

Monday, November 6

Room A (Ramada Ballroom 1, 2F)

18:00-20:00 Welcome Reception**Tuesday, November 7**

Room A (Ramada Ballroom 1, 2F)

7P-1: Plenary Session I

Chairs: J. Ahn (Hanyang Univ.) and K. Ishibashi (RIKEN)

7P-1-0 9:30-10:00

Opening Remarks: E.K. Kim (Hanyang Univ.)

Award Presentation: S.H. Choi (Kyung Hee Univ.) and E.K. Kim (Hanyang Univ.), MNC 2016 Outstanding Paper, Most Impressive Presentation, Most Impressive Poster and Young Author's Award

Local Announcement from Committee: J. Ahn (Hanyang Univ.)

7P-1-1 10:00-10:40**(Plenary)**

S. Salahuddin, Univ. of California, Berkeley, USA

7P-1-2 10:40-11:20Progress and Perspective of Nano Imprint Lithography for Production in Semiconductor Devices **(Plenary)**

T. Higashiki, Toshiba Memory, Japan

7P-1-3 11:20-12:002D Materials: Crystal Growth for Future Device Structures **(Plenary)**

L. Colombo, Texas Instruments, USA

Lunch

Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
7A-2: Nano-Scale Transistors (13:30-15:20) Chairs: S. Kim (Samsung Electronics) W.S. Hwang (Korea Aerospace Univ.)	7B-2: Graphene: Materials, Characterization and Applications (13:30-15:50) Chairs: J.-H. Ahn (Yonsei Univ.) R. Negishi (Osaka Univ.)	7C-2: Organic Nanomaterials I (13:30-15:30) Chairs: T. Sakanoue (Nagoya Univ.) C. Pang (SKKU)	7D-2: Nanoimprint, Nanoprint and Rising Lithography (13:30-16:00) Chairs: S. Kang (Yonsei Univ.) H. Lee (Korea Univ.)
7A-2-1 13:30 Impacts of Traps on Nano Scale Device Performance, Reliability, and Novel Applications (Invited) J. Chen 1, J. Wu 1,2 and X. Jiang 1,2, 1 Shandong Univ. and Chinese Academy of Sci., China	7B-2-1 13:30 Nanocarbon/Metal Composites for Advanced Electronics Applications (Invited) S.H. Lee, KIST, Korea	7C-2-1 13:30 Conductive Stretchable Polymer Composites Useful for Wearable Electronics (Invited) U. Jeong, POSTECH, Korea	7D-2-1 13:30 Enhancement of Light Extraction Efficiency in Various Photonic Devices with Imprinted Nano-Structures (Invited) Y. Kim and H. Lee, Korea Univ., Korea
7A-2-2 14:00 Numerical Analysis of Band Tailing and Electron Transport Near Conduction Band Edge in Doped Si Nanowires T. Tanaka and K. Uchida, Keio Univ., Japan	7B-2-2 14:00 Electrical and Magnetic Characteristics of Randomly Stacked CVD Graphene K. Uemura 1, T. Ikuta 1, T. Ono 2, Y. Kanai 2, K. Inoue 2, K. Matsumoto 2, T. Hihara 3 and K. Maehashi 1, 1 Tokyo Univ. of Agriculture and Technol., 2 Osaka Univ. and 3 Nagoya Inst. of Technol., Japan	7C-2-2 14:00 Prospective Study CT Nanocrystals for Organic Solar Cells (Invited) A. Masuhara, Yamagata Univ., Japan	7D-2-2 14:00 Emergent Magnetic Order in Artificial Spin Structures (Invited) B. Hjörvarsson, Uppsala Univ., Sweden
7A-2-3 14:20 Single Electron Transistor Characteristics of Fe-MgF ₂ Single-Layer Granular Films Y. Asai, S. Honjo, A. Tsurumaki-Fukuchi, M. Arita and Y. Takahashi, Hokkaido Univ., Japan	7B-2-3 14:20 Field Emission Properties of Edge-Functionalized Graphene Nanoribbon Y. Gao and S. Okada, Univ. of Tsukuba, Japan	7C-2-3 14:30 Room Temperature-Operating PbS QD Based Infrared Sensor by Using Bandgap Manipulation S. Kim and K. Lee, Ajou Univ., Korea	7D-2-3 14:30 Fabrication of Spatially Aligned Silicon Nanotubes and Palladium Nanogaps and Their Applications (Invited) Y. Pak, H.S. Jeong, Y. Jeong and G.-Y. Jung, GIST, Korea
7A-2-4 14:40 Potential and Drain Current Model For L-Shaped Tunnel Field Effect Transistor F. Najam and Y.S. Yu, Hankyong Natl. Univ., Korea	7B-2-4 14:40 Fracture Nanomechanics of Graphene (Invited) T. Kitamura 1 and B. Jang 2, 1 Kyoto Univ., Japan and 2 KIMM, Korea	7C-2-4 14:50 Novel Core-Shell Type Hybridized Nanoparticles for Polymer Electrolyte Membrane K. Shito 1, S. Sekine 1, Y. Takahashi 1, T. Arita 2 and A. Masuhara 1, 1 Yamagata Univ. and 2 Tohoku Univ., Japan	7D-2-4 15:00 Fabrication of Au Split-Ring Resonator Arrays by Reverse-Tone Lithography Using a Print-and Imprint Method T. Uehara, S. Sato, S. Ito, H. Yano, T. Nakamura and M. Nakagawa, Tohoku Univ., Japan
7A-2-5 15:00 Study on the Origin of V _{th} Fluctuation Caused by Ion Implantation to Source and Drain Extensions of SOI Tri-Gate FinFETs by 3D Process and Device Simulations T. Tsutsumi, Meiji Univ., Japan	7B-2-5 15:10 Resonance Control of Graphene Mechanical Resonator in Nonlinear Resonance by Standing Wave of Light T. Inoue, Y. Anno, Y. Imakita, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan	7C-2-5 15:10 Investigation of Lattice Strain Changes in Bandgap Modulated Perovskite Single Crystals D. Park, H. Byun, A.Y. Lee, H.M. Choi, S.C. Lim and M.S. Jeong, Sungkyunkwan Univ., Korea	7D-2-5 15:20 Molecular Dynamics Study on Polymer Slipping under Shear Flow in Nanofabrication Processes K. Tada 1, Y. Miyashita 1, M. Yasuda 2 and Y. Hirai 2, 1 Natl. Inst. of Technol., Toyama College and 2 Osaka Pref. Univ., Japan

