

IEEE NEMS 2012 Program Schedule**Monday, March 5, 2012****Welcome Reception: Cafe Restaurant Camphora**

16:30 – 18:30 Welcome Reception

Tuesday, March 6, 2012**Plenary Sessions: Centennial Hall**

9:15 - 9:45 Opening Ceremony

9:45 - 12:00 T1G Plenary Lectures

T1G-1 NEMS Based Tools for Nanoscience and Atomic Clocks*N. F. de Rooij¹, S. Gautsch¹, T. Akiyama¹, F. Loizeau¹, G. Mileti², Y. Pétremand¹, U. Staufer³, R. Straessle¹, G. Yoshikawa⁴*¹Ecole Polytechnique Fédérale de Lausanne, SWITZERLAND²Université de Neuchâtel, SWITZERLAND³Technical University of Delft, NETHERLANDS⁴National Institute for Materials Science (NIMS), JAPAN**T1G-2 Beyond Watson and Crick: Programming DNA Self-Assembly for Nanofabrication***P. W. K. Rothemund*

California Institute of Technology, USA

T1G-3 Recent Advances on Nano-Materials for Advanced Packaging Applications*C. P. Wong*

The Chinese University of Hong Kong, HONG KONG

ORAL SESSIONS**ROOM A (International Conference Hall I)**

14:30 - 16:00 T3A Invite I/Carbon Nanotubes

T3A-1 (invite) Printed Carbon Nanotube Devices and Their Applications*Z. Cui, J. Zhao, T. Zhang*

Printable Electronics Research Center, Suzhou Institute of Nanotech, Chinese Academy of Science, CHINA

T3A-2 Portable E-Nose Based on Polymer/CNT Sensor Array for Protein-Based Detection*P. Lorwongtragool¹, T. Seesaard¹, C. Tongta², T. Kerdcharoen¹*¹Mahidol University, THAILAND²Thaksin University, THAILAND**T3A-3 Carbon Nanotubes Nanoarray in Anodized Alumina Nanopores for Glucose Biosensing***A. Wisitsoraat, D. Phokharatkul, C. Karuwan, P. Sritongkham, A. Tuantranont*

National Electronics and Computer Technology Center, THAILAND

T3A-4 Investigations on Passivation Layers for Carbon Nanotube Transistors for Sensor Applications*K. Chikkadi, M. Politou, E. Cagin, O. Kurapova, M. Döbeli, C. Hierold*

ETH Zürich, SWITZERLAND

T3A-5 Study on Carbon-Based Electrode for Air-Cathode Microbial Fuel Cell*Y.-C. Huang, H.-Y. Tsai*

National Tsing Hua University, TAIWAN

16:30 - 18:00 T4A Graphenes**T4A-1 Multilayer Graphene Growth by a Metal-Catalyzed Crystallization of Diamond-Like Carbon***P. Peng, D. Xie, Y. Yang, C. Zhou, H. Tian, T. Feng, X. Li, T. Ren, H. Zhu*

Tsinghua University, CHINA

T4A-2 Chemical Vapor Deposition of Nanocrystalline Graphene Directly on Arbitrary High-Temperature Insulating Substrates*J. Sun¹, N. Lindvall¹, M. T. Cole², K. Teo³, A. Yurgens¹*¹Chalmers University of Technology, SWEDEN²University of Cambridge, UNITED KINGDOM³AIXTRON Nanoinstruments Ltd., UNITED KINGDOM**T4A-3 Characterization of Strain Fields in Graphene Films***R. Dewanto, C. Dale, Z. Hu, N. Keegan, B. Gallacher, J. Hedley*

Newcastle University, UNITED KINGDOM

T4A-4 Transfer-Free Fabrication of Suspended Graphene Grown by Chemical Vapor Deposition*N. Lindvall, J. Sun, A. Yurgens*

Chalmers University of Technology, SWEDEN

T4A-5 Photovoltaic Response of N-Doped Graphene-Based Photodetector*W. Wang, T. Li, Y. Wang*

Shanghai Institute of Microsystem and Information Technology, CHINA

T4A-6 Actuators Based on Graphene/Graphene Oxide Papers*H. Bi, X. Xie, K. Yin, S. Wan, L. Sun*

Southeast University, CHINA

ROOM B (International Conference Hall III)**14:30 - 16:00 T3B Nanoimprint****T3B-1 A Novel Multi-Step Programmable Thermal Nanoimprint Lithography***Y.-J. Chang, J.-W. Hsu*

National Yunlin University of Science and Technology, TAIWAN

T3B-2 Development of Roll Press UV Imprint Process for Replication of Micro Lens Arrays on the Large and Thin Quartz Substrate*L. Li, K. Ishii, Y. Tsutsui, S. Shoji, J. Mizuno*

Waseda University, JAPAN

T3B-3 Nanoimprinting of Sub-Wavelength Structure by Using Cone-Shape Anodic Alumina Oxide Template for the Enhancement of Solar Cell Energy Conversion Efficiency*C.-H. Chuang¹, F.-F. Chuang¹, S.-W. Tsai¹, Y.-M. Shen², C.-P. Chen³, S.-C. Wan¹*¹Southern Taiwan University, TAIWAN²National Cheng Kung University, TAIWAN³Metal Industries Research & Development Centre, TAIWAN

- T3B-4 **Fabrication Metal Roller Mold with Sub-Micrometer Feature Size Based on Contact Printing Photolithography**
K.-F. Huang, S.-W. Tsai, Y.-C. Lee
National Cheng Kung University, TAIWAN
- T3B-5 **Fabrication of Metal Embedded Photo-Mask for Sub-Micrometer Scaled Photolithography and Patterning Sapphire Substrate**
J.-N. Yan, Y.-C. Lee
National Cheng Kung University, TAIWAN
- T3B-6 **Metal Contact Printing Photolithography for Fabricating Sub-Micrometer Patterned Sapphire Substrates in Light-Emitting Diodes**
Y.-T. Hsieh, Y.-C. Lee
National Cheng Kung University, TAIWAN

16:30 - 18:00 T4B Lithography

- T4B-1 **Nano-Scale Mechanical Relays Fabricated by Nanoimprint Technology**
Y.-J. Chang, D. Y. Liu, C. L. Kuo
National Yunlin University of Science and Technology, TAIWAN
- T4B-2 **A Facile Nanowire Fabrication Approach Based on Edge Lithography**
Y. Liu, W. Wang, H. A. Zhang, W. Wu, Z. Li
Peking University, CHINA
- T4B-3 **Hybrid Mask Lithography for Fabrication of Micro-Pattern with Nano-Pillars**
S. Sakuma, M. Sugita, F. Arai
Nagoya University, JAPAN
- T4B-4L **In-situ Actuated Gap Reduction and Clogging-Free Apertures for Quasi-Dynamic Stencil Lithography**
S. Xie, V. Savu, J. Brugger
Ecole Polytechnique Fédérale de Lausanne, SWITZERLAND
- T4B-5L **The Simulaiton of Micro Probe by Using the Microlens Mask Through Proximity Printing**
T.-H. Lin, C.-K. Chao
National Taiwan University of Science and Technology, TAIWAN
- T4B-6L **Roll-to-Roll Microcontact Printing with Roller Stamp Fabricated by Optical Soft Lithography**
S. Makino, J. Park, N. Takama, B. Kim
The University of Tokyo, JAPAN

ROOM C (Meeting Room IV)

14:30 - 16:00 T3C Chemical & Molecular Sensing I

- T3C-1 **Adaptable Chip-Level Microfluidic Packaging for a Micro-Scale Gas Chromatograph**
N. Ward¹, X. Mu¹, G. Serrano², E. Covington², C. Kurdak², E. T. Zellers², A. J. Mason¹, W. Li¹
¹Michigan State University, USA
²University of Michigan, USA

- T3C-2 **Detecting Vapor Traces of Explosives Using a Self-Assembled Mono Layer on a Surface-Modified MEMS Capacitor and CMOS Electronics**
D. Strle¹, B. Štefane¹, I. Muševič²
¹University of Ljubljana, SLOVENIA
²Jožef Stefan Institute, SLOVENIA
- T3C-3 **A High Heating Efficiency Two-Beam Microhotplate for Catalytic Gas Sensors**
L. Xu, T. Li, X. Gao, Y. Wang
Shanghai Institute of Microsystem and Information Technology, CHINA
- T3C-4 **Vibration Mode Localization in Coupled Beam-Shaped Resonator Array**
K. Chatani¹, D. F. Wang¹, T. Ikehara², R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
- T3C-5 **Piezoelectrically Actuated Circular Diaphragm Resonator Mass Sensors**
N. Keegan, J. Hedley, Z. Hu, J. A. Spoons, W. Waugh, B. Gallacher, C. J. McNeil
Newcastle University, UNITED KINGDOM
- T3C-6 **Clay Nanocomposite Hydrogels Applied to MEMS-Based Chemical Microsensors**
V. Schulz, B. Ferse, A. Grosse, K.-F. Arndt, G. Gerlach
Technische Universität Dresden, GERMANY

16:30 - 18:00 T4C OS: Emergence in Chemistry for Integrated Nano System

- T4C-1 **Electron Transport and Photoresponse of Self-Assembled Molecular Layer of Ru Complex with Phosphonic Acids on ITO**
T. Ishida¹, K. Terada¹, H. Nakamura¹, Y. Asai¹, T. Sumi^{1,2}, K. Kanaizuka^{2,3}, M. Haga²
¹NRI-AIST, JAPAN
²Chuo University, JAPAN
³Yamagata University, JAPAN
- T4C-2 **Noise-Induced Stochastic Enhancement for a Device Based on Redox-Active Huge Molecule and DNA Nanonetwork**
T. Matsumoto, Y. Hirano, Y. Segawa, T. Kawai
Osaka University, JAPAN
- T4C-3 **Pattern Size Dependence of Reorientation of Photoinduced Liquid Crystalline Polymer by Thermal Nanoimprinting**
M. Okada, M. Kurita, M. Kondo, Y. Haruyama, N. Kawatsuki, S. Matsui
University of Hyogo, JAPAN
- T4C-4 **Magnetoresistance of Uni-Molecular Junctions with Ferromagnetic Electrodes**
M. Noguchi, R. Yamada, H. Tada
Osaka University, JAPAN
- T4C-5 **A Carbon Nanotube Network Conjugated by Semiconductor Nanoparticles with Defined Nanometer-Scaled Gaps**
S. Kumagai¹, N. Okamoto², M. Kobayashi^{2,3}, I. Yamashita²
¹Toyota Technological Institute, JAPAN
²Nara Institute of Science and Technology, JAPAN
³Japanese Foundation for Cancer Research, JAPAN

