DongKyun Kang, HongKi Yoo, SeungWoo Lee, and Dae-Gab Gweon (KAIST, Korea)

10:30-10:45 Manipulation of a Sub-μm Sized Particle Using the Unit Cell of Single CNT Tip
Junsok Lee and Soohyun Kim (KAIST, Korea)

TB2: Nano Materials / Devices-1

Chair: Kazuyuki Hirao (Kyoto Univ., Japan)

11:00-11:30 **(Invited)** Nonvolatile Memory Based on Phase Change (PRAM)
Kazuya Nakayama (Kanazawa Univ., Japan)

11:30-12:00 **(Invited)** Coating at the Nanoscale to Influence Properties at the Micro and Microscales
Paul Laibinis (Rice Univ., USA)

12:00-12:15 Fabrication of Gold Binding Protein Fusion Protein Arrays for Surface Plasmon Resonance Imaging Studies of Protein-protein and DNA Hybridization Assays
Seok Jae Lee, Tae Jung Park, Jong Pil Park, Kwang Suk Yang (KAIST, Korea), Yong Beom Shin, Bong Hyun Chung (KRIBB, Korea), Do Hyun Kim, and Sang Yup Lee (KAIST, Korea)

12:15-12:30 IC Application of Resonant Tunneling Diodes: RTD/HBT VCO
Sunkyu Choi, Bangkeun Lee, Taeho Kim, and Kyounghoon Yang (KAIST, Korea)

12:30-12:45 Lateral Quantum Dot Infrared Photodetector
Joon Ho Oum , Uk Hyun Lee, Yong Hoon Kang, Jong Ryul Yang, and Songcheol Hong (KAIST, Korea)

TC2: MEMS / Bio-MEMS

Chair: Joerg Mueller (Technical Univ. of Hamburg-Harburg, Germany)

11:00-11:30 **(Invited)** To Be Announced
Joseph Jacobson (MIT, USA)

11:30-11:45 Innovative Implantable Drug Delivery System: Fractioned Refilling and Injection Systems
V. Croquet (UCL, Belgium), A. Delchambre (ULB, Belgium), and B. Raucent (UCL, Belgium)

11:45-12:00 To-and-fro Mixing in Micro/Nano-fluidic Channel
One Zero Choi and Je-Kyun Park (KAIST, Korea)

12:00-12:30 **(Invited)** Scaling in Nanofluidics for Disposable Bio-Microsystems
Euisik Yoon (KAIST, Korea)

12:30-12:45 Soft Lithography of A Micro Lattice Array on A Polydimethylsiloxane Sheet and Cell Culture
Sang Uk Son, Yo Han Choi, and Seung S. Lee (KAIST, Korea)

TA1: Plenary Talk III

Chair: Sang Rok Lee (KIMM, Korea)

14:00-14:40 Semiconductors in the Next Decade
Stuart McIntosh (ASML, The Netherlands)

TA2: Plenary Talk IV

Chair: Sang Rok Lee (KIMM, Korea)

14:40-15:00 National Nanotechnology Initiative of Korea
Sang-Seon Kim (MInistry of Science and Tech., Korea)

TD: Poster Session 15:00-16:15

[Topic Categories and Papers Information]

E-beam / Scanning Probe Processing	P-1 ~ P-8
Nano / Soft Lithography	P-9 ~ P-22, P-140
Nano Etching / Deposition	P-23 ~ P-26
Nano Printing / Pattering	P-27 ~ P-39
Nano Materials / Devices	P-40 ~ P 56, P-107
CNT / Nano Science	P- 57 ~ P-72, P-141
Nano Bio-Devices / Self Assembly	P-73 ~ P-83
MEMS / NEMS / Bio-MEMS	P-84 ~ P-100
Nano Metrology / Manipulation	P-101 ~ P-120
Nano Modeling / Simulation	P-121 ~ P-127
Industrial Nano Manufacturing	P-128 ~ P-139

E-beam / Scanning Probe Processing

P-1 Study on the Characteristics of Electron Emitter for Microcolumn
S. Ahn, D. W. Kim, H. S. Kim, Y. C. Kim, S. J. Ahn (Sun Moon Univ., Korea), and T. H. Sung (KEPRI, Korea)

P-2 A Study on the Fabrication of Micro Groove on Si Wafer Using Chemical Mechanical Machining
J. M.Park and H. D. Jeong (Pusan Nat'l Univ., Korea)

P-3 Near-field Optical Patterning on Chloromethylated Polyimide
J.-B. Kim, S.-J. Na (KAIST, Korea), W.-S. Chang, and M.-J. Choi (KIMM, Korea)

P-4 Modeling and Simulation of Electron Beam Lithography
Jun-Ha Lee, Hoong-Joo Lee (Sangmyung Univ., Korea), and Myung-Sik Son (Dongguk Univ., Korea)

P-5 Design and Construction of Cryogenic Vacuum Scanning Tunneling Microscope with Sample Preparation Stages
S. T. Kim, E. P. Kim, and S.-J. Kahng (Korea Univ., Korea)

P-6 Study of a Miniaturized Free Electron Laser (FEL) Module Based on Microcolumn
Y. C. Kim, H. W. Kim, Y. Jang, D. W. Kim, S. J. Ahn, and H. S. Kim (Sunmoon Univ., Korea)

P-7 Sub-30nm High Resolution Patterns of Chemically Amplified Resist by E-beam Direct Writer
Wei-Su Chen, Chon-Yuan Cheng, Ming-Jer Gao, Ming-Jinn Tsai, Der-Gun Chou, Min-Shyan Lin, and Yen-Cheng Li (Everlight Chemical Industrial Corp., Taiwan)

P-8 Electron Scattering Effect on Proximity Effect Correction for Electron Beam Lithography
Ding-Kang Shih, Wei-Su Chen, Pao-Chih Chen, Ming-Jer Kao, and Ming-Jinn Tsai (Industrial Tech. Research Inst., Taiwan)

Nano / Soft Lithography

P-9 Fabrication of PDMS Replica Using Nano Replication Printing Process and Vacuum Pressure-difference Technique
SangHu Park, TaeWoo Lim, Dong-Yol Yang, HongJin Kong (KAIST, Korea), and Kwang-Sup Lee (Hannam Univ., Korea)