	7B-2-6 15:30 Wearable Three Dimensional Capacitive Touch Sensor Based on Graphene M. Kang and J.-H. Ahn, Yonsei Univ., Korea		7D-2-6 15:40 Evaluation of Meniscus Behavior under Helium for Rapid Resist Spreading H. Kashiwagi, N. Sato, M. Hatano, W. Jung, T. Kono and T. Nakasugi, Toshiba Memory, Japan
7A-2 Author's Interview: 17:40-17:50	7B-2 Author's Interview: 18:00-18:10	7C-2 Author's Interview: 17:50-18:00	7D-2 Author's Interview: 16:00-16:10
Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
7A-3: Advance Nano Memory Devices (15:40-17:40) Chairs: W.S. Hwang (Korea Aerospace Univ.) J. Chen (Shandong Univ.)	7B-3: 2D Materials for Electronic Applications (16:00-18:00) Chairs: J. Ando (AIST) J.-H. Ahn (YonseiUniv.)	7C-3: Organic Nanomaterials II (15:50-17:50) Chairs: A. Masuhara (Yamagata Univ.) U. Jeong (POSTECH)	7D-3: Inorganic Materials I (16:20-17:50) Chairs: J.-S. Kim (Yeungnam Univ.) K. Nakamura (Kyoto Univ.)
7A-3-1 15:40 ReRAM Switching in Planar-Type Structures of Ag/WO _x /Pt Studied by in-Situ TEM S. Sakai, S. Muto, A. Tsurumaki-Fukuchi, M. Arita and Y. Takahashi, Hokkaido Univ., Japan	7B-3-1 16:00 Polyelectrolyte-Gated Vertical Schottky-Barrier Transistors (Invited) J.H. Cho, Sungkyunkwan Univ., Korea	7C-3-1 15:50 Bright Polymer Light-Emmitting Electrochemical Cells Based on Ionic Liquids (Invited) T. Sakanoue, Nagoya Univ., Japan	7D-3-1 16:20 Spin Transfer Dynamic in III-V Compound Semiconductor Quantum Dots Integrated with Layered Quantum Structures (Invited) A. Maruyama, Hokkaido Univ., Japan
7A-3-2 16:00 Resistive Switching Dependence on the Stacking Sequence of IGZO and SnO ₂ Heterojunction Memory Devices Y. Abbas 1, A. Ali 2, J. Jongwan 2 and C. Choi 1, 1 Hanyang Univ. and 2 Sejong Univ., Korea	7B-3-2 16:30 N-GQD Doped WO ₃ for Electrochromic Devices A. Hasani, Q.V. Le, T.P. Nguyen and S.Y. Kim, Chung-Ang Univ., Korea	7C-3-2 16:20 Bioinspired Multiscale Architectures for Skin-Patches and Wearable Devices (Invited) S.Y. Baik and C. Pang, SKKU, Korea	7D-3-2 16:50 Radiative Decay Time of Center-of-Mass Exciton Confinement States in a Single CdTe/CdMnTe Quantum Well W. Lee 1, M. Kim 1, H. Yang 1, K. Kyhm 1, A. Maruyama 2, K. Kheng 3, H. Mariette 3 and L.S. Dang 4, 1 Pusan Natl. Univ., Korea, 2 Hokkaido Univ., Japan, 3 CEA, France and 4 CNRS, France
7A-3-3 16:20 The Effects of Plasma Irradiation on the Resistive Switching of HfO _x -Based RRAM B. Ku, Y. Abbas and C. Choi, Hanyang Univ., Korea	7B-3-3 16:50 Diode Characteristics of Graphene-GaN Heterojunction with h-BN Interfacial Layer G. Kalita, M. Kobayashi, M.D. Shaarin, R. Mahyavanshi and M. Tanemura, Nagoya Inst. of Technol., Japan	7C-3-3 16:50 Halogen Tuning Effect on Raman Shifts of Hybride Perovskite Single Crystals A. Lee, D. Park and M.S. Jung, Sungkyunkwan Univ., Korea	7D-3-3 17:10 Periodically Diameter-Modulated Semiconductor Nanowires for Enhanced Optical Absorption M. Ko, S.-H. Baek, B. Song, J.-W. Kang and C.-H. Cho, DGIST, Korea
7A-3-4 16:40 Resistive Switching Parameter Improvement of Pt/HfO ₂ /Pt Resistor by Applying Voltage Bias Polarity Y.C. Jung, S. Seong, T. Lee, S.Y. Kim, I.-S. Park and J. Ahn, Hanyang Univ., Korea	7B-3-4 17:10 Van der Waals Heterostructure Based on Two-Dimensional Atomic Crystals (Invited) Y.-J. Yu, ETRI, Korea	7C-3-4 17:10 Efficient Polymer Protection for Hybrid MAPbI ₃ Perovskite Photodetectors H. Kim, H.R. Byun, B. Kim, S.H. Kim, H.M. Oh and M.S. Jeong, Sungkyunkwan Univ., Korea	7D-3-4 17:30 Growth Mechanism and Structure Determination of TiSeTe Single Crystals – A New Ternary Phase of Transition Metal Chalcogenides A.K. Dasadia 1, B.B. Nariaya 2 and A.R. Jani 2, 1 A.D. Patel Inst. of Technol. and 2 Sardar Patel Univ., India
7A-3-5 17:00 Engineering Digital to Analog Resistive Switching of HfO _x -Based RRAM by Inserting TaO _y for Synaptic Behavior S. Kim, Y. Abbas and C. Choi, Hanyang Univ., Korea	7B-3-5 17:40 Effect of Buffer Layer on Photoresponse of MoS ₂ Phototransistor Y. Miyamoto, D. Yoshikawa, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan	7C-3-5 17:30 Light Soaking Effect in Organic-Inorganic Mixed Halide Perovskite Single Crystals H.R. Byun 1, D.Y. Park 1, H.M. Oh 1, G. Namkoong 2 and M.S. Jeong 1, 1 Sungkyunkwan Univ. and 2 Old Dominion Univ., USA	
7A-3-6 17:20 Forming-Free Resistive Switching Characteristics in MnO/Ta ₂ O ₅ Based Crossbar Array Structure Q. Hu, T.S. Kang, H. Abbas, T.S. Lee, N.J. Lee, M.R. Park, T.-S. Yoon and C.J. Kang, Myongji Univ., Korea			
7A-3 Author's Interview: 17:40-17:50	7B-3 Author's Interview: 18:00-18:10	7C-3 Author's Interview: 17:50-18:00	7D-3 Author's Interview: 17:50-18:00

Wednesday, November 8

Room A (Ramada Ballroom 1, 2F)

8P-4: Plenary Session II

Chairs: S.H. Choi (Kyung Hee Univ.)

8P-4-1 8:30-9:10

Two-Dimensional van der Waals Layered Heterostructures: Progress and Challenges (Plenary)

Y.H. Lee, Sungkyunkwan Univ., Korea

Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
8A-5: Optoelectronic Devices (9:20-10:30) Chairs: C.-H. Cho (DGIST)	8B-5: Nanocarbon Characterization (9:20-10:50) Chairs: M. Tanemura (Nagoya Inst. of Technol.) S.Y. Kim (Chung Ang Univ.)	8C-5: Resist and Directed Self-Assembly I (9:20-10:40) Chairs: T. Azuma (EIDEC) S.-J. Jeong (SAIT)	8D-5: Microsystem Technology and MEMS I (9:20-10:50) Chairs: J. Lee (Sogang Univ.) S. Nagasawa (Shibaura Inst. of Technol.)
8A-5-1 9:20 Transparent and Flexible Ultraviolet Photoconductors Using Low Temperature Processes of Multidimensional Nanostructures (Invited) T.V. Cuong 1,2, K.K. Bok 2, D.T. Thanh 2 and C.-H. Hong 2, 1 Vietnam Natl. Univ., Vietnam and 2 Chonbuk Natl. Univ., Korea	8B-5-1 9:20 Two Color Two Photon Excited Photoluminescence of Graphene-Rhodamine 6G Conjugated System (Invited) H. Kim, DGIST, Korea	8C-5-1 9:20 Next Generation Lithography for Sub-20nm Half Pitch Patterning (Invited) H.-W. Kim, J. Park, S.S. Yi, S.Y. Woo, S. Yi, C.H. Park, J.Y. Kim and S.M. Park, Samsung Electronics, Korea	8D-5-1 9:20 The Quest for Next Generation MEMS and Nano-Devices: Nanoscale Thermal Energy Utilization and Advanced Materials Integration (Invited) H.J. Kim, DGIST, Korea
8A-5-2 9:50 Demonstration of InGaAs Nanowire Array Photodiode on Si K. Chiba, A. Yoshida, K. Tomioka and J. Motohisa, Hokkaido Univ., Japan	8B-5-2 9:50 Carbon Nanotube Tipped Cantilevers Applied to Nanometrology in Dynamic Mode Atomic Force Microscopy J. Su, N.N. Chu, M.H. Shiao and C.N. Hsiao, Natl. Applied Res. Labs., Taiwan	8C-5-2 9:50 (Invited) T. Hayakawa, Tokyo Inst. of Technol., Japan	8D-5-2 9:50 Evaluation of Arrangement Error of Micropore X-Ray Mirrors Due to Hot Plastic Deformation Process D. Ishi 1, M. Numazawa 1, Y. Ezoe 1, K. Takeuchi 1, M. Terada 1, M. Fujitani 1, T. Itoyama 1, R. Otsubo 1, A. Fukushima 1, T. Ohashi 1, K. Ishikawa 2, K. Mitsuda 2 and K. Morishita 3, 1 Tokyo Metropolitan Univ., 2 ISAS/JAXA and 3 Kyoto Univ., Japan
8A-5-3 10:10 Synthesis of Silver Particles-Reduced Graphene Oxide Composite As Photodetector N.S.A. Aziz 1, Y. Nakajima 2, H. Sato 2, T. Maekawa 2 and A.M. Hashim 1, 1 Univ. Teknologi Malaysia, Malaysia and 2 Toyo Univ., Japan	8B-5-3 10:10 TEM Observation of Graphitization at 250°C for Amorphous Carbon Nanofibers Including Novel Catalyst Nanoparticles M.I. Araby, S. Sharma, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	8C-5-3 10:20 Directed Polymeric Assembly via Photo-Thermal Processes H.M. Jin, S.K. Cha, J.H. Kim and S.O. Kim, KAIST, Korea	8D-5-3 10:10 Temperature Dependence on Package Sealing Ambient of MEMS Sensor Fabricated by Gold Electroplating T. Konishi 1,2,3, D. Yamane 2,3, T. Safu 1, C.-Y. Chen 2,3, T.-F.M. Chang 2,3, H. Ito 2,3, S. Doshu 2,3, N. Ishihara 2,3, M. Sone 2, 3, K. Machida 2,3, K. Masu 2,3, and S. Iida 1, 1 NTT-AT, 2 Tokyo Inst. of Technol. and 3 JST-CREST, Japan
	8B-5-4 10:30 Energetics and Electronic Structures of Chemically Decorated C ₆₀ Chains S. Furutani and S. Okada, Univ. of Tsukuba, Japan		8D-5-4 10:30 Stable Solutal-Marangoni Flows Around a Microbubble in Water/1-Butanol Mixtures K. Namura and M. Suzuki, Kyoto Univ., Japan
8A-5 Author's Interview: 12:10-12:20	8B-5 Author's Interview: 10:50-11:00	8C-5 Author's Interview: 12:10-12:20	8D-5 Author's Interview: 12:30-12:40
Convention Lobby (2F)			
Coffee Break			
Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
8A-6: Next Generation Nanodevices (10:50-12:10) Chairs: Y. Kim (Kyung Hee Univ.) C.-H. Lee (Korea Univ.)	8B-6: Nanofabrication I (11:10-12:20) Chairs: J.J. Lee (KIMM) K. Takase (Nihon Univ.)	8C-6: Resist and Directed Self-Assembly II (11:00-12:10) Chairs: S.O. Kim (KAIST) T. Nagai (JSR)	8D-6: Microsystem Technology and MEMS I (11:10-12:30) Chairs: R. Takigawa (Kyushu Univ.) S.-H. Lim (Kookmin Univ.)