T4C-6 **Closed-Looped Nano Stimulation Microscope for Living Cell Membrane***T. Hoshino¹, K. Morishima²*¹Tokyo University of Agriculture and Technolog, JAPAN²Osaka University, JAPAN**ROOM D (Meeting Room III)****14:30 - 16:00 T3D Probe & Cantilever Technology and Application**

T3D-1 **Pyramidal Nanowire Tip for Atomic Force Microscopy and Thermal Imaging***N. Burouni¹, E. Sarajlic², M. Siekman¹, L. Abelmann¹, N. Tas¹*¹University of Twente, NETHERLANDS²Smarttip, NETHERLANDST3D-2 **Atomic Force Microscopy-Based Repeatable Surface Nanomachining for Nanochannels on Bare Silicon Substrate***Z. Dong, U. C. Wejinya, S. N. S. Chalamalasetty*

University of Arkansas, USA

T3D-3 **AFM Imaging Experiment Using Cantilever Probe Integrated with Microplasma Reactor***L. Cheng, L. Wen, Z. Yuan, D. Niu, L. He, J. Chu*

University of Science and Technology of China, CHINA

T3D-4 **A Pyrex Nanochannel Device Fabricated by AFM Nanolithography***O. Hibbert, T. Busch, S. Tung*

University of Arkansas, USA

T3D-5 **Effect of Nonlinear Vibration on Double Region of Synchronized Frequency Responses in Mechanically Coupled Beam-Shaped Oscillator System***T. Itoh¹, D. F. Wang¹, T. Ikehara², M. Nakajima¹, R. Maeda²*¹Ibaraki University, JAPAN²National Institute of Advanced Industrial Science and Technology (AIST), JAPANT3D-6L **Patterning Property of a Novel Anti-Wear Probe for SPM LAO Lithography***Y. F. Li¹, Y. Tomizawa¹, A. Koga¹, G. Hashiguchi², M. Sugiyama³, H. Fujita³*¹BEANS Project, JAPAN²Shizuoka University, JAPAN³The University of Tokyo, JAPAN**16:30 - 18:00 T4D Physical Sensors**

T4D-1 **Flexible and Biocompatible Pressure Sensor Sheet for a Treatment Patch of Myelomeningocele***K. Kuwana, K. Masamune, T. Dohi*

The University of Tokyo, JAPAN

T4D-2 **Characterization of a Multi-Layered MEMS Pressure Sensor Using Piezoresistive Silicon Nanowire within Large Measurable Strain Range***L. Lou¹, S. Zhang¹, W.-T. Park², L. Lim², D.-L. Kwong², C. Lee¹*¹National University of Singapore, SINGAPORE²Institute of Microelectronics, Singapore, SINGAPORE

- T4D-3 **Analysis, Modeling and Verification of Air-Venting Effect on Frequency Response of a Capacitive MEMS Microphone**
C.-T. Chen
National Kaohsiung University of Applied Sciences, TAIWAN
- T4D-4 **A Novel Stretchable CMUT Array Using Liquid-Metal Electrodes on a PDMS Substrate**
X. Shi¹, C.-H. Cheng¹, J. Peng²
¹The Hong Kong Polytechnic University, HONG KONG
²Shen Zhen University, CHINA
- T4D-5 **Miniature Pyranometer with Asteroid Shape Thermopile**
J. Zhang, Z. Wu, Z. Zhao, X. Guan
Institute of Electronics, Chinese Academy of Sciences, CHINA
- T4D-6 **Design and Fabrication of Thin-Film Aluminum Microheater and Nickel Temperature Sensor**
R. Phatthanakun¹, P. Deekla², W. Pummara², C. Sriphung¹, C. Pantong², N. Chomnawang²
¹Synchrotron Light Research Institute, THAILAND
²Suranaree University of Technology, THAILAND

Wednesday, March 7, 2012

ORAL SESSIONS

ROOM A (International Conference Hall I)

9:00 - 10:15 W1A Invite II/Award Finalist Presentations I

W1A-1 (invite) **Sensing and Noise Characteristics of Si-Nanowire Ion-Sensitive-Field-Effect-Transistors for Future Biosensor Applications**

J.-S. Lee

Pohang University of Science and Technology, KOREA

W1A-2 **Micro Device Array Design and Fabrication in Monolithic MEMS SoC**

J.-H. Wen, W. Fang

National Tsing Hua University, TAIWAN

W1A-3 **Integration the Back-Side Inclined Exposure Technology to Fabricate the 45degree k-Type Prism with Nanometer Roughness**

K.-Y. Hung, Y.-W. Tsai, C.-F. Lee, Y.-H. Chu

Ming Chi University of Technology, TAIWAN

10:45 - 12:00 W2A Award Finalist Presentation II

W2A-1 **Study on Piezoelectric Properties of Near-Field Electrospinning PVDF/MWCNT Nano-Fiber**

Z. Y. Ou¹, Z. H. Liu¹, C. T. Pan¹, L. W. Lin², Y. J. Chen¹, H. W. Lai¹

¹National Sun Yat-Sen University, TAIWAN

²University of California, Berkeley, USA

W2A-2 **Local Ablation by Micro-Electric Knife**

Y. Yamanishi, H. Kuriki, S. Sakuma, K. Onda, F. Arai

Nagoya University, JAPAN

W2A-3 **In-Vitro Transgenic Mice Liver Tissue Culture Via Hydrodynamic Flow Perfusion Bioreactor**

C.-W. Wu¹, S. Sivashankar¹, S. Valagerahally Puttaswamy¹, H.-L. Lin², K.-W. Chang¹,

C.-T. Yeh², C.-H. Liu¹

¹National Tsing Hua University, TAIWAN

²Chang Gung Memorial Hospital, TAIWAN

W2A-4 **High Quality Factor Parylene-Based Intraocular Pressure Sensor**

J. C.-H. Lin¹, Y. Zhao¹, P.-J. Chen², Y.-C. Tai¹

¹California Institute of Technology, USA

²Robert Bosch LLC, USA

14:30 - 16:00 W4A Award Finalist Presentation III

W4A-1 **Light-Addressable Electrochemical Micropatterning of Cell-Encapsulated Alginate Hydrogels for Cell-Based Microarray**

S.-H. Huang¹, H.-T. Chu¹, C.-W. Wu², Y.-Y. Chuang²

¹National Taiwan Ocean University, TAIWAN

²Ming Chuan University, TAIWAN

W4A-2 A Free-Standing and Flexible Parylene PCR Device

P. Satsanarukkit, H. Lo, Y.-C. Tai
California Institute of Technology, USA

W4A-3 Cell Culture on MEMS Materials in Micro-Environment Limited by a Physical Condition

M. Inoue¹, A. Okonigi², K. Terao¹, H. Takao¹, F. Shimokawa¹, F. Oohira¹, H. Kotera², T. Suzuki¹
¹Kagawa University, JAPAN
²Kyoto University, JAPAN

W4A-4 The Effect of Cytochalasin D on F-Actin Behavior of Single-Cell Electroendocytosis Using Multi-Chamber Micro Cell Chip

R. Lin, D. C. Chang, Y.-K. Lee
Hong Kong University of Science and Technology, HONG KONG

W4A-5 Cryogenic Frozen Device for Hepatocyte Culture and Responses

L.-Y. Ke¹, W.-C. Ho¹, Y.-S. Chen¹, J. Liu², C.-H. Liu¹
¹National Tsing Hua University, TAIWAN
²Tsinghua University, CHINA

16:30 - 18:00 W5A Cell Engineering

W5A-1 Rapid Millions Cell-Assembly Chip for the Formation of High-Density Monolayer Cells Array

T.-J. Chen, Y.-C. Chang, F.-G. Tseng
National Tsing Hua University, TAIWAN

W5A-2 Proliferation Rate Regulation of Primary Chondrocyte Cells by Applying a Cycling Mechanical Stimulation on Flexible Micro Cells Well

T.-Y. Lin, T.-J. Chen, F.-G. Tseng
National Tsing Hua University, TAIWAN

W5A-3 3D Microstructure Integrated Bioreactor System for Transgenic Mice Thick Liver Tissue Culture

S. Sivashankar¹, S. Valagerahally Puttaswamy¹, H.-L. Lin², S.-M. Yang³, H.-P. Chen¹, C.-T. Yeh², C.-H. Liu¹
¹National Tsing Hua University, TAIWAN
²Chang Gung Memorial Hospital, TAIWAN
³National Chiao Tung University, TAIWAN

W5A-4 Experimental Investigation of Bulk Response of Cells on Optoelectronic Dielectrophoresis Chip

S. Valagerahally Puttaswamy¹, S.-M. Yang², S. Sivashankar¹, K.-W. Chang¹, L. Hsu², C.-H. Liu¹
¹National Tsing Hua University, TAIWAN
²National Chiao Tung University, TAIWAN

W5A-5 PEGDA-Based Photocrosslinking Platform for Real Time Cell Trapping

L.-Y. Ke¹, Z.-K. Kuo², Y.-S. Chen¹, H.-W. Tseng², C.-H. Liu¹
¹National Tsing Hua University, TAIWAN
²Industrial Technology Research Institute, TAIWAN

W5A-6 Gene Transfection Enhancement of Electroporation Microchip by Combining High and Low Electric Fields*Y.-C. Chung¹, W.-J. Liao¹, Y.-T. Huang², C.-Y. Wu¹*¹Ming Chi University of Technology, TAIWAN²Fu Jen Catholic University, TAIWAN**ROOM B (International Conference Hall III)**9:00 - 10:15 W1B Invite III/Membranes

W1B-1 (invite) Atomic Resolution Nanofabrication and Dynamic Characterization*L. Sun*

Southeast University, CHINA

W1B-2 A High Performance Nano Desalination by the Manipulation of EDL among AAO Nanochannels*Y.-S. Huang, C.-J. Chang, W.-C. Chang, Y.-L. Chueh, F.-G. Tseng*