P-10 Viscoelastic Property Measurement of PDMS Stamp for Soft Lithography Application
Jae-Hyun Kim, Hak Joo Lee, Jung Yup Kim, Byung-Ik Choi (KIMM, Korea), Kyoung-Hoon Park, and Dong-Pyo Kim (Chungnam Nat'l Univ., Korea)

P-11 Thermo-wetting Embossing Nano Imprinting (TENI) Process of HYBRIMERs for Sub-Micron Scale Structure Fabrication
Woo-Soo Kim, Keum Hee Nam (KAIST, Korea), Keun Byoung Yoon (ETRI, Korea), and Byeong-Soo Bae (KAIST, Korea)

P-12 Study of Modified Illuminations by Diffractive Optical Element Assisted Structure by Computer Generated Hologram Pattern on the Photomask
Byoungsup Ahn, Jin-Hong Park, Seong-Woon Choi, Woo-Sung Han (Samsung Electronics Co., Ltd., Korea), Yong-Ho Oh (Wonkwang Univ., Korea)

P-13 Atomic Force Microscope Anodization Lithography Using Novel Photoacid Generator Based Polymers
Heeyoung Oh, Hyunjin Yoon, Yongil Kim, and Haiwon Lee (Hanyang Univ., Korea)

P-14 A Study on the Polymer Lithography using Stereolithography Technology
Young-dae Jung, Hyun-sub Lee, Sun-joon Park, Yong-gwan Im, and Hae-do Jeong (Pusan Nat'l Univ., Korea)

P-15 The Investigation of Shadow Effects in the Extreme Ultraviolet Lithography
Myoung-Sul Yoo, Young-Doo Jeon, Seung-Wook Park, and Hye-Keun Oh (Hanyang Univ., Korea)

P-16 Wear Characteristics of Atomic Force Microscope Probe Tips for Nano-fabrication
Koo-Hyun Chung and Dae-Eun Kim (Yonsei Univ., Korea)

P-17 Simple Pattern Formation by 157 nm Interference Illumination System
Jang-Hwan Jeong, Jung-Wook Choi, Seung-Wook Park, Young-Hun Kim, and Hye-Keun Oh (Hanyang Univ., Korea)

P-18 Nanostructure Formation by DPN-assisted Chemical Etching
Hyung Ju Park, Yong Ju Yun, Dong Han Ha, and Wan Soo Yun (KRISS, Korea)

P-19 Lithography and Fabrication of Periodic One- and Two-dimensional Nanostructures
E. P. Kim, S. T. Kim, and S.-J. Kahng (Korea Univ., Korea)

P-20 Fabricaiton of Nano Dot and Line Arrays Using NSOM Lithography
Sangjin Kwon (GIST, Korea), Wonseok Chang (KIMM, Korea), and Sungho Jeong (GIST, Korea)

P-21 Nano Patterning by Low Energy Microcolumn Lithography
H. S. Kim, D. W. Kim, S. J. Ahn, H. W. Kim, Y. Jang, Y. C. Kim (Sunmoon Univ., Korea), S. K. Choi, and D. Y. Kim (ETRI, Korea)

P-22 Modeling and Simulation Issues in 200keV E-beam Lithography for Nano-patterning
Jinkwang Kim, Changho Han, Hak Kim, and Kukjin Chun (Seoul Nat'l Univ., Korea)

P-140 Cost Savings with Micro/Nano-Replication
Joerg Kuehnholz (SUSS MicroTec, France)and Gilbert Lecarpentier (SUSS MicroTec, Germany)

Nano Etching / Deposition

P-23 Metal-defined Electro-optic Polymer Optical Waveguides Operating at Both 1.31 μm and 1.55 μm Wavelength
Seong-Ku Kim (UCLA, USA), Woon-Jo Jeong, and Gye-Choon Park (Mokpo Nat'l Univ., Korea)

P-24 Fabricating Nanoscale Iron Silicide Conducting Wires on Silicon Wafer
Bei-Xue Xu, Yang Zhang (Tsinghua Univ., China), He-Sun Zhu (Beijing Inst. of Tech., China), and De-Zhong Shen (Tsinghua Univ., China)

P-25 UV Assisted Patterning of Ultra Thin Gold Film in Chlorine Based Liquid
Deokkyeong Seong and ilsin An (Hanyang Univ., Korea)

P-26 Nitride-Mediated Epitaxy of Cobalt Disilicide
Sun Il Kim, Seung Ryul Lee (KAIST, Korea), Jong Ho Park (Samsung Electronics Co., Ltd., Korea), and Byung Tae Ahn (KAIST, Korea)

Nano Printing / Patterning

P-27 Direct Nano-patterning on a Metal Layer Using a Top-down Reverse Building Technique
Sang Hu Park, Tae Woo Lim, Dong-Yol Yang, Shin Wook Yi, and Hong Jin Kong (KAIST, Korea)

P-28 The Thermal and Optical Characterization of Hot-embossing Nanoimprinted 100nm Periodic Metal-grating
Rui-Ting Zheng, Chien-Chang Su, and Hung-Yi Lin (Industrial Tech. Research Inst., Taiwan)

P-29 Hybrid Nanocontact Printing (HnCP) Technology for a Large Area Patterning
Jeongdai Jo, Jung-Ho Jeong, Kwang-Young Kim, and Eung-Sug Lee (KIMM, Korea)

P-30 Microcontact Printing and SPR Analysis of Biotin for Selective Immobilization of Streptavidin-fused Proteins
Tae Jung Park, Jong Pil Park, Seok Jae Lee, Kyung-Bok Lee, Insung S. Choi (KAIST, Korea), Min-Gon Kim, Bong Hyun Chung (KRIBB, Korea), and Sang Yup Lee (KAIST, Korea)

P-31 Step and Repeat UV-nanoimprint Lithography Using a Large Area Stamp
Jun-ho Jeong, Young-suk Sim, Hyonkee Sohn, and Eung-sug Lee (KIMM, Korea)

P-32 Contour Offset Algorithm (COA) in nRP Process for Fabricating Nano-precision Features
Tae Woo Lim, Sang Hu Park, Dong-Yol Yang, and Hong Jin Kong (KAIST, Korea)

P-33 High-resolution Microcontact Printing of Alkylsiloxane Self-assembled Monolayers Using Autophobic Pinning Effect
Bo H. Lee, Jeong O. Lee, and M. M. Sung (Kookmin Univ., Korea)