8A-6-1 10:50 Hydrogen Ion Implantation-Based Wafer Bonding with Low Blister Formation Temperature (<450°C) for M3D Integration H. Han, D. Lim, M.G. Chae, J. Lee, B. Ha and C. Choi, Hanyang Univ., Korea	8B-6-1 11:10 Fabrication of Large Scale Ni Nano-Patterned Roll Mold for Roll Printing Process (Invited) G.H. Kim, H. Lim, K. Choi, S. Kwon and J. Lee, KIMM, Korea	8C-6-1 11:00 Carbohydrate-Based Block Copolymer Self-Assemblies: Sub_10nm Nanostructured Thin Films and DSA Patterning (Invited) R. Borsali, Grenoble Alpes Univ., France	8D-6-1 11:10 Fabrication of Silicon on Diamond Structure with an Ultra-Thin SiO ₂ Bonding Layer by Sputter Etching Method M. Nagata, R. Shirahama, S. Duangchan and A. Baba, Kyushu Inst. of Technol., Japan
8A-6-2 11:10 Study of Unique Neural Network on Pulse Signal Generating and Propagating Medium W. Zheng, F. Maehara and T. Oya, Yokohama Natl. Univ., Japan	8B-6-2 11:40 Laser Fabrication of High-Performance in-Plane Microsupercapacitors Based on Reduced Graphene Oxide Films S. Kwon 1, D. Jung 1,2, H. Lim 1,2, G. Kim 1,2, J. Kim 1,2, K.-B. Choi 1,2 and J.J. Lee 1,2, 1 KIMM and 2 Univ. of Sci. and Technol., Korea	8C-6-2 11:30 Studies on Self-Assembling Processes of Block Copolymer Thin Films by Using Grazing Incident Small-Angle X-Ray Scattering M. Takenaka 1,2, T. Omosu 1,2, K. Yoshimoto 1, T. Hayakawa 3, T. Azuma 4, Y. Seino 4, H. Sato 4, Y. Kasahara 4, K. Kodera 4, K. Miyagi 4, M. Shiraiishi 4, R. Matsuki 4, T. Kosaka 4, T. Himi 4 and S. Nagahara 4, 1 Kyoto Univ., 2 RIKEN Harima Inst. Res., 3 Tokyo Inst. of Technol. and 4 EIDEC, Japan	8D-6-2 11:30 Development of Process to Build Micro Channels with the Root Structure of The Plant S. Nakashima, F. Tsumori, K. Tokumaru, K. Kudo and K. Shinagawa, Kyushu Univ., Japan
8A-6-3 11:30 The Effect of Bi Dopant in In ₃ SbTe ₂ Phase-Change Material M. Choi 1, H. Choi 2,3, S. Kwon 1, S. Kim 3, Y.T. Kim 3 and J. Ahn 1, 1 Hanyang Univ., 2 Virtual Lab and 3 KIST, Korea	8B-6-3 12:00 Ultrathin Ge Growth on Flat Ag Surface in Hetero-Epitaxial Ag/Ge Structure by Annealing K. Ito, A. Ohta, M. Kurosawa, M. Araidai, M. Ikeda, K. Makihara and S. Miyazaki, Nagoya Univ., Japan	8C-6-3 11:50 Defect Dynamics of Micro-Phase Separation Process in Directed Self-Assembly of Block Copolymers T. Azuma 1, Y. Seino 1, H. Sato 1, Y. Kasahara 1, K. Kodera 1, K. Miyagi 1, M. Shiraiishi 1, R. Matsuki 1, T. Kosaka 1, T. Himi 1, S. Nagahara 1, A. Chandra 2, R. Nakatani 2, T. Hayakawa 2, K. Yoshimoto 3, T. Omosu 3,4 and M. Takenaka 3,4, 1 EIDEC, 2 Tokyo Inst. of Technol., 3 Kyoto Univ. and 4 RIKEN Harima Inst. Res., Japan	8D-6-3 11:50 Room Temperature Impact Deposition of Ceramic by Laser Shock Wave K. Jinno, F. Tsumori, K. Kudo and K. Shinagawa, Kyushu Univ., Japan
8A-6-4 11:50 Triboelectric Nanogenerator with Micropatterned Polymer for Efficient harvest of Mechanical Energy B. Dudem and J.S. Yu, Kyung Hee Univ., Korea			8D-6-4 12:10 Effect of Ge Concentration on Poly SiGe Mechanical Properties A. Uesugi 1, K. Maenaka 2 and T. Namazu 1, 1 Aichi Inst. of Technol. and 2 Univ. of Hyogo, Japan
8A-6 Author's Interview: 12:10-12:20	8B-6 Author's Interview: 12:20-12:30	8C-6 Author's Interview: 12:10-12:20	8D-6 Author's Interview: 12:30-12:40
Lunch			
Convention Lobby (2F)			
8P-7: 13:30-15:30 POSTER SESSION I			
1-2: Electron and Ion Beam Technologies			
Chair:			
8P-7-1 Fabrication of Programmed Defects for Non-Imaging EUV Mask Inspection by Helium Ion Beam Direct Milling C.-L. Lee, S.-W. Chien and K.-Y. Tsai, Natl. Taiwan Univ., Taiwan	8P-7-2 Photomask Pattern Positional Error Improvement Using Convolution Neural Networks Y.-S. Sung 1,2 and J.-H. Lee 1, 1 Sungkyunkwan Univ. and 2 Samsung Electronics, Korea	8P-7-3 Study on the Beam Extraction Characteristics of Inductively Coupled Plasma Source for Focused Ion Beam M.Y. Park 1, M.J. Park 1, K.H. Kim 1, J.H. Won 1 and D.Y. Jang 2, 1 KEMCTI and 2 Seoul Natl. Univ. of Sci. and Technol., Korea	8P-7-85L Characterization of Microcolumn Using Modified Si Deflectors H.W. Kim, Y.B. Lee, D.W. Kim, S.J. Ahn, T.S. Oh and H.S. Kim, Sun Moon Univ., Korea
1-3: Resist and Directed Self-Assembly			
Chair: S.O. Kim (KAIST)			
8P-7-4 Microwave Irradiation Effects for Contact Resistance with n-Doped Poly Si J.-Y. Pyo and W.-J. Cho, Kwangwoon Univ., Korea	8P-7-5 3D Complicated Multimetal Nanomesh Patterns Fabricated from Perforated Lamellar Block Copolymer Self-Assembly S.K. Cha, H.M. Jin, J.H. Kim and S.O. Kim, KAIST, Korea	8P-7-6 Conversion of 2D Self-Assembled BCP Pattern into Manifold 3D Structure by Chemically Modified Graphene Layer J.H. Kim, J.Y. Kim, J. Lim, H.M. Jin and S.O. Kim, KAIST, Korea	8P-7-7 Multi Component Metal Nanowire Array by Using Block Copolymer Patterning and Reversible Ion Loading G.G. Yang, J.H. Mun, S.K. Cha and S.O. Kim, KAIST, Korea
2-1 Nanocarbons			
Chair:			
8P-7-8 Improved Electrical Properties of Reduced Graphene Oxide Film by Water-Assisted Thermal Process R. Negishi 1, T. Nakagiri 1, M. Akabori 2 and Y. Kobayashi 1, 1 Osaka Univ. and 2 JAIST, Japan	8P-7-9 Anisotropic Surface Work Function of Graphene with Applying Electric Field H.T. Kim 1, D.J. Park 2, D.S. Shin 1, H.-S. Jang 1, B.H. Kim 1 and S.B. Choi 1, 1 Incheon Natl. Univ. and 2 Hallym Univ., Korea	8P-7-10 Energetics and Electronic Structure of Graphene Heterostructures via Substitutional Doping with B ₃ N ₃ H. Sawahata 1, M. Maruyama 1, N.T. Cuong 2, H. Omachi 3, H. Shinohara 3 and S. Okada 1, 1 Univ. of Tsukuba, 2 NIMS and 3 Nagoya Univ., Japan	8P-7-11 Energetics of Edge Oxidization of Graphene Nanoribbons A. Yasuma 1, A. Yamanaka 2 and S. Okada 1, 1 Univ. of Tsukuba and 2 Res. Organization for Infom. Sci. and Technol., Japan