National Tsing Hua University, TAIWAN

W1B-3 Development of Conductive Nanoporous Polymer Membrane for Selective Transport of Charged Biomolecules*P.-R. Chen¹, S.-H. Huang², Y.-J. Chuang¹*¹Ming Chuan University, TAIWAN²National Taiwan Ocean University, TAIWAN**W1B-4 A Magnetic-Driven Membrane Made of Photosensitive Nanocomposite without Alignment Process***T. Nakahara¹, Y. Hosokawa¹, K. Terao¹, H. Takao¹, F. Shimokawa¹, F. Oohira¹, H. Miyagawa¹,**T. Namazu², H. Kotera³, T. Suzuki¹*¹Kagawa University, JAPAN²University of Hyogo, JAPAN³Kyoto University, JAPAN10:45 - 12:00 W2B Microchannels and Fluidics

W2B-1 Unified Theory to Evaluate the Effect of Concentration Difference and Peclet Number on Electroosmotic Mobility Error of Micro Electroosmotic Flow*W. Wang, Y.-K. Lee*

Hong Kong University of Science and Technology, HONG KONG

W2B-2 Fabrication of Sub-Spot-Size Microstructure of Microfluidic Channels Using CO₂ Laser Processing with Metal Film Protection*C. K. Chung, S. L. Lin, T. K. Tan, K. Z. Tu*

National Cheng Kung University, TAIWAN

W2B-3 Blood Vessels by Fractal Gelatin*L.-J. Yang, B.-H. Chen*

Tamkang University, TAIWAN

W2B-4 Controlled Orientation of Zeolites Based on Viscosity Segregation for Functional Optofluidic Systems*H. S. Khoo¹, M. Otter², L. De Cola², A. D. Griffiths¹*¹Université de Strasbourg, FRANCE²Westfälische Wilhelms-Universität Münster, FRANCE**W2B-5 Design, Simulation, and Verification of Fluidic Light-Guide Chips with Various Geometries of Micro Polymer Channels***G.-W. Huang, T.-Y. Hung, C.-T. Chen*

National Kaohsiung University of Applied Sciences, TAIWAN

14:30 - 16:00 W4B Dielectrophoresis

W4B-1 Separation of Dendritic and T Cells Using Electrowetting and Dielectrophoresis*C.-A. Chen¹, C.-H. Chen¹, A. M. Ghaemmaghami², S.-K. Fan¹*¹National Chiao Tung University, TAIWAN²University of Nottingham, UNITED KINGDOM**W4B-2 Development of Microbead-Based Affinity Biosensor by Insulator-Based Dielectrophoresis***T.-M. Chuo, W. Hsu, S.-K. Fan*

National Chiao Tung University, TAIWAN

W4B-3 Difference Proportional Cell Contact Platform for 3D Hepatocyte Culture*Y.-S. Chen¹, Z.-K. Kuo², L.-Y. Ke¹, C.-W. Lin¹, H.-W. Tseng², C.-H. Liu¹*¹National Tsing Hua University, TAIWAN²Industrial Technology Research Institute, TAIWAN**W4B-4 Enhancement of Fluorescent Intensity by Using DEP Manipulations of Polyaniline-Coated Al₂O₃ Nanoparticles for Immunosensing***C.-H. Chuang¹, H.-P. Wu¹, Y.-W. Huang², C.-H. Chen¹, C.-P. Jen²*¹Southern Taiwan University, TAIWAN²National Chung Cheng University, TAIWAN**W4B-5 Inducing Self-Rotation of Melan-a Cells by ODEP***L.-H. Chau¹, M. Ouyang¹, W. Liang², G.-B. Lee³, W. J. Li^{1,2,4}, W. K. Liu¹*¹The Chinese University of Hong Kong, HONG KONG²Shenyang Institute of Automation, Chinese Academy of Sciences, CHINA³National Tsing Hua University, TAIWAN⁴City University of Hong Kong, HONG KONG**16:30 - 18:00 W5B Microfluidic Devices**

W5B-1 Microfluidic System for Rapid Detection of Influenza Infection by Utilizing Magnetic MnFe₂O₄ Nanoparticle-Based Immunoassay*L.-Y. Hung¹, F.-Y. Cheng², C.-C. Huang², Y.-C. Tsai², C.-S. Yeh², H.-Y. Lei², G.-B. Lee¹*¹National Tsing Hua University, TAIWAN²National Cheng Kung University, TAIWAN**W5B-2 An Optical Diagnostic System Using Isothermal Amplification Technique for *Phalaenopsis Orchids****W.-H. Chang¹, S.-Y. Yang¹, C.-H. Wang¹, P.-C. Li², F.-J. Jan², T.-Y. Chen³, G.-B. Lee¹*¹National Tsing Hua University, TAIWAN²National Chung Hsing University, TAIWAN³National Cheng Kung University, TAIWAN

- W5B-3 **Automated Immunoassay System Based on the Colorimetric Detection**
K. F. Lei
 Chang Gung University, TAIWAN
- W5B-4 **Three-Dimensional Lab-on-a-CD with Enzyme-Linked Immunosorbent Assay**
M. Ishizawa¹, T. Azeta¹, H. Nose¹, Y. Ukita², Y. Utsumi¹
¹University of Hyogo, JAPAN
²Japan Advanced Institute of Science and Technology, JAPAN
- W5B-5 **Multiplex Immunoassay on a Power-Free Microchip for Point-of-Care Testing**
K. Hosokawa, H. Okada, M. Maeda
 RIKEN, JAPAN
- W5B-6 **3D Biomimetic Chip Integrated with Microvascular System for Studying the Liver Specific Functions**
K.-W. Chang, C.-T. Lee, P. Tushar Harishchandra, H.-P. Chen, T.-R. Yueh, S. Valagerahally Puttaswamy, S. Sivashankar, C.-H. Liu
 National Tsing Hua University, TAIWAN

ROOM C (Meeting Room IV)

9:00 - 10:15 W1C Fabrication I

- W1C-1 **Plasma-Treated Switchable Wettability of Parylene-C Surface**
X.-P. Bi, N. L. Ward, B. P. Crum, W. Li
 Michigan State University, USA
- W1C-2 **In Situ Heating to Improve Adhesion for Parylene-on-Parylene Deposition**
D. Kang, J. H.-C. Chang, J. Y.-H. Kim, Y.-C. Tai
 California Institute of Technology, USA
- W1C-3 **Engineering a Biomimetic Villus Array for In Vitro 3-Dimensional Culture of Intestinal Epithelial Cells**
Y. Chen, W. Yang, Y. Huang, C.-C. Fu, Y. Fu, S. Tang
 National Tsing Hua University, TAIWAN
- W1C-4 **Reduction of AC Resistance in MEMS Intraocular Foil Coils Using Microfabricated Planar Litz Structure**
Y. Zhao, M. Nandra, C.-C. Yu, Y.-C. Tai
 California Institute of Technology, USA
- W1C-5 **Design and Fabrication of Flexible Parylene-Based Inductors with Electroplated NiFe Magnetic Core for Wireless Power Transmission System**
X. Sun¹, Y. Zheng¹, Z. Li¹, M. Yu¹, Q. Yuan¹, X. Li², H. A. Zhang¹
¹Peking University, CHINA
²Beijing Jiaotong University, CHINA

10:45 - 12:00 W2C Actuators

- W2C-1 **Design of a Small Wankel Engine**
L.-J. Yang, T.-H. Wang
 Tamkang University, TAIWAN

- W2C-2 **Fabrication of High-Aspect-Ratio PZT Structure by Nanocomposite Sol-Gel Method for Laterally-Driven Piezoelectric MEMS Switch**
N. Wang, S. Yoshida, M. Kumano, Y. Kawai, M. Esashi
Tohoku University, JAPAN
- W2C-3 **Silicon-Polymer Electro-Thermal Bimorph Actuators with SiC Bottom-Layer for Large Out-of-Plane Motion and Improved Power Efficiency**
M. Aarts, J. Wei, P. M. Sarro
Delft University of Technology, NETHERLANDS
- W2C-4 **Study of a Novel Bi-Stable and Easy Integrated MEMS ETBS**
Y. Zhao, W. Lou, D. Li
Beijing Institute of Technology, CHINA
- W2C-5L **Tensile Testing of SWCNT Using Thermal Actuator Clamped with Electrolessly Deposited Gold Layer**
T. Kataoka, Y. Hirai, K. Sugano, T. Tsuchiya, O. Tabata
Kyoto University, JAPAN

14:30 - 16:00 W4C Materials

- W4C-1 **Carbonaceous Magnetic Nanocapsules for Drug Delivery**
M. A. Zeeshan¹, S. Pané¹, E. Pellicer², S. Schürle¹, J. Sort^{2,3}, M. D. Baré², B. J. Nelson¹
¹ETH Zürich, SWITZERLAND
²Universitat Autònoma de Barcelona, SPAIN
³Institucio Catalana de Recerca i Estudis Avancats, SPAIN
- W4C-2 **Rapid Thermal Plasma Deposition of Transparent Nanocrystalline ZnO Thin Films and the Effects of Annealing**
K. S. Teh, J. Pedersen, H. Esposito
San Francisco State University, USA
- W4C-3 **Various Carbon Composite Pyrolyzed Polymers and Their Electrical Characterization**
A. Akazawa, K. Okamoto, A. Syunori, S. Konishi
Ritsumeikan University, JAPAN
- W4C-4 **Reliability Prediction of 3C-SiC Cantilever Beams Using Dynamic Raman Spectroscopy**
R. Dewanto¹, T. Chen², R. Cheung², Z. Hu¹, B. Gallacher¹, J. Hedley¹
¹Newcastle University, UNITED KINGDOM
²The University of Edinburgh, UNITED KINGDOM
- W4C-5 **Effect of Spin-Orbit Coupling on Piezoresistivity in p-Doped Semiconductor Bulks and Nanofilms on the Basis of First-Principles Theory**
K. Nakamura
Kyoto University, JAPAN
- W4C-6L **Thermal Radiation from Non-Rigid Nanoparticle Surrounded by Medium**
N. N. Sharma
Birla Institute of Technology & Science, INDIA