P-34 Atomic Layer Deposition of Tatanium Oxide on Self-assembled Monolayers Formed by Microcontact Printing
Eun K. Seo and Myung M. Sung (Kookmin Univ., Korea)

P-35 A Novel Method to Fabricate Nanoimprinting Stamps by Photomelting and Etching
C. B. Lin, P. Y. Cheng (TamKang Univ., Taiwan), Hung Yi Lin, J. J. Yang, and C. K. Mu (Indusrial Tech. Research Inst., Taiwan)

P-36 A New Patterning Method Using Decal Transfer Microlithography (DTM)
Kyung S. Park and M. M. Sung (Kookmin Univ., Korea)

P-37 Nano Scale Surface Patterning by Micro Contact Printing Using a Novel Type of PDMS Stamp
J. G. Kim, V. Blech, N.Takama, and B. J. Kim (Univ. of Tokyo, Japan)

P-38 A Stdy of the Effectof Pattern Pitch on Deformation Behaviors for Surface Patterning by Using Nano-indenter
S. W. Youn, H.I. Kim, and C. G. Kang (Pusn Nat'l Univ., Korea)

P-39 Electrochemical DNA Biosensor with Nanometer Scale using Nano-patterning Lithography Machine
SeungWoo Lee, SooYeon Park, and JaeJong Lee (KIMM, Korea)

Nano Materials / Devices

P-40 Self-assembly of Functional Bacterial Surface Protein around Carbon Nanotubes and Its Application
Jong Pil Park, Tae Jung Park, Seok Jae Lee, Jong Hyun Choi, and Sang Yup Lee (KAIST, Korea)

P-41 Cooperative Catalytic Activity of Nanocomposite Layer of Ag and Pb on Au(111)
Seongpil Hwang, Joohan Lee, and Juhyoun Kwak (KAIST, Korea)

P-42 Synthesis of TiC Nanowires by PLA-CVD
Youn-Su Kim , Hyo-Jin Ahn, and Tae-Yeon Seong (GIST, Korea)

P-43 Preparation of CdS Nanoparticles by Functionalized Block Copolymers
Mijeong Han and Eunkyoung Kim (KRICT, Korea)

P-44 The Photoconductive Effect of N3-chemisorbped Mesoporous TiO_2 in a Layer-structured Liquid Crystal Cell
Kwang-Suk Jang, Sung-Ho Cho, and Jong-Duk Kim (KAIST, Korea)

P-45 Effect of Metal Nanophases on the Optical Reversion of Tungsten Oxide Films
Hee-Sang Shim, Kyung-Won Park, and Tae-Yeon Seong (GIST, Korea)

P-46 Synthesis of Mono-dispersed Ni Nanoparticles Embedded in Polyimide Matrix
Sung K. Lim, C. S. Yoon, C. K. Kim, and Young-Ho Kim (Hanyang Univ., Korea)

P-47 Preparation and Characterization of Platinum Nanoparticle-incorporated Carbon for Catalysts of Fuel Cells
Seok Kim, Mi-Wha Cho, and Soo-Jin Park (KRICT, Korea)

P-48 Preparation and Characterization of Novel Vinyl Ester/Na^+-MMT Nanocomposites
Fan-Long Jin, Jae-Rock Lee, and Soo-Jin Park (KRICT, Korea)

P-49 Preparation and Characterization of Novel Nanoporous Carbon Materials from Graphite Nanofibers
Byung-Joo Kim and Soo-Jin Park (KRICT, Korea)

P-50 Influence of Plasma Treatment on Surface and Interfacial Properties of Nano-scaled silicas/NBR Compoundings
Sung-Yeol Jin, Soo-Jin Park (KRICT, Korea), and Shinyoung Kaang (Chonnam Nat'l Univ., Korea)

P-51 RF Characteristics of 80 nm CMOS Transistors
Seung-Ho Hong, Seung-Yup Lee, Hyun-Sik Choi (POSTECH, Korea), Hee-Sung Kang (Samsung Electronics Co., Ltd., Korea), and Yoon-Ha Jeong (POSTECH, Korea)

P-52 Parameter Extraction and Layout Optimization for 80 nm RF-NMOS Transistors
Hyun-Sik Choi, Seung-Ho Hong, Seung-Yup Lee (POSTECH, Korea), Hee-Sung Kang (Samsung Electronics Co., Ltd., Korea), and Yoon-Ha Jeong (POSTECH, Korea)

P-53 Structure Control of GaP Coaxial Nanocables with SiOx, C, and BCN Layers using Thermal Chemical Vapor Deposition
Chanwoong Na, Woosung Jang , Doosuk Han, and Jeunghee Park (Korea Univ., Korea)

P-54 Synthesis and Characterization of Various Semiconductors with Carbon (C) Outrelayer
Doosuk Han and Jeunghee Park (Korea Univ., Korea)

P-55 Fabrication and Characterization of SiC@BN and Si3N4@BN Nanocables
Woo-Sung Jang, Seung Yong Bae, Hyun Chul Choi, and Jeunghee Park (korea univ., Korea)

P-56 Sulfur and Indium Doped ZnO Nanostructures Synthesized via Chemical Vapor Deposition
Chanwoong Na (Korea Univ., Korea)

P-107 Nano Structured Surface Modification of Tool Steel and Its Beneficial Effects in Mechanical Properties
In Ho Cho (SunMoon Univ., Korea), Gil Ho Song (Pohang Iron & Steel Co., Ltd., Korea), Chang Sik Kim, Jun Ho Lee, Azuma Nobuhide, In Sik Cho (DM R&D Inst., Korea), Chang Min Suh (Kyungpook Nat'l Univ., Korea), Young Shik Pyoun, and Jeong Hyun Park (SunMoon Univ., Korea)

CNT / Nano Science

P-57 Patterned Carbon Nanotube (CNT) Arrays by Using Soft Lithography and Self-assembly Pattern of Nanoparticle

Dae-Geun Choi, Junho Jeong, Chang-Soo Han, Eungsug Lee (KIMM, Korea), Sarah Kim, and Seung-Man Yang (KAIST, Korea)

P-58 The Growth of Freestanding Single Carbon Nanotube Arrays
Dong Soo Cho, Won Seok Chang, and Moo Jin Choi (KIMM, Korea)