8P-7-12 The Use of Patterned-MoS ₂ Nanosheets as Template and Transport Layers in Polarized Light Emitting Diodes G.V. Le 1, G.J. Choi 2, K.S. Choi 3, K.C. Kwon 4, H.W. Jang 4, J.S. Gwag 2 and S.Y. Kim 1, 1 Chung-Ang Univ., 2 Yeungnam Univ., 3 Korea Basic Sci. Inst. and 4 Seoul Natl. Univ., Korea	8P-7-13 Synthesis and Characterization of One Dimensional Molybdenum Disulfide Wires Using Precipitation Techniques S.-K. Lee, KIST, Korea	8P-7-14 In-situ Spectroscopic Monitoring of Heavy Metal Presented in the Industrial Wastewater S. Kim, I.G. Lee, J.H. Seo and W.S. Hwang, Korea Aerospace Univ., Korea	8P-7-15 Chemical Vapor Deposition Synthesized Various Stacking-Oriented Multilayered MOS ₂ Crystals S.M. Shinde, K.P. Dhakal, X Chen and J.H. Ahn, Yonsei Univ., Korea
8P-7-16 Morphology and Electrical Studies on MoS ₂ Field-Effect Transistor after Ultraviolet Light Irradiation A. Ando, J. Miyawaki, T. Kudo, AIST, Japan	8P-7-17 Mechanical Resonance Characteristics of MoS ₂ Mechanical Resonator D. Yoshikawa, Y. Miyamoto, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan		
2-2: Nanodevices			
Chair: C.-H. Cho (DGIST)			
8P-7-18 High-Voltage Lateral Double Implanted MOSFETs Implemented on HPSI 4H-SiC Substrates with Gate Field Plates O. Seok 1, H.W. Kim 1, J.H. Moon 1, H.-S. Lee ^{1,2} and W. Bahng 1, 1 KERI and 2 Kyeongsang Univ., Korea	8P-7-19 Single-Mode Lasing Action from Arbitrary Gain Materials M. Umar, K. Min, S. Kim, M. Jo and S. Kim, Ajou Univ., Korea	8P-7-20 Temperature Imaging of Graphene/hBN Heterostructure under Current H. Kim 1, D. Kim 2, M.-H. Bae 2 and H. Rho 1, Chonbuk Natl. Univ. and 2 Korea Res. Inst. of Standards and Sci., Korea	8P-7-21 High-Performance Perovskite Solar Cells Employing AuCl ₃ -Doped-Graphene Transparent Conducting Electrodes S.W. Seo, H.S. Lee, J.M. Kim, J.H. Kim, C.W. Jang, S. Kim and S.-H. Choi, Kyung Hee Univ., Korea
8P-7-22 Ni/p-Cu ₂ O/SiO _x /n-SiC/n-Si/Al Nonvolatile pu Memory Diode with High Endurance Characteristics Fabricated by Sputtering of n-SiC and Reactive-Sputtering of SiO _x Both at Room Temperature A. Somura, T. Tsukamoto and Y. Suda, Tokyo Univ. of Agriculture and Technol., Japan	8P-7-23 Wafer-Scale Production of Highly Uniform Two-Dimensional MoS ₂ by Metal Organic Chemical Vapor Deposition T.W. Kim 1, J. Mun 1, H. Park 1,2, D. Jung 1,2, M. Diware 1, C. Won 1, J. Park 2, S.H. Jeong 2, J.C. Shin 3, S.-W. Kang 1,4, 1 Korea Res. Inst. of Standards and Sci., 2 Kyungpook Natl. Univ., 3 Yeungnam Univ. and 4 Univ. of Sci. and Technol., Korea	8P-7-24 Resistive Switching Characteristics of Manganese Oxide Thin Film and Nanoparticles Assembly Hybrid Devices H. Abbas 1, M.R. Park 1, Y. Abbas 2, Q. Hu 1, T.S. Kang 1, T.-S. Yoon 1 and C.J. Kang 1, 1 Myongji Univ. and 2 Hanyang Univ., Korea	8P-7-25 Reduction of Surface Oxide on Black Phosphorus by Chemical Treatment D.-H. Kwak 1, H.-S. Ra 1, M.-H. Jeong 1, A.-Y. Lee 1, J. Yang 2, J.-H. Lee 2 and J.-S. Lee 1, 1 DGIST and 2 GIST, Korea
8P-7-26 Enhanced Photoresponsivity of 2-D Monolayer Photodetector by Silver Nanowires S. Bang 1, N.T. Duong 1, H.M. Oh 1, J. Lee 1, Y.-H. Cho 2,3, K. Yang 1, H. Kim 1, S.J. Yun 1, M.-K. Kwon 2, J.-Y. Kim 3, J. Kim 1 and M.S. Jeong 1, 1 Sungkyunkwan Univ., 2 Chosun Univ. and 3 KOPTI, Korea	8P-7-27 Gate Material Engineering for Two-Dimensional Layered Materials Based Field-Effect Transistors D.S. Chung, T. Eum and Y.H. Lee, Sungkyunkwan Univ., Korea	8P-7-28 Evaluation of Low-Thermal Budget Microwave Irradiation Effect on Impurity Activation and Post Metal Annealing Processes in SOI-MOSFETs G.Y. Lee and W.-J. Cho, Kwangwoon Univ., Korea	8P-7-29 Tri-State Resistive Switching Characteristics of MnO/Ta ₂ O ₅ RRAM Device Controlled by Reset Voltage N.J. Lee, T.S. Kang, Q. Hu, T.S. Lee, T.-S. Yoon and C.J. Kang, Myongji Univ., Korea
8P-7-30 Hexagonal Boron Nitride Encapsulated Tin Disulfide Transistor with Enhanced Interlayer Coupling D. Chu and E.K. Kim, Hanyang Univ., Korea	8P-7-31 Adsorption State of Dopamine on MoS ₂ Observed from Transfer Characteristic for Highly Sensitive Biosensor N.T. Trung 1, I. Tsukamoto 1, I.M. Alam 1, M.I. Hossain 1, T. Takaoka 1, T. Komeda 1, and A. Ando 2, 1 Tohoku Univ. and 2 AIST, Japan	8P-7-32 Electrical Properties of Hydrothermal Synthesized β -Ga ₂ O ₃ Nanostructure Y. Yoon, S. Kim, B.H. Kim, I. Park, I.G. Lee and W.S. Hwang, Korea Aerospace Univ., Korea	8P-7-33 Improved Output Performance of Triboelectric Nanogenerator by High Dielectric Nanoparticle Embedded PDMS H.-W. Park 1,2, D. Choi 2 and K.-B. Chung 1, 1 Dongguk Univ. and 2 Kyung Hee Univ., Korea
2-3: Nanofabrication			
Chair:			
8P-7-34 Deposition of Fine Width Metal Line Using Laser-Induced Forward Transfer J.-G. Cheon, M.-C. Nguyen, A.H.-T. Nguyen, S.-Y. Han, J.-Y. Kim, S.-J. Choi, H.-M. Ji, S.-W. Kim, K.-M. Yu, J.-H. Kim and R. Choi, Inha Univ., Korea	8P-7-35 Formation of Multi-Stacked Ge Quantum Dot by Using Strain-Compensating Si _{1-x} C _x Spacer and Carbon Mediation Y. Itoh 1,2, M. Arita 1, T. Kawashima 1 and K. Washio 1, 1 Tohoku Univ. and 2 JSPS, Japan	8P-7-36 Fabrication and I-V Characteristic of Ag-Ag ₂ S Core-Shell Nanoparticles Y. Amamoto, Hadiywarman and H. Tanaka, Kyushu Inst. of Technol., Japan	8P-7-37 Highly Aligned Nanofibers by Electrospinning onto Preplaced Dielectric Particles S. Li and B.-K. Lee, Chonnam Natl. Univ., Korea