16:30 - 18:00 W5C Fabrication II

- W5C-1 Characterization of Wafer-Level XeF₂ Gas-Phase Isotropic Etching for MEMS Processing**
D. Xu, B. Xiong, G. Wu, Y. Ma, Y. Wang, E. Jing
 Shanghai Institute of Microsystem and Information Technology, CHINA
- W5C-2 Precise Width Control of Single Crystalline Silicon Nano-Wall Structure Based on Wet Etching Process on (111) Wafer**
X. Yu, Q. Jin, T. Li, Y. Wang
 Shanghai Institute of Microsystem and Information Technology, CHINA
- W5C-3 Conductive Micro Silver Wires via Aerosol Deposition**
B. Xu, W. Lv, X. Wang, T. Lei, G. Zheng, Y. Zhao, D. Sun
 Xiamen University, CHINA
- W5C-4 Dry Mechanical Liftoff Technology for Metallization on Parylene-C Using SU-8**
J. H.-C. Chang, D. Kang, Y.-C. Tai
 California Institute of Technology, USA
- W5C-5 Fabrication of Nanogap Electrode Using Electromigration Method During Metal Deposition**
T. Ohata¹, Y. Naitoh², M. Horikawa², D. F. Wang¹, R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
- W5C-6L Fabrication and Operation of Nanomechanical Structures Defined by FIB Ion Beam Implantation**
J. Llobet¹, X. Borrisé², M. Gerbolés¹, G. Rius³, F. Perez-Murano¹
¹Instituto de Microelectronica de Barcelona, SPAIN
²Institut Catala de Nanotecnologia, SPAIN
³Toyota Technological Institute, JAPAN

ROOM D (Meeting Room III)

9:00 - 10:15 W1D FRIAS Special Session

- W1D-1 Pseudo-Spin Filter in Metallic Single-Walled Carbon Nanotubes**
D. Bercioux¹, L. Mayrhofer²
¹University of Freiburg, GERMANY
²Fraunhofer IWM, GERMANY
- W1D-2 Top-Down vs. Bottom-Up Coarse-Graining of Graphene and CNTs for Nanodevice Simulation**
D. Kauzlarić¹, O. Liba², Y. Hanein², P. Español³, A. Greiner¹, S. Succi⁴, J. G. Korvink¹
¹University of Freiburg, GERMANY
²Tel-Aviv University, ISRAEL
³National Distance Education University, USA
⁴Italian National Research Council, ITALY
- W1D-3 Electrowetting Droplets Investigated with Smoothed Particle Hydrodynamics and Moving Least Squares**
D. Weiß¹, A. Greiner¹, J. Lienemann², J. G. Korvink¹
¹University of Freiburg, GERMANY
²Schmidt&Partner Engineering AG, GERMANY

W1D-4 Processing of 3D Multilevel SU-8 Fluidic Networks Assisted by PerMX Dry-Photoresist Lamination

R. C. Meier, V. Badilita, U. Wallrabe, J. G. Korvink
University of Freiburg, GERMANY

W1D-5 Conductive and Transparent Gel Microstructures Fabricated by Inkjet Printing of Ionic Liquid Based Fluids

U. Löffelmann, D. Mager, J. G. Korvink
University of Freiburg, GERMANY

10:45 - 12:00 W2D DNA origami

W2D-1 AuNPs Conjugate DNA Origami Nanotubes for Nanophotonic Application

S. Z. Kiss¹, D. S. Hautzinger¹, O. Tabata², J. G. Korvink¹
¹University of Freiburg, GERMANY
²Kyoto University, JAPAN

W2D-2 Nanomechanical DNA Origami Devices as Versatile Molecular Sensors

A. Kuzuya¹, T. Yamazaki², K. Yasuda², Y. Sakai², Y. Yamanaka¹, Y. Xu², Y. Aiba², Y. Ohya¹, M. Komiyama²
¹Kansai University, JAPAN
²The University of Tokyo, JAPAN

W2D-3L Manifesting a 2D Layer of DNA Origami Tiles Using Base-Pair Shape Recognition

I. C. Robertson, Y. Yanagida, S. Oda
Tokyo Institute of Technology, JAPAN

W2D-4L Temperature Dependency of DNA Origami Self-Assembly Rate

C. Huang, T. Akishiba, N. Tamura, Y. Hirai, K. Sugano, T. Tsuchiya, O. Tabata
Kyoto University, JAPAN

14:30 - 16:00 W4D Photonic Devices

W4D-1 Gold-Coated Polystyrene Bead Array and the Investigation of Their Plasmon Coupling Abilities

H.-Y. Hsieh¹, T.-W. Huang¹, C.-S. Yang², P.-C. Wang¹, J.-L. Xiao³, C.-H. Lee³, F.-G. Tseng¹
¹National Tsing Hua University, TAIWAN
²National Health Research Institutes, TAIWAN
³National Yang-Ming University, TAIWAN

W4D-2 Photothermal and Photoacoustic Converters Using Local Plasmon Resonator

M. Suzuki, K. Namura, K. Nakajima, K. Kimura
Kyoto University, JAPAN

W4D-3 Development of Microfabricated Phononic Crystal Resonators Based on Two-Dimensional Silicon Slab

N. Wang¹, F.-L. Hsiao², M. Palaniapan¹, C. Lee¹
¹National University of Singapore, SINGAPORE
²National Changhua University of Education, TAIWAN

W4D-4 Electric Field Design of Metallic Sub-Wavelength Hole Arrays for Optical Permittivity Sensing

E. Maeda, T. Matsuki, I. Yamada, J.-J. Delaunay
The University of Tokyo, JAPAN

W4D-5 A Stable Frequency References Platform Based on Packaged Microsphere-Taper Coupling System

J.-J. Xiong¹, Y.-Z. Yan¹, C.-L. Zou², F.-W. Sun², S.-B. Yan¹, C.-Y. Xue¹, J. Liu¹, W.-D. Zhang¹

¹North University of China, CHINA

²University of Science and Technology of China, CHINA

W4D-6L Confocal Distance Sensor with Varifocal Liquid Lens

K. Noda, B.-K. Nguyen, Y. Takei, T. Takahata, K. Matsumoto, I. Shimoyama
The University of Tokyo, JAPAN

16:30 - 18:00 W5D SERS and Quantum Optics

W5D-1 Non-Labeled Qualitative and Quantitative Analysis of Hepatitis Antigen Using SERS-Active Nano-Cavity Array

C.-K. Yao, J.-D. Liao, C.-W. Chang, J.-R. Lin
National Cheng Kung University, TAIWAN

W5D-2 A Nanostars Structure of Highly Efficient Surface Enhanced Raman Scattering Active Gold Nanoparticles Array

T.-F. Kuo, T.-Y. Liu, T.-Y. Li, R.-G. Wu, F.-G. Tseng
National Tsing Hua University, TAIWAN

W5D-3 Gold Nanorod Arrays for Near Infrared Optofluidic Device

T. Fukuoka¹, M. Yoshida¹, R. Takahashi¹, M. Suzuki², Y. Utsumi¹

¹University of Hyogo, JAPAN

²Kyoto University, JAPAN

W5D-4 Arrayed Metallic Micro/Nano Particles for Localized Surface Plasmon Resonance Based on Metal Contact Transfer Lithography

H. Y. Chung, C. Y. Wu, C. H. Chen, Y. C. Lee
National Cheng Kung University, TAIWAN

W5D-5 Ligand-Exchange of TOPO-Capped CdSe Quantum Dots with Quinuclidines

J. M. Obliosca¹, F.-G. Tseng¹, C.-M. Huang², L.-W. Lo², P.-C. Wang¹

¹National Tsing Hua University, TAIWAN

²National Health Research Institutes, TAIWAN

W5D-6 Crystalline Structure Dependent Photoluminescence of ZnO Nanosheet-Covered Carbon Fibers

Y.-H. Pai
National Dong Hwa University, TAIWAN

Thursday, March 8, 2012**ORAL SESSIONS****ROOM A (International Conference Hall I)**9:00 - 10:15 Th1A Invite IV/Materials

Th1A-1 (invite) **Nanopatterning by Phase Change Nanolithography***X. Miao, B. J. Zeng, Z. Li, W. L. Zhou*

Huazhong University of Science and Technology, CHINA

Th1A-2 **Exploration of Crystal Surface Dependent Nanopiezotronic Properties in the Obliquely Aligned InN Nanorod Array***N.-J. Ku, J.-H. Huang, C.-H. Wang, H.-C. Fang, C.-P. Liu*

National Cheng Kung University, TAIWAN

Th1A-3 **A Study of Nano-Structured Manganese Dioxides and Their Composites as Electrode Materials for Micro Supercapacitors***S. Li, X. Wang, C. Shen, J. Wang, F. Kang*

Tsinghua University, CHINA

Th1A-4 **CoNiMnP-AAO Hard Magnetic Nanocomposite Film for MEMS Applications***T.-Y. Chao, J.-R. Lin, Y. T. Cheng*

National Chiao Tung University, TAIWAN

10:45 - 12:00 Th2A Robotics & Assembly

Th2A-1 **An Adhesion Strength Measurement Method for Particle Transfer and Assembly in Dry Environment***S.-F. Wang, Y.-T. Lin, Y.-B. Lin, K. Wang*

National Changhua University of Education, TAIWAN

Th2A-2 **Automatic Somatic Cell Operating Process for Nuclear Transplantation***Y. Wang, X. Zhao, Q. Zhao, M. Sun, G. Lu*

NanKai University, CHINA

Th2A-3 **High Speed Enucleation of Oocyte Using Magnetically Actuated Microrobot on a Chip***M. Hagiwara, A. Ichikawa, T. Kawahara, F. Arai*

Nagoya University, JAPAN

Th2A-4 **Catalytic Nano-Mobile Robot with Finely Designed Geometry***J. Bao, M. Nakajima, Z. Yang, M. Kojima, T. Fukuda*

Nagoya University, JAPAN

Th2A-5 **Magnetic Manipulation of Liposomal Microstructures in Plant-Based Blood Vessel Phantoms***S. Schuerle¹, S. Pané¹, E. Pellicer², J. Sort^{2,3}, M. D. Baré², B. J. Nelson¹*¹ETH Zürich, SWITZERLAND²Universitat Autònoma de Bracelona, SPAIN³Institucio Catalana de Recerca i Estudis Avancats, SPAIN

13:00 - 14:30 Th3A Optical System

Th3A-1 Numerical Analysis and Optimal Mask Design for Fabricating Hexagonal Micro-Lens Array by Tri-Axial Laser Dragging Process*C.-C. Chiu, Y.-C. Lee*