P-59 SWNT Functionalization of Photoconductive Polymer toward Increased Photorefractive Effect in a Liquid Crystal Cell
Wook Min, Kwang-Suk Jang, and Jong-Duk Kim (KAIST, Korea)

P-60 A Study of Carbon Nanotube Array for Fabrication of Carbon Nanotube Tip
Jai Seong Choi, Jun Sok Lee, Kang Gyung Soo, Yoon Keun Kwak, and Soo Hyun Kim (KAIST, Korea)

P-61 An Ultra Wide Band Data Transmission Circuit System Using Wavelet Filter
Jin Soo Noh and Kang Hyeon Rhee (Chosun Univ., Korea)

P-62 A study on Failure Behaviors of Carbon Nanotubes/Epoxy Composites
Min-Kang Seo, Jae-Rock Lee, and Soo-Jin Park (KRICT, Korea)

P-63 A Switchable Cantilever for a Chemically Sensitive Scanning Force Microscope
Dong-Weon Lee (Chonnam Nat'l Univ., Korea), Michel Despont, Peter Vettiger (IBM Research, Switzerland), Adrian Wetzel, Ernst Meyer, and Christoph Gerber (Univ. of Basel, Switzerland)

P-64 Electric Detection of Biosensor Using MWCNT Nanoelectrode
Jae Shin Lee, Seok Jae Lee (KAIST, Korea), Jeong-O Lee (KRICT, Korea), Do Hyun Kim, Sang Yup Lee (KAIST, Korea), Jin Hee Kim (KRISS, Korea), and Seong Ku Kwon (ETRI, Korea)

P-65 Small, Low-loss Heterogeneous Photonic Bandedge Laser
Soon-Hong Kwon, Se-Heon Kim, Sun-Kyung Kim, Yong-Hee Lee (KAIST, Korea), and Sun-Bock Kim (ETRI, Korea)

P-66 Modification of Radiation Properties of Photonic Crystal Defect Mode by Bottom Substrate
Se-Heon Kim, Min-Kyo Seo, Guk-Hyun Kim, and Yong-Hee Lee (KAIST, Korea)

P-67 Covalent Attachment and Hybridization of DNA Oligonucleotide on the Patterned Single-walled Carbon Nanotube Film
Dae-Hwan Jung, Byung Hun Kim, Young Koan Ko, Sang Yup Lee, and Hee-Tae Jung (KAIST, Korea)

P-68 Manipulation of CNT for Various Applications in SPM and Electronic Devises
Jae-Ho Kim, Chul Youm, and Sung-Wook Choi (Ajou Univ., Korea)

P-69 Eu-doped SnO_2 as a Transparent Conductive Phosphor Layer for CNT Emitters
Do Hyung Park, Yang Hwi Cho, Byung Tae Ahn (KAIST, Korea), Kyoung Cheon Son, Jae Woo Bae (Samsung SDI Co., Ltd., Korea), and Young Rag Do (Kookmin Univ., Korea)

P-70 Pressure Sensor based on Carbon Nanotubes
I. M. Choi, S. Y. Woo, and B. S. Kim (KRISS, Korea)

P-71 Electronic Spectroscopy Studies of Artificial Quantum Dot Molecules
Heejun Jeong (Hanyang Univ., Korea)

P-72 A Compact Soft X-ray Microscopy System using a Laser Plasma Source
Kyong Woo Kim, Young Man Kwon, Kyu Gyeom Kim, Jong Hwan Min, Jong Hyuk Lim, Ki Yong Nam, and Kwon-Ha Yoon (Wonkwang Univ., Korea)

P-141 High Yield Fabrication of CNT-modified SPM Tip Using Electric Field
Hyung-Woo Lee, Soo-Hyun Kim, Yoon-Keun Kwak (KAIST, Korea), and Chang-Soo Han (KIMM, Korea)

Nano Bio-Devices / Self Assembly

P-73 Highly Sensitive Detection of Dye-labeled DNA in a PDMS Microfluidic Chip: Confocal Surface Enhanced Raman Study
Taehan Park, Jaebum Choo (Hanyang Univ., Korea), and Sang-Hoon Lee (Dankook Univ., Korea)

P-74 Skin Cancer Diagnosis Using Confocal Raman Microscopy
Junghyun Choi, Jaebum Choo, Hoeil Chung (Hanyang Univ., Korea), and ChilHwan Oh (Korea Univ., Korea)

P-75 Electrocatalytic Detection of Enzyme-linked Immunosorbent Assay using Partially Ferrocenyl-tethered Dendrimer
Seong Jung Kwon, Eunkyung Kim, and Juhyoun Kwak (KAIST, Korea)

P-76 Conductive Nanochromic Assembly for EC Window
Soonkyo Jung and Eunkyoung Kim (KRICT, Korea)

P-77 Microbead-based Bio-assay using Nano-probe Fluorescence in a Microfluidic Chip
Kwang-Seok Yun, Dohoon Lee, Min Soo Kim, Hak-Sung Kim, Gyun Min Lee, and Euisik Yoon (KAIST, Korea)

P-78 Self Organization of Magnetic Nanoparticles in 2-Dimensional System
Hyo Sook Lee (Korea Inst. of Geoscience & Mineral Resources, Korea), Isao Nakatani (Nat'l Inst. of Material Science, Japan), and In Yong Ko (Chunbuk Nat'l Univ., Korea)

P-79 Nano-structured Hemocompatable Surface
A. J. Schrauth, N. Saka, and N. P. Suh (MIT, USA)

P-80 Electrical Transport through DNA Linked Au Nanoparticles
Dong Han Ha, Sunkyung Jung (KRISS, Korea), Yongju Yun (Sogang Univ., Korea), Chil Seong Ah, Wan-Joong Kim, and Wan Soo Yun (KRISS, Korea)

P-81 Functionalized Gold Nanoparticles for Optical Sensing of Avidin Molecules
Wan-Joong Kim, Chil Seong Ah, Insung S. Choi (KAIST, Korea), and Wan Soo Yun (KRISS, Korea)

P-82 Direct Machining of Soft X-ray Microscope Wolter Optics
K. Kim, S. Hong, and S. Lee (KOSA, Korea)

P-83 Development of Soft X- ray Microscope System: Early Experience Results in Korea
Ki-Yong Nam, Jong-Hyeok Lim, Young-Man Kwon, Jong-Hwan Min, Jeong-Goun Park, Kyu-Gyeom Kim, Kyong-Woo Kim, and Kwon-Ha Yoon (Wonkwang Univ., Korea)