<p>8P-7-38 Use of EBL, Dot-Matrix and DLW for Fabrication of True Color Rainbow Hologram, OVD, Micro-Nanooptics... Designed by s/w "RainBow" M. Knyazev 1, A. Svintsov 1, S. Zaitsev 1, N. Gusseinov 2 and M. Gabdullin 2, 1 Inst. of microelectronics technol. RAS and 2 Al-Farabi Kazakh Natl. Univ., Kazakhstan</p>	<p>8P-7-39 Continuous Fabrication of Plasmonic Wideband Infrared Absorber Film via Photo-Roll Lithography M. Kim and M.K. Kwak, Kyungpook Natl. Univ., Korea</p>	<p>8P-7-40 Hierarchical Structure Foldable Membrane Using Hygroscopic Actuation J. Bae 1, H. Cho 2, H.S. Kang 2, G. Wu 2, J.C. Jollu 2, S. Yang 2 and W. Park 1, 1 Kyung Hee Univ. and 2 Univ. of Pannsylvania, USA</p>	<p>8P-7-41 Influence of Gold-Silver Rough Surface Nanoparticles on Plasmonic Light Scattering in Organic Solar Cells Q.N. Tran, H.S. Kim and S.J. Park, Gachon Univ., Korea</p>
<p>8P-7-42 Fabrication and Characterization of Bimetal Nanowires R. Akutsu, T. Aono, K. Takeda, K. Sugawa and K. Takase, Nihon Univ., Japan</p>	<p>8P-7-43 Nano-injection Molding of High Resolution Surface Patterns on 3D Objects W.L. Lee, J. Wu and H.Y. Low, Singapore Univ. of Technol. and Design, Singapore</p>	<p>8P-7-44 <i>In-situ</i> Observation of Metastable Oxide Decomposition Area on Si(110) Surface M. Yano 1, Y. Uozumi 2, S. Yasuda 1 and H. Asaoka 1, 1 JAEA and 2 Hitachi Power Solutions, Japan</p>	<p>8P-7-45 Evaluation of Mn-Doped ZnO Thin Films Formed by RF Magnetron Sputtering N. Minowa, Y. Tamamoto, Y. Zhang, S. Guan and X. Zhao, Tokyo Univ. of Sci., Japan</p>
2-5: Organic Nanomaterials			
Chair: T.W. Lee (SNU)			
<p>8P-7-46 Self-Assembled Chiral Organic Nanowires for Chiroptical Sensing Applications I. Song, X. Shang, Y.H. Lee, J.H. Jung, and J.H. Oh, POSTECH, Korea</p>	<p>8P-7-47 High-Performance Piezoresistive Pressure Sensors Based on Three-Dimensional Electrospun Nanofibers O.Y. Kweon and J.H. Oh, POSTECH, Korea</p>	<p>8P-7-48 Fabrication and Characterization of Dichroic Fine Crystals by the Re-precipitation Method T. Iino 1, S. Mori 2, K. Shito 1, H. Watanabe 1, A. Kimura 3, Y. Morishita 3 and A. Masuhara 1, 1 Yamagata Univ., 2 Hitachi and 3 Hitachi Chemical, Japan</p>	<p>8P-7-49 Synthesis of Benzothiadiazole (BT)-Based Polymers and Their Photovoltaic Applications N.G. An 1, M.A. Uddin 2,3, Y. Li 2,3, H.W. Cho 1, H.Y. Woo 2 and J.Y. Kim 1, 1 UNIST, 2 Korea Univ. and 3 Pusan Natl. Univ., Korea</p>
<p>8P-7-50 A Deconvoluted PL Approach to Probe the Charge Carrier Dynamics of the Grain Interior and Grain Boundary of a Perovskite Film for Perovskite Solar Cell Applications H.J. Jeong 1, A.A. Mamun 2, T.T. Ava 2, M.S. Jeong 1 and G. Namkoong 2, 1 Sungkyunkwan Univ., Korea and 2 Old Dominion Univ., USA</p>			
2-6: NanoTool			
Chair: R. Kometani (Univ. of Tokyo)			
<p>8P-7-51 Surface-Enhanced Raman Spectroscopy of Adenine Molecule Using Single Dimer of Gold Nanoparticles K. Maruoka, K. Ikegami, K. Sugano and Y. Isono, Kobe Univ., Japan</p>	<p>8P-7-52 Light Transmission Through Ultrasmall Nanohole with Plasmonic Groove Structure H.T. Kim 1, S.B. Choi 1, S.S. Choi 2 and D.J. Park 3, 1 Incheon Natl. Univ., 2 Sun Moon Univ. and 3 Hallym Univ., Korea</p>	<p>8P-7-53 Development of Novel EUV Actinic Inspection Technique: EUV Scanning Lensless Imaging (ESLI) D.G. Woo, Y.W. Kim, J.H. Kim, S.H. Shin, W.-Y. Kim and J. Ahn, Hanyang Univ., Korea</p>	<p>8P-7-54 Withdrawn The Development of Thin Film Thickness Measurement System by Using Soft X-Ray Reflectivity Technology C.T. Liu, G.D. Chen, T.T. Chen and B.C. He, ITRI, Taiwan</p>
<p>8P-7-55 NIL Products Have Begun to See the Light of the World: Star Products of NIL M.K. Kwak, Kyungpook Natl. Univ., Korea</p>	<p>8P-7-56 Investigation of Individual Weight of Parameters on Combined Standard Uncertainty of Nanoscale Measurements According to ISO Standards C.Y. Su, Y.H. Lin, S.S. Pai, P.L. Chen, N.N. Chu, C.C. Yang and M.H. Shiao, Natl. Applied Res. Labs., Taiwan</p>	<p>8P-7-86L Submicron-Resolved Luminescence Imaging for Detection of Grain Anisotropy Induced Stress in Al₂O₃ by Near-Field Spectroscopy T. Tomimatsu 1 and R. Takigawa 2, 1 Tohoku Univ. and 2 Kyushu Univ., Japan</p>	<p>8P-7-87L Revealing Defect-Induced Raman Mode of Monolayer Tungsten Disulfide via Tip-Enhanced Raman Spectroscopy C. Lee, B.G. Jeong, S.J. Yun, Y.H. Lee, S.M. Lee and M.S. Jeong, Sungkyunkwan Univ., Korea</p>
3: Nanoimprint, Nanoprint and Rising Lithography			
Chair: H. Lee (Korea Univ.)			
<p>8P-7-57 Self-Aligned, High Resolution Conductive Lines on Microstructured Imprinted Substrate V.M. Di Pietro, H. Außerhuber and M. Mühlberger, Profactor, Austria</p>	<p>8P-7-58 Fabrication of Silicone Grating by Two-Beam Interference Method and Imprint Lithography Y. Ikeda, T. Higuchi and I. Yamada, Univ. of Shiga Pref., Japan</p>	<p>8P-7-59 Development of UV-Curable Liquid for in-Liquid Fluorescence Alignment in Ultraviolet Nanoimprint Lithography K. Ochiai, M. Kumagai, E. Kikuchi, T. Nakamura and M. Nakagawa, Tohoku Univ., Japan</p>	<p>8P-7-60 Infiltration Behaviors of AlO_x into Positive-Tone Electron Beam Resists by Sequential Infiltration Synthesis Y. Ozaki, S. Ito, N. Hiroshiba, T. Nakamura and M. Nakagawa, Tohoku Univ., Japan</p>
<p>8P-7-61 Nanoimprint System Development and Status for High Volume Semiconductor Manufacturing H. Namba, Canon, Japan</p>	<p>8P-7-62 Fabrication of Nanocrystal Based Metamaterials H.-W. Yun 1, S.-J. Kim 1, M.-H. Kim and S.-H. Hong 2, 1 Korea Univ. and 2 ETRI, Korea</p>	<p>8P-7-63 Study on Induced Strain Distribution in Direct Nanoimprint Lithography K. Watanabe, T. Iida, M. Yasuda, H. Kawata and Y. Hirai, Osaka Pref. Univ., Japan</p>	<p>8P-7-64 Study on Control of Interfacial Pattern of Imprinted Multi-Layered Material K. Yonekura, F. Tsumori, K. Tokumaru, K. Kudo and K. Shinagawa, Kyushu Univ., Japan</p>