National Cheng Kung University, TAIWAN

Th3A-2 Design and Fabrication of Diffractive Phase Element for Minimizing the Focusing Spot Size beyond Diffraction Limit*N. Atthi¹, S. Boonruang¹, W. Mohammed², W. Jeamsaksiri¹, C. Hruanun¹, A. Poyai¹*¹National Electronics and Computer Technology Center, THAILAND²Bangkok University, THAILAND**Th3A-3 Enhancing Light Output of GaN-Based Light-Emitting Diodes with Nanoparticle-Assembled On-Top Layers***C. Zheng¹, L. Sun¹, X. Chen¹, Y. Shen², P. Mao¹, M. Han¹*¹Nanjing University, CHINA²Shandong University, CHINA**Th3A-4 The Chromatic Dispersion Module with Large Chromatic Focal Shift***M.-C. Wei, K.-Y. Hung, Y.-J. Chuang, S.-H. Huang*

Ming Chi University of Technology, TAIWAN

Th3A-5 A Multi-View Reflective Three-Dimensional Display*J.-F. Chuang, K. Wang*

National Changhua University of Education, TAIWAN

Th3A-6 Use Bionic Microlens Array and CMOS Image Sensor for Three-Dimensional Motion Detection*C.-Y. Liu, J.-F. Chuang, T.-C. Yu, K. Wang*

National Changhua University of Education, TAIWAN

ROOM B (International Conference Hall III)

9:00 - 10:15 Th1B Biosensors

Th1B-1 Integration of Solid-State Sensor and Microfluidic Chip for Glucose, Urea and Creatinine Measurement*Y.-H. Lin, S.-H. Wang, C.-P. Chu, M.-H. Wu, T.-M. Pan*

Chang Gung University, TAIWAN

Th1B-2 Fluorescent Hydrogel Fiber for Highly-Accurate Glucose Monitoring*M. Takahashi^{1,3}, Y. J. Heo^{1,2}, T. Kawanishi^{1,3}, T. Okitsu^{1,2}, S. Takeuchi^{1,2}*¹BEANS Project, JAPAN²The University of Tokyo, JAPAN³Terumo Co., JAPAN**Th1B-3 A High Sensitivity and Low-Cost Polycarbonate (PC)-Based Biosensor***Y.-S. Chen, G.-J. Wang*

National Chung Hsing University, TAIWAN

Th1B-4 An Electro-Enzymatic Flexible Molecular Lactate Sensor

N. Thomas, I. Lähdesmäki, B. A. Parviz
University of Washington, USA

Th1B-5L A MEMS Isothermal Titration Biocalorimeter

B. Wang, Y. Jia, Q. Lin
Columbia University, USA

10:45 - 12:00 Th2B Droplet and Bubble Manipulation

Th2B-1 Spontaneous Motion of a Water Droplet on Hydrophilic and Curvature Gradient Conical-Shaped Surfaces

Y. C. Chuang¹, H. Y. Hsieh¹, Q. Zheng², F.-G. Tseng¹
¹National Tsing Hua University, TAIWAN
²Tsinghua University, CHINA

Th2B-2 Electric Manipulations of Hydrogel on a Digital Microfluidic Platform

M.-Y. Chiang, S.-K. Fan
National Chiao Tung University, TAIWAN

Th2B-3 Microbubble and Microplasma Manipulations for Gas Analyses

Y.-T. Shen, L.-P. Tsai, S.-K. Fan
National Chiao Tung University, TAIWAN

Th2B-4 Sub-Nanoliter Color-Resist Droplets Inkjet-Printed on a Commercial Black-Matrix Glass

C.-T. Chen, C.-T. Chuang
National Kaohsiung University of Applied Sciences, TAIWAN

Th2B-5 Three-Dimensional Digital Microfluidics and Applications

G. Wang¹, D. Teng¹, S.-K. Fan²
¹University of Saskatchewan, CANADA
²National Chiao Tung University, TAIWAN

13:00 - 14:30 Th3B Droplet Technologies

Th3B-1 Specific Design and Implementation of a Piezoelectric Droplet Actuator for Evaporative Cooling of Free Space

H.-Y. Wang, C. Huang, C.-T. Chen
National Kaohsiung University of Applied Sciences, TAIWAN

Th3B-2 Using Developed Microfluidic Chip for Producing the Droplets with Different Concentrations

C.-H. Yeh, Y.-C. Chen, Y.-C. Lin
National Cheng Kung University, TAIWAN

Th3B-3 Micro-Droplet Formation with Non-Newtonian Solutions in Microfluidic T-Junctions with Different Inlet Angles

Z. Gu, J.-L. Liow
University of New South Wales at the Australian Defence Force Academy, AUSTRALIA

Th3B-4 Investigation of Electrical Properties of DNA-Attached Carbon Nano-Particles for Biological-Applications*M. Ouyang¹, W. J. Li², K. W. Wong³, W. K. Liu¹*¹The Chinese University of Hong Kong, HONG KONG²City University of Hong Kong, HONG KONG³Chengdu Green Energy and Green Manufacturing Technology R&D Center, CHINA**Th3B-5L Evaluation of Negative Photoresists on Phenotypes of Human Induced Pluripotent Stem Cells (hiPSCs)***K. Kamei, Y. Hirai, Y. Makino, L. Liu, Q. Yuan, M. Yoshioka, Y. Chen, O. Tabata*

Kyoto University, JAPAN

ROOM C (Meeting Room IV)**9:00 - 10:15 Th1C Particle Assembly**

Th1C-1 Electrical Performance of Micro-Assembled Beads under Different Temperatures and Loadings*Y.-L. Tzeng, K. Wang*

National Changhua University of Education, TAIWAN

Th1C-2 Local Particle Assembly Using a Microfluidic Setup*M. J. K. Klein¹, T. Tamulevicius², M. Manning³, U. Drechsler¹, C. Kümin¹, T. Visegrady¹, H. Wolf⁴*¹IBM Research GmbH, SWITZERLAND²Kaunas University, LITHUANIA³Union College, USA**Th1C-3 Vertical Deposition of Nanospheres on the Open Sidewalls of Silicon Pillars***Y. F. Wang, Y. Tian, K. J. Feng, C. Li, D. D. She, W. G. Wu*

Peking University, CHINA

Th1C-4 Hydrodynamic Trap for Directed Self-Assembly of MEMS*M. R. Gullo, L. Jacot-Descombes, J. Brugger*

EPFL, SWITZERLAND

10:45 - 12:00 Th2C Nanostructures

Th2C-1 Nanoscale Laser Writing of Indium-Tin-Oxide Nanowires*M. Afshar, D. Feili, H. Voellm, M. Straub, K. Koenig, H. Seidel*

Saarland University, GERMANY

Th2C-2 Controllable Diameter of Naturally Polymer-Coated Gold Nanowires and Their Biocompatibility*H.-H. Hsieh, C.-W. Chou*

China Medical University, TAIWAN

Th2C-3 Mechanical Property Characterizations of Complex Shaped Helical Nanowires*G. Hwang¹, L. Couraud¹, R. Braive¹, I. Robert-Philip¹, I. Sagnes¹, S. Bouchoule¹, L. Yu²*¹Laboratoire de Photonique et de Nanostructures, FRANCE²Laboratoire de Photonique des Interfaces et Couches Minces, FRANCE

Th2C-4 Facile Controlled Preparation of Natural Polysaccharide-Capped Gold Nanostructures

C.-W. Chou, S.-Y. Hung
China Medical University, TAIWAN

Th2C-5 Fabrication and Characters of Squama-Shape Micro/Nano Multi-Scale Structures

X.-S. Zhang, F.-Y. Zhu, H.-X. Zhang
Peking University, CHINA

13:00 - 14:30 Th3C Energy

Th3C-1 Development of a Silicon-Based Suspending Microthermoelectric Generator with Series Array Structure Using Surface Micromachining Technology

G.-M. Chen, I.-Y. Huang, T.-Y. Wu
National Sun Yat-sen University, TAIWAN

Th3C-2 A High Efficient POM Micro-Methanol Reformer

H.-S. Wang, K.-Y. Huang, H.-C. Peng, Y.-J. Huang, F.-G. Tseng
National Tsing Hua University, TAIWAN

Th3C-3 Proton Exchange Membranes Based on Aryl Epoxy Resin for Fuel Cells Operated at Elevated Temperatures

T.-Y. Lee¹, T.-C. Ho¹, C.-J. Chang², P.-C. Wang¹, F.-G. Tseng¹
¹National Tsing Hua University, TAIWAN
²Microsystem Technology Center, TAIWAN

Th3C-4L Oscillating Type Piezoelectric DC Current Sensor Integrated with a Micro Magnet

Y. Suzuki¹, D. F. Wang¹, T. Kobayashi², K. Isagawa¹, T. Itoh², R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN

ROOM D (Meeting Room III)

9:00 - 10:15 Th1D Bulk Resonators

Th1D-1 Material Nonlinearity Limits on a Lamé-Mode Single Crystal Bulk Resonator

H. Zhu, C. Tu, J. E.-Y. Lee
City University of Hong Kong, HONG KONG

Th1D-2 Evidence on the Impact of T-Shaped Tether Variations on Q Factor of Bulk-Mode Square-Plate Resonators

Y. Xu, J. E.-Y. Lee
City University of Hong Kong, HONG KONG

Th1D-3 Analysis of Air Damping in Micromachined Resonators

G. Wu, D. Xu, B. Xiong, Y. Ma, Y. Wang, E. Jing
Shanghai Institute of Microsystem and Information Technology, CHINA

Th1D-4 Benchmarking the Passive Differential Input Technique to Shielded GSG Probes

Y. Xu, H. Zhu, J. E.-Y. Lee
City University of Hong Kong, HONG KONG

Th1D-5 Study on Thermoelastic Dissipation in Bulk Mode Resonators with Etch Holes*C. Tu, J. E.-Y. Lee*

City University of Hong Kong, HONG KONG

10:45 - 12:00 Th2D Physical Sensing

Th2D-1 A Piezoresistive Normal and Shear Force Sensor Using Liquid Metal Alloy as Gauge Material*X. Shi, C.-H. Cheng, C. Chao, L. Wang, Y. Zheng*