MEMS / NEMS / Bio-MEMS

P-84 Surface Nano-machining and Optical Displacement Detection of Nanoelectromechanical Systems
Taejoon Kouh (Boston Univ., USA), Dong Hwan Kim (SNUT, Korea), and Kamil L. Ekinci (Boston Univ., USA)

P-85 Constrained-surface Projection Microstereolithography
Daniel Harps, Cheng Sun, Dongmin Wu, Nicholas Fang, and Xiang Zhang (UCLA, USA)

P-86 Modeling and Simulation of Micro Solid Propellant Thrusters with Nozzles Etched in (100) SCS Wafer
Chen Xupeng, Li Yong, and Zhou Zhaoying (Tsinghua Univ., China)

P-87 Numerical Simulation of Micro Flow and Combustion in Micro Combustion Chamber
Jiuhong Wang, Xueyong Wei, Dejiang Lu, and Zhuangde Jiang (Xi'an Jiaotong Univ., China)

P-88 A Crisscross-shaped Test Structure to Determine the Poisson's Ratio of Thin Films Using Resonant Method
Chih-Chan Lu, Ying-Chou Cheng, Chi-Yuan Lee, Pei-Zen Chang (Nat'l Taiwan Univ., Taiwan), and Jin-Hon Chiou (The Industrial Tech. Research Inst., Taiwan)

P-89 Guided Cell Growth through Surface Treatments
Yo Han Choi and Seung S. Lee (KAIST, Korea)

P-90 High Power Generation with a Vibratory, Magnetic Self-power Generator Based on MEMS Technique
Hsiang-Chi Liu (Industrial Tech. Research Inst., Taiwan), Cheng-Tang Pan (Nat'l Sun Yat-sen Univ., Taiwan), Min-Chieh Chou, and Tung-Chuan Wu (Industrial Tech. Research Inst., Taiwan)

P-91 Indomethacin-loaded Poly (styrene) Nanoparticles Produced from Miniemulsion Polymerization
Ki-Seok Kim, Soo-Jin Park (KRICT, Korea), and Sung-Kwon Hong (Chungnam Nat'l Univ., Korea)

P-92 The Study of Micro Combustion Chamber Fabricated with the Cryo-etching Technique
Ren Taian, Lu Dejiang, Chen Xiaonan, and Jiang Zhuangde (Xi'an Jiaotong Univ., China)

P-93 Protein Separation in Polydimethylsiloxane Micro Channel by using Electric Field
Hyung Hoon Kim, Bon Min Koo, Sang Youl Yoon, and Kyung Chun Kim (Pusan Nat'l Univ., Korea)

P-94 3D Capacitive Tactile Sensor Using DRIE Micromachining
C. T. Chuang and Roungshun Chen (Nat'l Tsing Hua Univ., Taiwan)

P-95 Design and Experimental Characterization of the Nano-scale Bistable Actuator
Il-Han Hwang and Jong-Hyun Lee (GIST, Korea)

P-96 A Novel Method for Microneedle Array Fabrication
Sang Jun Moon and Seung S. Lee (KAIST, Korea)

P-97 Microfluidic Plastic Chip for ELISA
Joo H. Kang and Je-Kyun Park (KAIST, Korea)

P-98 The Preparation of Pt/Ti Planar Electrode for Glucose Sensor
Pai-Yu Chang, Jian-Yang Lin, Shyh-Hwang Lee, Bo-Wen Lu, and Wen-Chang Chen (NYUST, Taiwan)

P-99 Nano Gap Accelerometer Fabrication Method using Photo-assisted Electrochemical Etching
Dae Hyun Kim, Hyeon Cheol Kim, and Kukjin Chun (Seoul Nat'l Univ., Korea)

P-100 Use of Plasma Polymerisation Process for Fabrication of BioMEMS for Organic Micro-Fluidic Devises
Marshal Dhayal, H. G. Hyung (Dongshin Univ., Korea), H. J. Lee (Chonnam Nat'l Univ., Korea), and J. S. Choi (Dongshin Univ., Korea)

Nano Metrology / Manipulation

P-101 FEM Applied to Evaluate Effect of Film Thickness on the Composite Hardness for the SiO_2 Film/ 316 SS Substrate System
Wang Hairong, Chung Woo Ong (Hong Kong Polytechnic Univ., Hong Kong), andJiang Zhuangde (Xi'an Jiaotong Univ., China)

P-102 3D Measurement with Reflection Confocal Microscopy using Acousto-optical Deflector
SeungWoo Lee, Dong-Kyun Kang, Hongki Yoo, Dae-Gab Gweon (KAIST, Korea), Suk-Won Lee, and Kwang-Soo Kim (Samsung Electronic Co., Ltd., Korea)

P-103 Experimental Study on Fracture Strength of Ni/Si Composite Micro-cantilever
Jianzhong Gao, Zhuangde Jiang, Yulong Zhao, and Qiang Zhu (Xi'an Jiaotong Univ., China)

P-104 Non-contact Measurement of AFM using CNT Tipped Probe
J. K. Park and C. S. Han (KIMM, Korea)

P-105 Evaluation of Static/Dynamic Characteristics of Magnetostrictive Transducer for Micro-actuation
J. D. Hwang (Pusan Nat'l Univ., Korea), S. H. Kim (Dong-eui Univ., Korea), and J. H. Ahn (Pusan Nat'l Univ., Korea)

P-106 Synthesis of $CuInGaSe_2$ Nanoparticles by Low Temperature Colloidal Route
Ki-Hyun Kim, Young-Gab Chun (Korea Inst. of Energy Research, Korea), Byung-Ok Park (Kyungpook Nat'l Univ., Korea), and Kyung-Hoon Yoon (Korea Inst. of Energy Research, Korea)

P-108 Application of Input Shaping for Tracking Control with Air Bearing and Coreless Linear Motor System
K. H. Kim, Y. M. Choi, B. U. Nam (KAIST, Korea), S. W. Lee, Y. H. Choi (Samsung Electronics Co., Ltd., Korea), and D. G. Gweon (KAIST, Korea)

P-109 Development of Metrological Atomic Force Microscope with Long Measuring Range
JaeYun Lee, TaeBong Eom (KRISS, Korea), and Joon Lyou (Chungnam Nat'l Univ., Korea)