8P-7-88L Various Applications of Imprint Processes by Use of PV A/PET Mold H. Kawata, K. Uchida, M. Yasuda, and Y. Hirai, Osaka Pref. Univ., Japan	8P-7-89L Improving Conversion Efficiency of PV Module Using Flexible and Three-Dimensional Structured Anti-Reflective Film D. Huh, M. Byun, K. Kim, J. Jun, J. Park and H. Lee, Korea Univ., Korea	8P-7-90L Fabrication of Nano to Micro Scale-Patterns of Hematite (Fe ₂ O ₃) Nanoparticle Using Direct Printing Technique S. Son, J. Park, S. Ju, D. Chae and H. Lee, Korea Univ., Korea	8P-7-91L Chip-Scale Pattern Modification Method to Equalize Residual Layer Thickness in Nanoimprint Lithography S.-W. Youn, K. Suzuki and H. Hiroshima, AIST, Japan
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4: BioMEMS, Lab on a Chip

Chair: A. Matsumoto (Tokyo Medical and Dental Univ.)

8P-7-65 Differential-Mode Extended-Gate HEMT-Type Biosensor for the Detection of Streptavidin-Biotin Complexes H.H. Lee, H.-M. Jeong, S.-W. Kang and J.-K. Shin, Kyungpook Natl. Univ., Korea	8P-7-66 Effect of Surface Micropattern on Domain Formation in Supported Lipid Bilayer K. Dendo and K. Furukawa, Meisei Univ., Japan	8P-7-67 Detection of Bull Sperm for Counting Single Cell C. Phiphattanaphiphop, K. Leksakul and R. Phatthanakun, Chiang Mai Univ., Thailand	8P-7-68 Development of Microfluidic Device Integrated with Pillar Structures Enabling Precise Volume Dispensing of Liquid Samples for Therapeutic Drug Monitoring T. Komatsu, O. Wakao, M. Maeki, A. Ishida, H. Tani and M. Tokeshi, Hokkaido Univ., Japan
8P-7-69 3D Design and Binding Specificity of Peptide Aptamers for Multiparametric Cardio-Microarrays V.V. Luchinin, V.A. Karasev, T.M. Zimina and A.I. Egorov, Saint Petersburg State Electrotechnical Univ., Russia	8P-7-70 Optimization of Electrospray-Based Droplet Display Technology for Compartmentalized <i>in-Vitro</i> Selection of Peptide Aptamers K. Sharma 1, K. Nishigaki 2, Y. Takamura 1 and M. Biyani 1, 1 JAIST and 2 Saitama Univ., Japan	8P-7-71 Single-Cell Trapping Using Micropatterned Hydrogel for Morphological Analysis of Bacteria J. Yoon and W. Park, Kyung Hee Univ., Korea	8P-7-72 Time Course Change of Clustered Circulating Tumor Cell in Cancer Metastasis Blood Investigated with Imaging Biomarkers by on-Chip Multi-Imaging Cell Sorter M. Odaka 1,2, A. Hattori 1,2, K. Matsuura 1,2, M. Iwamura 3, Y. Yamanaka 3, K. Iida 1 and K. Yasuda 1, 1 Waseda Univ., Japan and 2 WABIOS, Singapore
8P-7-92L Silver Ion Detection Methodology Using DNA Based Micro-Cantilever K. Jang 1, C. Park 2, J. You 2, H. Park 2 and S. Na 2, 1 Hoseo Univ. and 2 Korea Univ., Korea	8P-7-93L Electrical Current-Induced Failure Mechanism of Cu/Solder U bump in Wafer Level Packages for BioMEMS Devices K. Son, H. Ryu, G. Kim, Y.-B. Park, Andong Natl. Univ., Korea	8P-7-94L Laboratory-on-a-Chip for Express-Identification and Antibiotic Susceptibility Testing of Microorganisms V.V. Luchinin 1, T.M. Zimina 1, J.A. Gvozdev 1, N.A. Sitkov 1, V.N. Lemosersky 1, A.V. Soloviev 1, L.A. Kraeva 2, G.N. Hamdulaeva 2, A.F. Kosko 3, 1 St. Petersburg State Electrotechnical Univ., 2 St. Petersburg Pasteur Inst. and 3 ITMO Univ., Russia	8P-7-95L Characterization of Nanoparticle's Surface Based on the Analysis of Electrokinetic Phenomena V. Majarikar, H. Takehara and T. Ichiki, Univ. of Tokyo, Japan
8P-7-96L Relationships between Design and Actuation Range of Soft Magnetic Composites J. Park, H. Lee and J. Kim, UNIST, Korea	8P-7-97L Filter-Free Fluorescence Analysis System Integrated with Microfluidics Device Y.J. Choi, K. Takahashi, T. Iwata and K. Sawada, Toyohashi Univ. of Technol., Japan		

5: Microsystem Technology and MEMS

Chair:

8P-7-73 Pt-Coated X-Ray Micropore Optics Fabricated with Silicon Dry Etching and Atomic Layer Deposition Y. Ezoe 1, K. Takeuchi 1, M. Numazawa 1, M. Terada 1, M. Fujitani 1, D. Ishi 1, A. Fukushima 1, R. Itoyama 1, R. Otsubo 1, T. Ohashi 1, K. Ishikawa 2, K. Mitsuda 2, and M.J. Sowa 3, 1 Tokyo Metropolitan Univ., 2 ISAS/JAXA, Japan and 3 Ultratech / CNT, USA	8P-7-74 The High Aspect Ratio Micro-Grating Structures by Precise Micromachining and Molding Process Y.-H. Lin, C.-J. Weng, Y.-C. Cheng, N.-N. Chu, C.-C. Chen, M.-K. Wang, C.-N. Hsiao and M.-H. Shiao, Natl. Applied Res. Labs., Taiwan	8P-7-75 The Study of Boroflat Glass Molding Process with Micro-Structures by Hot Emboss Technology M.-K. Wang, Y.-H. Lin, Y.-C. Cheng, N.-N. Chu and C.-N. Hsiao, Natl. Applied Res. Labs., Taiwan	8P-7-76 Magnetically Actuated Artificial Cilium with Similar 3D-Movement of Natural Cilium R. Marume, F. Tsumori, K. Kudo and K. Shinagawa, Kyushu Univ., Japan
8P-7-77 Insulated Voltage Sensor Using Resonator Withstanding Higher Voltage Y. Wada 1, N. Nobunaga 1, S. Kumagai 1, H. Ishihara 2, M. Ishii 2 and M. Sasaki 1, 1 Toyota Technol. and 2 Yazaki, Japan	8P-7-78 Development of High Frequency pMUT(Piezoelectric Micromachined Ultrasound Transducer) Based on Sputtered PZT U. Lim, J. Yoo and K. Lee, Ajou Univ., Korea	8P-7-79 Development of Energy Harvesting System Using Deformation of Magnetic Elastomer H. Shinoda, F. Tsumori, K. Tokumaru, K. Kudo and K. Shinagawa, Kyushu Univ., Japan	8P-7-80 Formation of Hierarchical Nanoporous Ag Films for Surface Enhanced Raman Scattering by Cluster Source Deposition Based on Sputtering S. Yun 1,2, J. Lee 1, J. Yang 3, D. Lee 4, B. Kim 5 and C. Cho 1, 1 Kyungpook Natl. Univ., 2 Kwang-Lim Precision, 3 Yonsei Univ., 4 Yeungnam Univ. and 5 Catholic Univ. of Daegu, Korea