The Hong Kong Polytechnic University, HONG KONG

Th2D-2 Development of A Novel Force Sensor System Built with an Industrial Multilayer Ceramic Capacitor (MLCC)*K.-R. Lin¹, C.-H. Chiang², C.-H. Chang¹, C.-H. Lin²*¹National Cheng Kung University, TAIWAN²National Sun Yat-Sen University, TAIWAN**Th2D-3 High Spatial Resolution 2D Cell Traction Force Measurement by Light Scattering from Nanopillar Array***L.-M. Liu, F.-G. Tseng, C.-C. Chen*

National Tsing Hua University, TAIWAN

Th2D-4L Mechanical Response of Gold Nano-Wires under Torsion*K. Saini, N. Kumar*

Indian Institute of Technology Ropar, INDIA

13:00 - 14:30 Th3D Chemical & Molecular Sensing II

Th3D-1 Implementation of a Subwavelength Bragg Reflector for Terahertz Applications*V. Singal, S. Smaili, Y. Massoud*

University of Alabama at Birmingham, USA

Th3D-2 On Sustaining Robustness of Molecular Pathway Circuits of the HSR Network of *E. coli* under Spatial Configuration*J.-Q. Liu¹, T. Yamanishi², H. Nishimura³, S. Nobukawa³, H. Umehara¹*¹National Institute of Information and Communications Technology, JAPAN²Fukui University of Technology, JAPAN³University of Hyogo, JAPAN**Th3D-3L Temperature Effects on Calixarene Capped Silver Nanoparticle Sensing of Nucleotides***Y. Tauran¹, R. Ueno¹, A. W. Coleman², B. Kim¹*¹The University of Tokyo, JAPAN²University of Lyon, FRANCE**Th3D-4L Scale Effect on Electrochemical Impedance of Nanoelectrode***A. Inaba, K. Matsumoto, I. Shimoyama*

The University of Tokyo, JAPAN

Th3D-5L Fabrication of Nanogap Electrodes by Gold Nanorod Growth on Substrate*S. Nishino, Y. Takenaka, Y. Hirai, K. Sugano, T. Tsuchiya, O. Tabata*

Kyoto University, JAPAN

POSTER SESSIONS**Tuesday, March 6, 2012**13:00 – 14:30 T2P Poster Session I

- T2P-1 **Numerical Simulation of CZTS Thin Film Solar Cell**
W. Zhao, W. Zhou, X. Miao
Huazhong University of Science and Technology, CHINA
- T2P-2 **Enhanced Raman Signal of Graphene between a Gold Layer and Gold Nanoparticles**
H.-Y. Hsieh¹, Y.-H. Lee², L.-J. Li², P.-C. Wang¹, F.-G. Tseng¹
¹National Tsing Hua University, TAIWAN
²Academia Sinica, TAIWAN
- T2P-3 **On the Design of Subwavelength Waveguiding Structures for Terahertz Applications**
V. Singal, S. Smaili, Y. Massoud
University of Alabama at Birmingham, USA
- T2P-4 **PPy Nanowires Array Entrapped with Glucose Oxidase for Glucose Detection**
G. Q. Xu, J. Lv, Z. X. Zheng, Y. C. Wu
Hefei University of Technology, CHINA
- T2P-5 **Direct Electrochemistry of Cholesterol Oxidase on Multi-Wall Carbon Nanotubes and its Application for Cholesterol Determination**
S. Pakapongpan¹, P. Sritongkham², A. Tuantranont¹
¹National Electronics and Computer Technology Center, THAILAND
²Mahidol University, THAILAND
- T2P-6 **The Electromigration Investigation of Cu-Ni Nanocomposites**
Y. C. Chen, C. W. Chu, T.-Y. Chao, Y. T. Cheng, C. Chen
National Chiao Tung University, TAIWAN
- T2P-7 **Fabrication of Ternary Metal Sulfide Nanowires Through Solid State Reaction**
C.-K. Wu, Y.-C. Li, C.-P. Liu
National Cheng Kung University, TAIWAN
- T2P-8 **Investigation of Shear Thickening Liquid Protection Fibrous Material**
P.-Y. Chen¹, J.-L. Yen¹, C.-P. Chang¹, W.-H. Hu¹, Y.-L. Chen¹, Y.-M. Liu¹, C.-Y. Chou², M.-D. Ger¹
¹National Defense University, TAIWAN
²Chung Shan Institute of Science and Technology, TAIWAN
- T2P-9 **Fabrication of Modified-Graphene Transparent Conductive Films by Spray-Coating**
Y.-Y. Peng¹, N. W. Pu², Y. M. Liu¹, M. D. Ger¹
¹National Defense University, TAIWAN
²Yuan Ze University, TAIWAN
- T2P-10 **A SWNTs Thin Film Solar Microcell Prepared by Simple Solution-Evaporation Method**
C. C. Chen, Y. Y. Chang, J. Zhang
Peking University, CHINA
- T2P-11 **High Efficient Heat Removal By Droplet Impinging on Nano Structured Silicon Surface with Straight CNTs Array**
C.-J. Chen, C. Lin, C. C. Chieng, F.-G. Tseng
National Tsing Hua University, TAIWAN

- T2P-12 **Fabrication of Hydrogel-Based Antibody Microarray for Immunoassays**
C.-T. Huang¹, C.-H. Chuang², C.-P. Jen¹
¹National Chung Cheng University, TAIWAN
²Southern Taiwan University, TAIWAN
- T2P-13 **Dielectrophoretic Preconcentration for Cells Utilizing Dual-Planar Electrodes in Stepping Electric Fields**
C.-Y. Hsieh, C.-P. Jen
National Chung Cheng University, TAIWAN
- T2P-14 **Using Cross-Flow Filtration Chip to Collect Plasma from Whole Blood**
C.-H. Yeh¹, C.-W. Hung¹, C.-H. Wu², Y.-C. Lin¹
¹National Cheng Kung University, TAIWAN
²Ritek Corporation, TAIWAN
- T2P-15 **Investigation of Particle Dispersion and Deposition in a Channel with Elliptic Obstruction Using Lattice Boltzmann Method**
A. Tehrani, A. Moosavi
Sharif University of Technology, IRAN
- T2P-16 **A Study of Hydrogen Peroxide Microfluidic Fuel Cells**
J.-C. Shyu¹, C.-L. Huang¹, T.-S. Sheu², H. Ay¹, J.-W. Huang²
¹National Kaohsiung University of Applied Sciences, TAIWAN
²R. O. C. Military Academy, TAIWAN
- T2P-17 **Microfluidics Circulatory System for the Raise of Liver Urea Assay**
Y.-S. Chen, T.-H. Dai, W.-C. Ho, L.-Y. Ke, C.-H. Liu
National Tsing Hua University, TAIWAN
- T2P-18 **Droplet Evaporation Based Ring Type for DNA Separation**
C.-S. Yu¹, Y.-C. Ou¹, C.-C. Yang¹, M.-Y. Lin¹, F.-G. Tseng²
¹National Applied Research Laboratories, TAIWAN
²National Tsing Hua University, TAIWAN
- T2P-19 **A Smart Microfluid Device for Electrodeposition in a Single Droplet**
C.-T. Lin¹, C.-S. Yu¹, C.-C. Yang¹, Y.-C. Ou¹, F.-G. Tseng², J.-S. Kao¹, M.-H. Shiao¹
¹National Applied Research Laboratories, TAIWAN
²National Tsing Hua University, TAIWAN
- T2P-20 **Diffuser-Type Micro Fluidic System for High-Throughput Sperm Sorting Based on Sperm's Moving Against Flow Behavior**
P.-C. Chen¹, R.-G. Wu¹, L.-C. Pan², F.-G. Tseng¹
¹National Tsing Hua University, TAIWAN
²Taipei Medical University, TAIWAN
- T2P-21 **Real-Time Droplet-Based Polymerase Chain Reaction Detection System by Convection Flow**
C.-S. Yu¹, C.-C. Yang¹, Y.-C. Ou¹, J.-S. Kao¹, F.-G. Tseng²
¹National Applied Research Laboratories, TAIWAN
²National Tsing Hua University, TAIWAN
- T2P-22 **A New Update Algorithm for Insulin Release for in vivo Glucose Homeostasis: Imparting Intelligence to Nano Pumps**
H. Suraj¹, B. B. Yadav.A.V²
¹Indian Institute of Science, INDIA
²Power-tronix Lab, INDIA

- T2P-23 **Dose-Dependent Inverse Relationship of Gold Nanoparticles Concentration and the NIH-3T3 Fibroblast Cell Viability and Proliferation**
C. Danladkaew, A. Sereemasapun
Chulalongkorn University, THAILAND
- T2P-24 **Preparation and Physicochemical Study of Liposomes Containing Nicotinamide**
N. Langlah, S. Pinsuwan, T. Amnuaiakit
Prince of Songkla University, THAILAND
- T2P-25 **A Novel Fe₃O₄-Gold Chitosan-Polyethylene Glycols Hydrogel Beads Prepared by Photochemical Green Method and Their Catalytic Application**
T.-H. Yeh, C.-W. Chou
China Medical University, TAIWAN
- T2P-26 **Fabrication of Controllable Profile Microlens Array by Nanoimprinting Process**
M. C. Cheng, L. K. Chen, C. K. Sung
National Tsing Hua University, TAIWAN
- T2P-27 **Reversible Creation of Nanostructures between Identical or Different Species of Materials**
J. H. Park¹, H. I. Jang^{1,2}, J. Y. Park³, D. E. Lee⁴, S. W. Jeon³, C. W. Ahn¹, K. S. Yoo²
¹Korea National NanoFab Center, KOREA
²University of Seoul, KOREA
³Korea Advanced Institute of Science and Technology, KOREA
⁴Seoul National University, KOREA
- T2P-28 **Analysis on 3-Dimensional Spatial Electric Field of AFM Based Anodic Oxidation**
Z. L. Liu¹, N. D. Jiao¹, Z. D. Wang², Z. L. Dong¹
¹Shenyang Institute of Automation Chinese Academy of Sciences, CHINA
²Chiba Institute of Technology, JAPAN
- T2P-29 **Scanning Electron Beam Induced Deposition for Conductive Tip Modification**
P.-L. Chen¹, J. Su¹, M.-H. Shiao¹, M.-N. Chang², C.-H. Lee³, C. W. Liu³
¹Instrument Technology Research Center, TAIWAN
²National Chung Hsing University, TAIWAN
³National Taiwan University, TAIWAN
- T2P-30 **Application of Surface Modification and Photo-Etching of Polytetrafluoroethylene for LIGA**
H. Kido¹, T. Kuroki², M. Okubo², Y. Utsumi¹
¹University of Hyogo, JAPAN
²Osaka Prefecture University, JAPAN
- T2P-31 **In situ Study of Thermal Deformation of Metal Resistive Heater on Silicon Nitride Membrane by Digital Holographic Microscopy**
Y. W. Lai, J. E.-Y. Lee
City University of Hong Kong, HONG KONG
- T2P-32 **Comparison of Glass Etching Properties Between HCl and HNO₃ Solution**
W. Tao, W. Lv, Z. Zhan, W. Zuo, X. Qiu, L. Wang, D. Sun
Xiamen University, CHINA
- T2P-33 **The Study on Deep X-Ray Lithography to Fabricate SU-8 Hard Mask of Burnishing Head Patterns**
C. Maneekat¹, K. Siangchaew², R. Phatthanakun³, K. Leksakul¹
¹Chiang Mai University, THAILAND
²Western Digital (Thailand) Company Limited, THAILAND
³Synchrotron Light Research Institute, THAILAND