P-110 Design and Control of Flexure Based Precision XY-Theta Stage
D.W. Kang, K. H. Kim, D. G. Gweon (KAIST, Korea), S. W. Lee, and M. G. Lee (Samsung Electronics Co., Ltd., Korea)

P-111 Mechanical Behavior of Freestanding Au Thin Film under Cyclic Loading
Seung-Woo Han, Hak-Joo Lee, Jae-Hyun Kim (KIMM, Korea), Erik G. Herbert (MTS Nano Instruments Innovation Center, USA), Jong-Man Kim, and Chang-Wook Baek (Seoul Nat'l Univ., Korea)

P-112 Nanometer Accuracy in Astronomy Optics
Young-Soo Kim (Korea Astronomy Observatrory, Korea)

P-113 Multi-dimensional Nano-meter Scale Moving System for Vacuum Scanning Probe Microscopes
E. P. Kim, S. T. Kim, and S.-J. Kahng (Korea Univ., Korea)

P-114 Development of a Dynamic ISDG System for the Thin Film Material Charecterization
Chung-Seog Oh (KIT, Korea), Hak-Joo Lee, and Jae-Youn Kang (KIMM, Korea)

P-115 Pre-treatment Effect of Various Ion-implanted Sapphire Substrates for GaN Epilyers
J. Lee, J. Jhin, D. Byun (Korea Univ., Korea), J.S. Lee, J.H. Lee (Korea Atomic Energy Research Inst., Korea), C. Kim, H. Lee, Y. Moon (LG Innotek, Korea), and E. Koh (Korea Basic Science Inst., Korea)

P-116 Thermal Annealing Effects of Pre-treated Sapphire (0001) Substrate using Various Ion Implantation for GaN Epilayers
J. Lee, J. Jhin, H. Kang, D. Byun (Korea Univ., Korea), J. S. Lee, J. H. Lee (Korea Atomic Energy Research Inst., Korea), and E. Koh (Korea Basic Science Inst., Korea)

P-117 Optimal Calibration for Rotating Analyzer Ellipsometer
Sunglim Park (Optel Precision Co., Ltd., Korea) and DaeGab Gweon (KAIST, Korea)

P-118 Micro/Nano Positioning / Manipulation by Means of Visual Feedback Control
Duk-Young Lee and Hyungsuck Cho (KAIST, Korea)

P-119 Design of Optics Alignment Stage in an X-ray Microscope
Sung-hoon Kang, Dong Woo Kang, Dae Gab Gweon (KAIST, Korea), Gweon Ha Yoon (Wonkwang Univ., Korea), and Jin Young Min (LISTEM Co., Ltd., Korea)

P-120 Design Concept, Modeling and Fabrication of Micromachined Multi Dimensional Dithering Scanning Probe
Jungmok. M. Bae, Youngseok Kim, and Sangjoo Lee (Jiwoo Techniques Korea, Korea)

Nano Modeling / Simulation

P-121 The Study of Luminescence Efficiency by OLED's Hole Transport Layer Change
Jung-ho Lee (Hongik Univ., Korea)

P-122 Micro-scale Motion Analysis of a Linear Motion Guide Having Rolling Elements
Dong Jin Lee, Suk Won Lee, Hak-Kyung Sung (Samsung Electronics Co., Ltd., Korea), Jeong hoon Yoo (Yonsei Univ., Korea), and Yoon Young Kim (Seoul Nat'l Univ.,Korea)

P-123 Bulk Effects of the Thermal Flow Resists
Sang-Kon Kim and Hye-Keun Oh (Hanyang Univ., Korea)

P-124 Electrokinetic Analysis for Alignment of Carbon Nanotube based on Multi-physics
S. G. Kwon, S. H. Kim (KAIST, Korea), Y. E. Yoo, and C. S. Han (KIMM, Korea)

P-125 Process Simulation of Capillary Force Lithography (CFL)
Jung Yup Kim, Jae Hyun Kim, and Byung Ik Choi (KIMM, Korea)

P-126 Dynamic Merging-process Simulations of Carbon Nanostructures
Youngmin Lee, Sung Youb Kim, Young-Sam Cho, Jong Youn Park, Sukky Jun, and Seyoung Im (KAIST, Korea)

P-127 Dynamics of Electrically Charged Liquid Jets of Polymer Solutions in Electrospinning
M. Lee, J. H. Park, S. B. Kang (Sejong Univ., Korea)

Industrial Nano Manufacturing

P-128 Fabrication of a Multi-cell Photodiode for a MDOF Surface Encoder
Yoji Watanabe, Wei Gao, Hiroki Shimizu, and Satoshi Kiyono (Tohoku Univ., Japan)

P-129 Improvement of Rounding Effect in Chemical Mechanical Polishing Process for Nano-scale Manufacturing
Myung-Jin Chung (Korea Polytechnic Univ., Korea), Sang-Ho Lee, and Yong-Soo Choi (Hynix Semiconductor Inc., Korea)

P-130 Cost-effective Solution for Fabrication of Polymer-based Micro-fluidic Pumping Device by Ultra-precision Hot Embossing Technology
Ashley M. H. Pun, Derek C. H. Louie, and L. M. Li (Hong Kong Productivity Council, Hong Kong)

P-131 Design and Control of High Precision X-Y-Theta Stage using VCM
Dongmin Kim, Kihyun Kim, Daegab Gweon (KAIST, Korea), Suk-Won Lee, and Hyuk Kim (Samsung Electronics Co., Ltd., Korea)

P-132 Electrohydrodynamic Simulation and Design of E-spinning Nozzle for Manufacturing Nanofibers
Shin Hur, Jung Yup Kim, Jae-Hyun Kim, Wan Doo Kim, and Duckjong Kim (KIMM, Korea)

P-133 Fabrication and Microstructure of Nanophase Ti(C,N)-based Cermet
Chou Fan, Weihao Xiong, and Jing Wei (Huazhong Univ. of Science and Tech., China)

P-134 Micro Sharp Corner and Character Line Creation by Means of 6-Axis Control Ultraprecision Machining
Yuki Kikuchi (Osaka Univ., Japan), Tomohiko Kawai (FANUC Co., Japan), and Yoshimi Takeuchi (Osaka Univ., Japan)