8P-7-81 Development of Fiber Coupling Thermal Microscope for Measuring Thermal Property in Micro-Scale Area S. Miyake 1, K. Hattori 2, T. Otsuki 2 and M. Sekine 2, 1 Kobe City College of Technol. and 2 Bethel, Japan	8P-7-82 A Novel Joining Technique for Aluminum Foils by Using Al/Ni Exothermic Materials as Saving Heat Source T. Izumi 1, N. Kametani 1, S. Miyake 1, S. Kanetsuki 2 and T. Namazu 2, 1 Kobe City of College of Technol. and 2 Aichi Inst. of Technol., Japan	8P-7-83 Fabrication and Application of Double-Side Notched Long Period Fiber Grating for Force Sensing Y.-L. Fang 1, T.-H. Huang 1, C.-W. Wu 2 and C.-C. Chiang 1, 1 Natl. Kaohsiung Univ. of Applied Sci. and 2 Air Force Academy, Taiwan	8P-7-84 Bidirectional Hysteresis in Frequency Response of Arrayed Electrostatic MEMS Resonator T. Tsuchiya, Y. Matsui, Y. Hirai and O. Tabata, Kyoto Univ., Japan
8P-7-98L Profile Characterization and Temperature Effect on Wettability of Microstructured Surfaces Y. Han 1, Y. Liu 2, M. Takato 1 and F. Uchikoba 1, 1 Nihon Univ. and 2 Xi'an Univ. of Technol., China	8P-7-99L Photo-Induced Manipulation of Microspheres in PEG Solutions on Au Nanoisland Films N. Chishiro, K. Namura and M. Suzuki, Kyoto Univ., Japan	8P-7-100L Effect of Laser Irradiation Conditions on a Water Vapor Microbubble and Thermoplasmonic Marangoni Flow in Degassed Water S. Imafuku, K. Namura and M. Suzuki, Kyoto Univ., Japan	8P-7-101L High Temperature Wettability on Microstructured Superhydrophobic Surface Y. Liu 1 and Y. Han 2, 1 Xi'an Univ., China and 2 Nihon Univ., Japan
8P-7-102L The Impact of Damping on Aluminum Nitride Piezoelectric MEMS Resonant Sensors S.I. Jung, C. Ryu and H.J. Kim, Gyeongbuk Inst. of Sci. and Technol., Korea	8P-7-103L Modeling of Multi-Mode Piezoelectric Cantilever Sensors for Liquid Property Analysis C. Ryu, S.I. Jung and H.J. Kim, Daegu Gyeongbuk Inst. of Sci. and Technol., Korea	8P-7-104L Polyurethane-Acrylate (PUA) Based Hydrophobic Film: Facile Fabrication, Characterization and Application J. Park, C.R. Yu, A. Shanmugasundaram and D.-W. Lee, Chonnam Natl. Univ., Korea	8P-7-105L A Parallel-kinematic Piezo-Driven Scanner for Improving Scan Speed of a Commercial Atomic Force Microscope B.O. Alunda 1, Y.J. Lee 1 and S. Park 2, 1 Kyungpook Natl. Univ. and 2 Keimyung Univ., Korea
8P-7-106L A Novel Tri-Axis MEMS Accelerometer with a Single Au Proof Mass and Fully Differential Sensing Electrodes H. Nijima 1,3, M. Takayasu 1,3, D. Yamane 1,3, T. Konishi 1,2,3, T. Safu 2, H. Ito 1,3, S. Doshu 1,3, N. Ishihara 1,3, K. Machida 1,3 and K. Masu 1,3, 1 Tokyo Inst. of Technol., 2 NTT-AT and 3 JST-CREST, Japan	8P-7-107L Micro Sample Chamber by laminated Fluorinated Films for NMR Spectroscopy of a Micro-Volume Spherical Sample T. Hizawa, M. Takahashi 2 and E. Iwase 1, 1 Waseda Univ. and 2 RIKEN, Japan	8P-7-108L Measurement of Conformability and Adhesion Energy of Ultrathin Film to Skin Model J. Sugano, T. Fujie 1,2, H. Iwata 1 and E. Iwase 1, 1 Waseda Univ. and 2 JST-PRESTO, Japan	8P-7-109L Effect of Heater Geometry on the Sensitivity of a Thermal Convection-Based Tilt Sensor J.K. Kim 1, J.H. Kim 1, S.Y. Kwon 2, J.Y. Lee 2, D.G. Jung 2, S.H. Kong 2 and D. Jung 1, 1 KITECH and 2 Kyungpook Natl. Univ., Korea
8P-7-110L High Sensitive Flexible Capacitive Pressure Sensor Based on a Three-Dimensional PDMS/Microsphere Sponge Y. Jung 1,2, K.K. Jung 2,3, J.S. Ko 2 and H.C. Cho 1, 1 KITECH, 2 Pusan Natl. Univ. and 3 KOMERI, Korea	8P-7-111L Optimal Design for a High-Frequency Plano-Convex Quartz Resonator J. Ji 1, M. Zhao 1, H. Ohigawa 2 and T. Ueda 2, 1 Xidian Univ., China and 2 Waseda Univ., Japan	8P-7-112L Room-Temperature Bonding of LiNbO ₃ and SiO ₂ Using Surface Activated Bonding R. Takigawa, E. Higurashi and T. Asano, Kyushu Univ., Japan	8P-7-113L Designing Ferromagnetic Shield Geometry with Magnetic Field Simulation to Improve Target Utilization on DC Magnetron Sputtering S.-H. Jang 1, S.-J. Park 1, K.-Y. Lee 2 and Y.-J. Kim 1, 1 Yonsei Univ. and 2 Samsung Display, Korea
Room A → Room B (Ramada Ballroom 2, 2F)	Room B → Room C (Ramada Ballroom 3, 2F)	Room C → Room D (Ramada Ballroom 4, 2F)	Room D → Room E (Seminar Room, 2F)
8A-8: 2D Nanodevices (15:40-17:50) Chairs: C.-H. Lee (Korea Univ.)	8B-8: Nanofabrication II (15:40-17:50) Chairs: G.H. Kim (KIMM) S. Shingubara (Kansai Univ.)	8C-8: Electron and Ion Beam Technologies (15:40-18:10) Chairs: D. Jang (Seoul Natl. Univ.) H.S. Kim (Sun Moon Univ.)	8D-8: Nano Tool (15:40-18:00) Chairs: K. Sugano (Kobe Univ.) J. Lee (Sogang Univ.)
8A-8-1 15:40 Light-Emitting Devices Based on Two-Dimensional van der Waals Materials (Invited) Y.D. Kim 1,2, T. Taniguchi 3, K. Watanabe 3, T.F. Heinz 4, D. Englund 5 and J. Hone 2, 1 Kyung Hee Univ., Korea, 2 Columbia Univ., USA, 3 NIMS, Japan, 4 Stanford Univ. and 5 MIT, USA	8B-8-1 15:40 Scalable Nanoarchitecturing Via Hybrid Nanoassembly and Continuous Nanopatterning (Invited) J.G. Ok, Seoul Natl. Univ. of Sci. and Technol., Korea	8C-8-1 15:40 Ultrafast Electron Microscopy: Principle and Applications (Invited) O.-H. Kwon, UNIST, Korea	8D-8-1 15:40 (Invited) J. Lee, Sogang Univ., Korea
8A-8-2 16:10 Tunneling Photocurrent Assisted by Interlayer Excitons in Staggered van der Waals Heterobilayers D.H. Luong, H.S. Lee, G.P. Neupane, S. Roy, G. Ghimire, J.H. Lee, Q.A. Vu and Y.H. Lee, Sungkyunkwan Univ., Korea	8B-8-2 16:10 Micro Patterned Powder Metallurgy Technique for SOFC Electrolyte Using UV Curable Resin T. Okabe 1, Y. Kim 2, Z. Jiao 2, N. Shikazono 2 and J. Taniguchi 1, 1 Tokyoo Univ. of Sci. and 2 Univ. of Tokyo, Japan	8C-8-2 16:10 (Invited) Y.-S. Hwang, Seoul Natl. Univ., Korea	8D-8-2 16:10 (Invited) M.K. Kwak, Kyungpook Natl. Univ., Korea