- T2P-34 **Surface Analysis and Process Optimization of Black Silicon**
F.-Y. Zhu^{1,2}, Q.-L. Di¹, X.-J. Zeng¹, X.-S. Zhang¹, X. Zhao², H.-X. Zhang¹
¹Peking University, CHINA
²NanKai University, CHINA
- T2P-35 **Electrochemical Ethanol Sensor Based on NiFe Alloyed Thin Film Prepared by Co-Sputtering**
W. Srichaisiriwech¹, A. Wisitsoraat², D. Phokharatku², A. Tuantranont², T. Kerdcharoen³
¹Mahidol University, THAILAND
²National Electronics and Computer Technology Center, THAILAND
³National Nanotechnology Center, THAILAND
- T2P-36 **Application of Nonlinear Driving in Frequency Matching of Tunneling Gyroscope**
L. Wang, X. Du, Y. Su, Z. Zhan, W. Zuo, D. Sun
Xiamen University, CHINA
- T2P-37 **Integrated Flexible Micro Pressure, Temperature and Flow Sensors for Use in PEMFC**
C.-Y. Lee, T. Yang, Y.-M. Lee, T.-H. Chien, Y.-T. Cheng
Yuan Ze University, TAIWAN
- T2P-38 **Performance of an AC-EO Micromixer with FAPPES in Mixing the Nano- and Micro-Scale Bio-Particles**
J.-L. Chen¹, W.-H. Shih², W.-H. Hsieh¹
¹National Chung Cheng University, TAIWAN
²Metal Industries Research & Development Center, TAIWAN
- T2P-39 **Sensitivity Enhancement in SGOI Nanowire Biosensor Fabricated by Top Surface Passivation**
K.-M. Chang¹, C.-F. Chen¹, C.-H. Lai², C.-T. Hsieh¹, C.-N. Wu¹, Y.-B. Wang¹, C.-H. Liu¹
¹National Chiao Tung University, TAIWAN
²Chung Hua University, TAIWAN
- T2P-40 **A Silicon-on-Glass Z-Axis Accelerometer with Vertical Sensing Comb Capacitors**
J. Wang, Z. Yang, G. Yan
Peking University, CHINA
- T2P-41 **The Vertical MSM Diamond X-Ray Detector**
S. Cheirsirikul¹, S. Jesen¹, C. Hruanun²
¹King Mongkut's Institute of Technology Ladkrabang, THAILAND
²National Electronics and Computer Center, THAILAND
- T2P-42 **Effect of Geometrical Design of Support on Frequency Shift and Energy Loss of Piezoelectric Ring Resonator Applicable to Liquid Circumstance**
T. Sagawa¹, D. F. Wang¹, J. Lu², R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
- T2P-43 **Effective Force Generation for ECLIA Composed of Si Bone Structure and Conductive Polymer Flexible Slider**
T. A. Nguyen, S. Konishi
Ritsumeikan University, JAPAN
- T2P-44 **The Study of Forward and Reverse Schottky Junction for Dual Magnetodiode**
T. Pheichakul¹, W. Luanatikomkul¹, W. Yamwong², A. Poyai²
¹King Mongkut's Institute of Technology Ladkrabang, THAILAND
²National Electronics and Computer Technology Center, THAILAND

- T2P-45 **Electrode Design Optimization of a CMOS Fringing-Field Capacitive Sensor**
Y.-T. Li, Y.-L. Tzeng, C.-M. Chao, K. Wang
National Changhua University of Education, TAIWAN
- T2P-46 **Dimension and Capillary Effects of Microfluidic Channel for Blood Plasma Separation**
Y.-H. Zhan, J.-N. Kuo
National Formosa University, TAIWAN
- T2P-47 **Fabrication and Analysis of Integrated MEMS Pyramidal Horn Antenna for Terahertz Applications**
C. Li¹, L. Guo², W. G. Wu¹, X. S. Tang², F. Y. Huang²
¹Peking University, CHINA
²Southeast University, CHINA
- T2P-48 **Characterization of Super-Harmonic Effect Using Piezoelectric Film Cantilever with a Proof Mass in the Point**
H. Ishinabe¹, T. Kobayashi², D. F. Wang¹, T. Itoh², R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
- T2P-49L **The Optical Properties of Ga₂S₃ Nanowires**
Y.-W. Cheng, Y.-C. Li, C.-P. Liu
National Cheng Kung University, TAIWAN
- T2P-50L **Precisely Controlled Micro Droplet Merging Device Using Horizontal Pneumatic Valves**
M. Igaki, D. H. Yoon, T. Sekiguchi, S. Shoji
Waseda University, JAPAN
- T2P-51L **Near-Field Electrospinning for Preparation of Piezoelectric Microfibers Based Cantilever**
X. Li¹, D. F. Wang¹, R. Maeda²
¹Ibaraki University, JAPAN
²National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
- T2P-52L **Particle Sensor Using an Ultra-Thin Piezo Resistive Cantilever**
H. Takahashi, T. Kan, K. Matsumoto, I. Shimoyama
The University of Tokyo, JAPAN

Wednesday, March 7, 2012

13:00 – 14:30 W3P Poster Session II

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- W3P-1 **High-Q Maintenance of Microcavity by Using a Sealed and Packaged Structure**
S.-B. Yan, Y.-Z. Yan, Y.-G. Zhang, L. Wang, C.-Y. Xue, J. Liu, W.-D. Zhang, J.-J. Xiong
North University of China, CHINA
- W3P-2 **On the Effect of Width of Metallic Armchair Graphene Nanoribbons in Plasmonic Waveguide Applications**
S. Smaili, V. Singal, Y. Massoud
University of Alabama at Birmingham, USA
- W3P-3 **Growth Mechanism of Tellurium Nanotubes and Their Room-Temperature CO Sensing Properties**
Y.-C. Her, S.-L. Huang
National Chung Hsing University, TAIWAN
- W3P-4 **Disposable Inkjet-Printed Graphene-Based Electrochemical Sensor on Paper-Based Devices**
C. Karuwan, C. Sriprachuabwong, A. Wisitsoraat, D. Phokharatkul, A. Tuantranont
National Electronics and Computer Technology Center, THAILAND
- W3P-5 **The Facile Transferral of Graphene onto Interdigitated Electrodes for Sensing Applications**
C. Dale, S. Rana, R. H. Page, J. Hedley, N. Keegan
Newcastle University, UNITED KINGDOM
- W3P-6 **Fabrication and Hydrophilic Property of Titanium Dioxide Thin Film Using Sol-Gel Method and CO₂ Laser Irradiation**
C. K. Chung, S. L. Lin, K. P. Chuang, K. Y. Shie, K. Z. Tu
National Cheng Kung University, TAIWAN
- W3P-7 **Enhanced Biocompatibility and Catalytic Activity of Size Controlled Gold Nanoparticles by Photochemical Green Synthesis Method**
X.-R. Liu, C.-W. Chou
China Medical University, TAIWAN
- W3P-8 **Synthesis of Carbon Nanotubes and Carbon Nanocoils on the Graphene Sheets with Chemical Vapor Deposition**
K. J. Chung, Y. M. Liu, N. W. Pu, M. D. Ger, W. C. Hung
National Defense University, TAIWAN
- W3P-9 **Graphene and Silver-Filled Resin for Electrically Conductive Adhesives**
C. Y. Chen¹, N. W. Pu², Y. M. Liu¹, N. T. Wen³, Y. Sung³, M. D. Ger¹
¹National Defense University, TAIWAN
²Yuan Ze University, TAIWAN
³Chung Shan Institute of Science and Technology, TAIWAN
- W3P-10 **Excitation of Mechanical Oscillations in Double-Carbon-Nanotube System by Terahertz Radiation**
V. Semenenko¹, V. Leiman¹, A. Arsenin¹, Y. Stebunov¹, V. Ryzhi²
¹Moscow Institute of Physics and Technology, RUSSIA
²University of Aizu, JAPAN