P-135 5- and 6-Axis Control Hybrid Ultraprecision Machining of 3-D Microparts
Norikazu Kitamura (Osaka Univ., Japan), Tomohiko Kawai (FANUC Co., Japan), and Yoshimi Takeuchi (Osaka Univ., Japan)

P-136 Multi-walled Carbon Nanotubes Based Nanocomposites by the Electro-spinning Process
Jeung Choon Goak, N. S. Lee, Yeo Whan Yoon, and Joohyuk Park (Sejong Univ., Korea)

P-137 Dynamic Modeling and Simulation of Nano-grinding Process
Zhang Dawei and Tian Yanling (Tianjin Univ., China)

P-138 Improvement of Color Rendering Property of White LED Consisting of Blue LED and Yellow Phosphor
Ho Seong Jang, Won Bin Im, Dong Chin Lee, and Duk Young Jeon (KAIST, Korea)

P-139 The Effects of Surface Treatment on the Morphology of CVD Diamond Films by Electrophoretic Seeding and Ultrasonic Scratch Methods
C. Y. Hsieh, H. Y. Tsai, P. Y. Liu, Y. Y. Chang, C. H. Wu, and C. Y. Cheng (Industrial Tech. Research Inst., Taiwan)

TB3: Nano Etching / Deposition

Chair: Woo Sung Han (Samsung Electronics Co. Ltd., Korea)

16:15-16:45 **(Invited)** Flow-limited Field-injection Electrostatic Spraying (FFESS) and Its Application to Structured Nanoparticles, Nanofibers, and Thin Films
Kevin Kim (Univ. of Illinois at Urbana-Champaign, USA)

16:45-17:15 **(Invited)** Subnanolayer-sensitive In Situ and Ex Situ Characterizations of Spintronic Materials
Sung-Chul Shin (KAIST, Korea)

17:15-17:30 Sub-70nm Si_3N_4 Hardmask Open Process using ArF Bilayer Resist
J. Hong, M. H. Jung, H. W. Kim, G. J. Min, C. J. Kang, H. K. Cho, and J. T. Moon (Samsung Electronics Co., Ltd., Korea)

17:30-17:45 Improvement of Quartz Dry Etching Using Hardmask in Photomask
Sungmin Huh, Ki-SungYoon, Il-Yong Jang, In-Kyun Shin, Seoung-Woon Choi, and Woo-Sung Han (Samsung Electronics Co., Ltd., Korea)

17:45-18:00 Microfabrication Technology using Focused Ion Beam
Hon-Zong Choi, Eun-Goo Kang, Seok-Woo Lee, and Won-Pyo Hong (KITECH, Korea)

TC3: CNT / Nano Science-1

Chair: Peter C. Eklund (The Pennsylvania State Univ., USA)

16:15-16:45 **(Invited)** To Be Announced
Paul M. Chaikin (Princeton Univ., USA)

16:45-17:00 Effect of Chemical Solution on Multi-walled Carbon Nanotube Nanoelectrode
Jae Shin Lee and Do Hyun Kim (KAIST, Korea)

17:00-17:15 Lithium Insertion into Multi-walled Carbon Nanotubes/Silicon Composites
J. Y. Eom and H. S. Kwon (KAIST, Korea)

17:15-17:45 **(Invited)** Electronic and Geometric Structures of One-dimensional Conductors: An STM Study
Young Kuk (Seoul Nat'l Univ., Korea)

17:45-18:00 Two-dimensional Photonic Quasicrystal Single-cell Lasers
Sun-Kyung Kim, Jee-Hye Lee, Se-Heon Kim, and Yong-Hee Lee (KAIST, Korea)

Friday, November 5, 2004

FB1: Nano Materials / Devices-2
Chair: Paul Laibinis (Rice Univ., USA)

09:00-09:30 **(Invited)** Nanotechnology on Glass and Ceramics Materials Applied for New Devices
Kazuyuki Hirao (Kyoto Univ., Japan)

09:30-09:45 Synthesis of Mesoporous Platinum-carbon Nanocomposite and Its Application for Fuel Cell
Seong Ihl Woo, Won Choon Choi, Min Ku Jeon, and Hee Jung Jeon (KAIST, Korea)

09:45-10:00 Growth and Characterization of Sn-based Nanoparticles
Hyo-Jin Ahn, Youn-Su Kim, and Tae-Yeon Seong (GIST, Korea)

10:00-10:30 **(Invited)** Development of Nanostructured Materials by the CNMT
Snag-Hee Suh (CNMT, Korea)

10:30-10:45 Quantum Confinement Observed in Ultrafine ZnO and ZnO/$Zn_{0.8}Mg_{0.2}O$ Coaxial Nanorod Heterostructures
Won Il Park, Sung Jin An, Gyu-Chul Yi (POSTECH, Korea), and Miyoung Kim (SAIT, Korea)

FC1: MEMS / NEMS
Chair: Je-Kyun Park (KAIST, Korea)

09:00-09:30 **(Invited)** Nanostructures for Micro Total Analysis Systems
Joerg Mueller (Technical Univ. of Hamburg-Harburg, Germany)

09:30-10:00 **(Invited)** National Nanotechnology Infrastructure Network, NNIN, and Implications to Nanotechnology Research
Yoshio Nishi (Stanford Univ., USA)

10:00-10:15 Fabrication of 3D Nanostructures via Nanostructured Origami™ Process
Hyun Jin In, Will Arora, Sundeep Kumar, Yang Shao-Horn, Henry I. Smith, and George Barbastathis (MIT, USA)

10:15-10:30 Sol-gel Processing of Texture-controlled PZT-based Films on Silicon Wafers for MEMS Applications
Wen Gong, Jing-Feng Li, Xiangcheng Chu, and Longtu Li (Tsinghua Univ., China)

10:30-10:45 Improvement of Mechanical Properties of Micro Parts in UV-LIGA by Deposition of Ni- La_2O_3 Nanocomposites
D. Zhu, Y. J. Xue, and N. S. Qu (Nanjing Univ. of Aeronautics and Astronautics, China)

FB2: Nano Printing / Patterning

Chair: Haiwon Lee (Hanyang Univ., Korea)

11:00-11:30 **(Invited)** UV Nanoimprint Lithography Using a Large Area Stamp
Eung Suk Lee (KIMM, Korea)

11:30-12:00 **(Invited)** Recent Developments in Step and Repeat UV Nanoimprint Lithography
S. V. Sreenivasan (The Univ. of Texas at Austin, USA)

12:00-12:15 Plasmonic Nanolithography
Werayut Srituravanich, Nicholas Fang, Cheng Sun, and Xiang Zhang (UCLA, USA)

12:15-12:30 Research on Process Control and Optimization for Step Imprint Lithography
Yucheng Ding, Hongzhong Liu, and Bingheng Lu (Xitan Jiaotong Univ., China)

12:30-12:45 Fabrication of Nanostructures on Self-assembled Monolayer Modified Substrates Using Atomic Force Microscope Lithography
Sun Woo Lee, Jun Hyung Park, Seunghyun Lee, Moonhee Lee, Sukjong Bae, and Haiwon Lee (Hanyang Univ., Korea)

FC2: CNT / Nano Science-2

Chair: To Be Announced

11:00-11:30 **(Invited)** Nanomanufacturing as Applied to Large Area CNT TVs
Zvi Yaniv (Applied Nanotech Inc., USA)

11:30-12:00 **(Invited)** From Bundled Carbon Nanotube Soot to Individual Macromolecular Tubes in Solution: Optical Probes of their Physical Properties and Chemical Functionalization
Peter C. Eklund (The Pennsylvania State Univ., USA)

12:00-12:15 Mach-zehnder Interferometer of Nanocrystal Chain Arrays with Electromagnetic Energy Transfer
Suc-Kyoung Hong (Chungbuk Univ., Korea) and Kyu-Hwang Yeon (Korea Univ., Korea)

12:15-12:30 Electrokinetic Deposition of Individual Single Walled Carbon Nanotube onto an Electrode Gap
C. S. Han and E. S. Lee (KIMM, Korea)

REGISTRATION

For advance registration, please complete the registration form and return it to the secretariat with the appropriate fee at your earliest convenience no later than September 30, 2004. You can register for the ISNM 2004 directly on-line registration, or by completing the registration form. Only registered persons can participate in the symposium program.

Registration Type	Advance (Before Sept. 30, 2004)		Late (After Sept. 30, 2004)	
	Overseas	Domestic	Overseas	Domestic
Regular	USD 250	KRW 300,000	USD 280	KRW 350,000
Student	USD 80	KRW 100,000	USD 100	KRW 120,000

Additional Purchase	Overseas	Domestic
Additional Proceedings	USD 50 / each	KRW 60,000 / each
Additional Banquet Ticket	USD 50 / each	KRW 60,000 / each
Additional Lunch Ticket	USD 10 / day	KRW 12,000 / day

1. Regular registration includes admission to the technical session, a copy of the proceedings, lunch, welcome reception, banquet, and coffee break.
2. Student registration includes admission to the technical session, a copy of the proceedings, lunch, welcome reception, and coffee break.

ACCOMMODATION

The organizing committee of ISNM 2004 has reserved sufficient rooms at discount convention rates for all participants and accompanying persons. The reservation should be made no later than September 30, 2004 to take advantage of the special rates. After the date, rooms will be booked on a space availability basis.

Room Rate

Hotel	Grade	Room Type	Room Rate	**Special Room Rate (Nov 1 - Nov. 6)**	Access to Venue
Hotel Spapia	★★★★★	Single Twin Ondol	KRW 145,000 (apprx. USD 120)	**KRW 67,504** **(approx. USD 60)**	10 min. by car

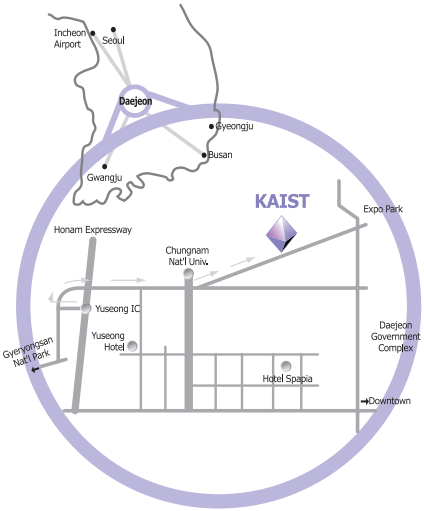
Reservation Terms

1. Rooms will be assigned on a first-come first-served basis. Hotel reservation deadline is September 30, 2004.
2. The above room rate is only for the room. Service charge, tax, and breakfast are NOT included.
   - For overseas participants: 10% service charge will be added up.
   - For domestic participants: 10% service charge and 10% tax will be added up.
3. The above room rate is based on Korean Won. USD rates are subject to be changed depends on the date and current rates are KRW 1150.00 per USD 1 as of Sept. 8, 2004.
4. Ondol is the Korean under-floor heating system and you can stay with up to 2 persons per room.
5. All payment must be made in Korean won or US dollar.

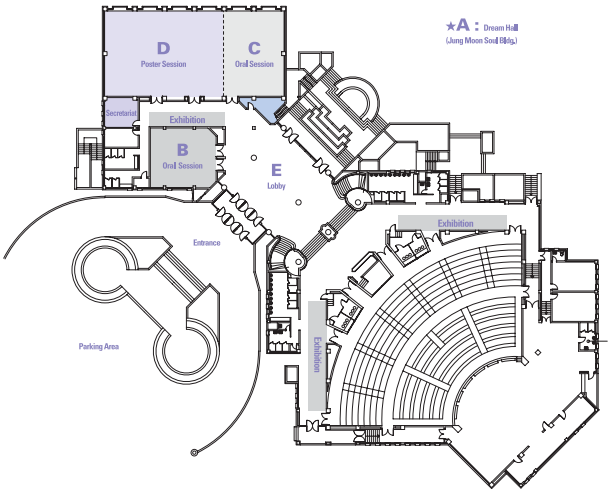
Cancellation Policy

- No-show: 50% one night room rate will be charged.

VENUE: KAIST



FLOOR PLAN



ISNM 2004 SECRETARIAT

GENICOM Convention Service Co., Ltd.
5F, Daehan Bldg., #1018 Dunsan-dong, Seo-gu, Daejeon 302-120, KOREA
Tel: +82-42-472-7461 / Fax: +82-42-472-7459
E-mail: isnm@isnm2004.kaist.ac.kr / Web Site: http://isnm2004.kaist.ac.kr