- W3P-11 Rapid and Sensitive Detection of Shrimp Taura Syndrome Virus by Loop-Mediated Isothermal Amplification Combined with Quartz Crystal Microbalance**
W. Kiatpathomchai, T. Kaewphinit, J. Phromjai, W. Jaroenram, S. Santiwatanakul, K. Chansiri, A. Tuantranont
National Center for Genetic Engineering and Biotechnology, THAILAND
- W3P-12 Level Set Simulation of Droplet Formation in a T-Shaped Microchannel**
Y. Yan, D. Guo, S. Z. Wen
Tsing Hua University, CHINA
- W3P-13 Protein Preconcentration Utilizing Nanogaps Formed by Junction Gap Breakdown**
C.-C. Kuo, C.-P. Jen
National Chung Cheng University, TAIWAN
- W3P-14 Capillary Kinetics of Water in Hydrophilic Microscope Coverslip Nanochannels**
J.-N. Kuo, Y.-K. Lin
National Formosa University, TAIWAN
- W3P-15 A Visualization Study of Venting Gas via Hydrophobic Nanoporous Membrane**
J.-C. Shyu¹, S.-M. Dai¹, K.-S. Yang², C.-C. Wang³
¹National Kaohsiung University of Applied Sciences, TAIWAN
²Industrial Technology and Research Institute, TAIWAN
³National Chiao Tung University, TAIWAN
- W3P-16 Switching Characteristic Model and Biochemical Application Analysis for Electrolyte-Oxide-Semiconductor Structure Diodes**
G. C. Sun¹, X. Y. Ma¹, A. S. Tang², Y. F. Chen¹, W. G. Wu¹
¹Peking University, CHINA
²Massachusetts Institute of Technology, USA
- W3P-17 A 3D Micro-Channel Cooling System Embedded in LTCC Packaging Substrate**
S. Jia¹, M. Miao², R. Fang¹, S. Guo¹, D. Hu¹, Y. Jin¹
¹Peking University, CHINA
²Beijing Information Science & Technology University, CHINA
- W3P-18 A Flexible Evaporation Micropump with Precision Flow Rate Control for Micro-Fluidic Systems**
K.-Y. Chen, K.-E. Chen, K. Wang
National Changhua University of Education, TAIWAN
- W3P-19 Nanofluidic Device with Self-Assembled Nafion Membrane Utilizing Capillary Valve**
S. Wang, H. Yu, W. Wang, Z. Li
Peking University, CHINA
- W3P-20 Effect of Coating Organic Film on Dropwise Condensation in Microgrooves with Nanostructured Surface**
T.-S. Sheu¹, J.-C. Shyu², J.-W. Hsiao¹, Y.-C. Pan¹
¹R. O. C. Military Academy, TAIWAN
²National Kaohsiung University of Applied Sciences, TAIWAN
- W3P-21 A Remark on the Crucial Point with Respect to the Robustness of the Heat Shock Response Pathway of *E. coli* under the Variance of the Noise Scale**
J.-Q. Liu¹, T. Yamanishi², H. Nishimura³, S. Nobukawa³, H. Umehara¹
¹National Institute of Information and Communications Technology, JAPAN
²Fukui University of Technology, JAPAN
³University of Hyogo, JAPAN

- W3P-22 Novel Core Etching Technique on Synthesized Gold Nanoparticles for Colorimetric Detection of Dopamine Biosample**
H.-C. Lee, T.-H. Chen, W.-L. Tseng, C.-H. Lin
National Sun Yat-sen University, TAIWAN
- W3P-23 Fast Self-Resonant Startup Procedure for Digital MEMS Gyroscope System**
F. Ge, D. Liu, L. Lin, Z. Yang, G. Yan
Peking University, CHINA
- W3P-24 Green Synthesis of Magnetic Core-Shell Fe₃O₄-Au Nanoparticles**
C.-H. Lin, C.-W. Chou, C.-L. Yang
China Medical University, TAIWAN
- W3P-25 The Influence of Experimental Parameters on the Assembly of SWNTs by AC Dielectrophoresis**
Z. Wang, F. Yu, W. Li, J. Zhang
Peking University, CHINA
- W3P-26 Chemical Vapor Deposited Graphene Layers on Sputtered Stainless Steel Thin Film for Electrochemical Sensing**
D. Phokharatkul, A. Wisitsoraat, C. Sriprachuabwong, T. Pogfay, A. Tuantranont
National Electronics and Computer Technology Center, THAILAND
- W3P-27 The Manufacture of Micropillars with High Depth-to-Width Ratio, and the Comparison between Two Typical Materials**
Z. Wang¹, X. Qin²
¹Singapore-MIT Alliance for Research and Technology Center, CHINA
²Tsinghua University, CHINA
- W3P-28 Surface-Modified Diamond Embedded in Nickel Matrix Composite for Intrinsic Polishing Application**
C.-J. Shih, W.-C. Lin, C.-S. Lin, Y.-N. Pan
National Taiwan University, TAIWAN
- W3P-29 Fabrication and Performance Optimization of the Microplasma Reactor with Composite Dielectrics**
Z. Yuan, L. Wen, L. Cheng, J. Ma, J. Chu
University of Science and Technology of China, CHINA
- W3P-30 The InGaN/GaN Multiple Quantum Wells Nanopillars Light Emitting Diodes Fabricated by Focused Ion Beam**
C.-H. Wang¹, Y.-W. Huang¹, C. H. Tu¹, S. E. Wu², C.-P. Liu¹
¹National Cheng Kung University, TAIWAN
²Genesis Photonics Inc., TAIWAN
- W3P-31 Fabrication of Deep Lateral Single-Crystal-Silicon Blaze Micro-Grating by Inductively-Coupled-Plasma Reactive Ion Etch**
Y.-H. Lin¹, C. J. Weng², C. Y. Su², W. Hsu¹
¹National Chiao Tung University, TAIWAN
²National Applied Research Laboratories, TAIWAN
- W3P-32 Surface Morphology Dependent Depolarization Properties of Nano-Porous Alumina**
C.-W. Tseng¹, Y.-H. Pai¹, G.-R. Lin²
¹National Dong Hwa University, TAIWAN
²National Taiwan University, TAIWAN

- W3P-33 Improvement of Coating Uniformity for Thick Photoresist Using a Partial Spray Coat**
M. Akamatsu, K. Terao, H. Takao, F. Shimokawa, F. Oohira, T. Suzuki
Kagawa University, JAPAN
- W3P-34 On/Off Current Ratio Modulation of Silicon Nanowire BioFET Using Pulsed Gate Potential**
Q. Guo¹, T. Kong², G. Cheng²
¹Xi'an Jiaotong University, CHINA
²Suzhou Institute of Nano-Tech and Nano-Bionic, CHINA
- W3P-35 A Study of Tin Oxide Thin Film Gas Sensors with High Oxygen Vacancies**
C. Lin¹, D. Zhang¹, X. Liu²
¹Peking University, CHINA
²BOE Technology Group Co., Ltd., CHINA
- W3P-36 In situ Monitoring of Temperature Using Flexible Micro Temperature Sensors Inside Polymer Lithium-Ion Battery**
C.-Y. Lee, S.-J. Lee, Y.-M. Lee, M.-S. Tang, P.-C. Chen, Y.-M. Chang
Yuan Ze University, TAIWAN
- W3P-37 Design and Simulation of Fully-Symmetrical Resonant Pressure Sensor**
Y. Jiang, X. Du, Z. Zhan, B. Xu, W. Lv, L. Wang, D. Sun
Xiamen University, CHINA
- W3P-38 Effect of Oxidation on SGOI Nanowire Biosensor Fabrication Using Ge Condensation**
K.-M. Chang¹, C.-F. Chen¹, C.-H. Lai², C.-N. Wu¹, C.-T. Hsieh¹, Y.-B. Wang¹, C.-H. Liu¹
¹National Chiao Tung University, TAIWAN
²Chung Hua University, TAIWAN
- W3P-39 A Capacitive Readout Circuit with DC Sensing Method for Micromachined Gyroscopes**
K. Zhou, L. Sun, F. Ge, Z. Yang, G. Yan
Peking University, CHINA
- W3P-40 The Optimal Vibrational Shear Stress for Bovine Endothelial Cell Proliferation**
C.-W. Li¹, J.-L. Chen¹, C.-C. Wu², G.-J. Wang¹
¹National Chung Hsing University, TAIWAN
²National Cheng Kung University, TAIWAN
- W3P-41 An Optimized Fabrication of High Yield CMOS-Compatible Silicon Carbide Capacitive Pressure Sensors**
B. Meng, W. Tang, Z. R. Wang, H. X. Zhang
Peking University, CHINA
- W3P-42 Rapid Separation and Concentration of Pathogen from Blood Using AC Electrokinetics**
T.-Y. Chen, I.-F. Cheng, H.-L. Yang, H.-C. Chang
National Cheng Kung University, TAIWAN
- W3P-43 Study of Thin Film Adhesion Properties of Multi-Layer Flexible Electronics Composites**
C. C. Li¹, Z. H. Liu¹, C. T. Pan¹, J. K. Tseng², H. L. Huang², S. W. Mao², S.-C. Shen³, S. J. Chang⁴
¹National Sun Yat-Sen University, TAIWAN
²R.O.C Military Academy, TAIWAN
³National Cheng Kung University, TAIWAN
⁴National Yunlin University of Science and Technology, TAIWAN
- W3P-44 Using a Canny-Edge-Detection Based Method to Characterize In-Plane Micro-Actuators**
C.-Y. Cheng, Y.-B. Lin, K. Wang
National Changhua University of Education, TAIWAN

- W3P-45 Thermal Switch and Variable Capacitance Designed for Micro Electrostatic Converter by Using CMOS MEMS Process**
J.-C. Chiou¹, L.-C. Chou¹, Y.-L. Lai², S.-C. Huang¹
¹National Chiao Tung University, TAIWAN
²National Chip Implementation Center, TAIWAN
- W3P-46 A Research of the Bandwidth of a Mode-Matching MEMS Vibratory Gyroscope**
C. He, Q. Zhao, J. Cui, Z. Yang, G. Yan
Peking University, CHINA
- W3P-47 Graphene Nanoribbon Based AM Demodulator of Terahertz Radiation**
Y. Stebunov¹, A. Arsenin¹, V. Leiman¹, V. Semenenko¹, V. Ryzhi²
¹Moscow Institute of Physics and Technology, RUSSIA
²University of Aizu, JAPAN
- W3P-48 Atomic Layer Deposited Protective Coatings for Integrated MEMS Flow Sensor**
D. Li¹, A. Abdulagatov², F. Yang¹, D. C. Zhang¹
¹Peking University, CHINA
²University of Colorado, USA
- W3P-49L Modeling and Elastic Property Simulation of Epoxy-Based Negative Photoresist Using Coarse-Grained Molecular Dynamics**
H. Yagy¹, Y. Hirai², A. Uesugi², Y. Makino², K. Sugano², T. Tsuchiya², O. Tabata²
¹Mitsuboshi Belting Ltd., JAPAN
²Kyoto University, JAPAN
- W3P-50L Toward Chemical Sensing on Micro-Sized Interfaces Using a Micro-Fluidic Resonator**
C. Pigot, A. Hibara
The University of Tokyo, JAPAN
- W3P-52L 50nm-Thick Piezo-Resistive Cantilever**
T. Usami, A. Nakai, K. Matsumoto, I. Shimoyama
The University of Tokyo, JAPAN
- W3P-53LA MEMS-Based Micro Sensor for the Detection of Formaldehyde Gas**
B.-J. Kim, J.-H. Yoon, J.-S. Kim
University of Seoul, KOREA