<p>8A-8-3 16:30 Fabrication of p-type Monolayer WSe₂ Field Effect Transistor H.M. Oh, C. Park, S. Bang, S.J. Yun, Y.H. Lee and M.S. Jeong, Sungkyunkwan Univ., Korea</p>	<p>8B-8-3 16:30 Hf Layer Thickness Dependence of Resistive Switching Characteristics of Ti/Hf/HfO₂/Au(Pt) ReRAM Device R. Nakajima, A. Azuma, H. Yoshida, T. Shimizu, T. Ito and S. Shingubara, Kansai Univ., Japan</p>	<p>8C-8-3 16:40 Investigations on Advanced Process Calibration S. Shimizu 1, G. Lopez 2,3, D. Shakarisaz 2, R. Bojko 2, N. Unal 2 and U. Hofmann 2, 1 GenISys, Japan, 2 GenISys, Germany and 3 Univ. of Pennsylvania, USA</p>	<p>8D-8-3 16:40 Laser Wavelength Measurement Using Gold Nanoparticle Aggregate Integrated Microresonator K. Sugano 1, S. Joya 1, N. Arai 1, Y. Tanaka 1, E. Maeda 2, R. Kometani 2 and Y. Isono 1, 1 Kobe Univ. and 2 Univ. of Tokyo, Japan</p>
<p>8A-8-4 16:50 Quantum Dot Transport in Two-Terminal Devices on a Few Layers of ReS₂ J. Park, J. Seo and M. Jung, DGIST, Korea</p>	<p>8B-8-4 16:50 Characterization of BaTiO₃ Nanoparticles Formed in the Pores of Mesoporous Silica SBA-15 Thin Films A. Kohno and T. Tajiri, Fukuoka Univ., Japan</p>	<p>8C-8-4 17:00 Simulation of Resist Exposure in Sub-10nm Ion Beam Lithography with FIB S.I. Zaitsev and Y.L. Shabelnikova, Inst. of Microelectronics Technol. RAS, Russia</p>	<p>8D-8-4 17:00 Detection Characteristics of Strain of Ultra-Thin Silicon Structure by Raman Spectroscopy R. Kometani, K. Okada and E. Maeda, Univ. of Tokyo, Japan</p>
<p>8A-8-5 17:10 Pushing the Subthreshold Swing to the Thermal Limit Using h-BN Dielectrics in Monolayer MoS₂ Channel FETs Q.A. Vu, S. Fan, S.H. Lee, M.-K. Joo, W.J. Yu and Y.H. Lee, Sungkyunkwan Univ., Korea</p>	<p>8B-8-5 17:10 Scanning Electron Beam Induced Deposition for Conductive Tip Modification P.L. Chen 1, J. Su 1, M.H. Shiao 1, M.N. Chang 2, C.H. Lee 3 and C.W. Liu 3, 1 Natl. Applied Res. Labs., 2 Natl. Chung Hsing Univ. and 3 Natl. Taiwan Univ., Taiwan</p>	<p>8C-8-5 17:20 Computational SEM Metrology and Inspection K. Arat 1, N. Unal 2, J. Bolten 3, C.W. Hagen 1, T. Klimpel 2, 1 Delft Univ. of Technol., The Netherlands, 2 GenISys and 3 AMO, Germany</p>	<p>8D-8-5 17:20 Fabrication of an Electron Beam Deposited Tip for Atomic-Scale AFM Measurements in Liquid with a Small Cantilever K. Miyazawa 1, H. Izumi 1, T. Watanabe-Nakayama 1 and T. Fukuma 1,2, 1 Kanazawa Univ. and 2 JST-ACT-C, Japan</p>
<p>8A-8-6 17:30 Development of P-N Diode Using Two Dimensional Nanomaterials C. Park, N.T. Duong, S.H. Bang, D.A. Nguyen, Y.H. Lee and M.S. Jeong, Sungkyunkwan Univ., Korea</p>	<p>8B-8-6 17:30 Evaluation of Resistive Switching Properties of Si-Rich Oxide Embedded with Ti Nanodots by Applying Constant Voltage and Constant Current A. Ohta, Y. Kato, M. Ikeda, K. Makihara and S. Miyazaki, Nagoya Univ., Japan</p>	<p>8C-8-6 17:40 Experimental Investigation of the Distribution of Energy Deposited by FIB in Ion-Beam Lithography N. Gusseinov 1, M. Gabdullin 1, Y.L. Shabelnikova 2 and S.I. Zaitsev 2, 1 Al-Farabi Kazakh Natl. Univ., Kazakhstan and 2 Inst. of Microelectronics Technol. RAS, Russia</p>	<p>8D-8-6 17:40 Localized Electroless Ag Plating at a Tip Apex for Scanning Kelvin Probe Microscopy C.-T. Lin 1, M.-H. Yu 2, J. Su 1, P.-L. Chen 1, M.-H. Shiao 1 and M.-N. Chang 2, 1 Natl. Applied Res. Labs. and 2 Natl. Chung Hsing Univ., Taiwan</p>
8A-8 Author's Interview: 17:50-18:00	8B-8 Author's Interview: 17:50-18:00	8C-8 Author's Interview: 18:00-18:10	8D-8 Author's Interview: 18:00-18:10
Room A (Ramada Ballroom 1, 2F)			
18:30-20:30 Banquet			

Thursday, November 9

Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
9A-9: Microsystem Technology and MEMS III (9:00-10:30) Chairs: C. Ji (Ewha Womans Univ.)	9B-9: Nanofabrication III (9:00-10:30) Chairs: D.J. Kang (SKKU) A. Kohno (Fukuoka Univ.)	9C-9: Advanced Lithography I (9:00-10:10) Chairs: J. Miyazaki (ASML)	9D-9: Bio MEMS and Lab on a Chip I (9:00-10:10) Chairs: A. Matsumoto (Tokyo Medical and Dental Univ.) K.M. Byun (Kyung Hee Univ.)
9A-9-1 9:00 Recent Advancement on Low Loss Metaconductor Technology for Energy Efficient 5G and Millimeter Wave Applications (Invited) Y.-K. Yoon, S. Hwangbo, T. Clingenpeel and A. Rahimi, Univ. of Florida, USA.-K. Yoon, Univ. of Florida, USA	9B-9-1 9:00 Effect of Photo-Illumination on Gold Nano-Particles Assisted Chemical Etching of Silicon Y.-S. Lin 1, C.-P. Lai 1, Y.-H. Lin 2, N.-N. Chu 2, C.-T. Lin 2, C.-L. Hsieh 2, C.-N. Hsiao 2 and M.-H. Shiao 2, 1 Natl. United Univ. and 2 Natl. Applied Res. Labs., Taiwan	9C-9-1 9:00 EUV High Volume Manufacturability (Invited) Y.S. Kang, Samsung Electronics, Korea	9D-9-1 9:00 Single Particle Tracking Analysis of Extracellular vesicles Down to 30 nm in a Microfluidic Chip T. Akagi 1,2, R. Okamura 1, H. Kishita 1, M. Nakakuki 1 and T. Ichiki 1,2, 1 Univ. of Tokyo and 2 iCONM, Japan
9A-9-2 9:30 Fabrication of Three-Dimensional Integrated CMOS Image Sensors with Quarter VGA Resolution by Pixel-Wise Direct Bonding Technology M. Goto 1, Y. Honda 1, T. Watabe 1, K. Hagiwara 1, M. Nanba 1, Y. Iguchi 1, T. Saraya 2, M. Kobayashi 2, E. Higurashi 2, H. Toshiyoshi 2 and T. Hiramoto 2, 1 NHK Sci. and Technol. Res. Lab., and 2 Univ. of Tokyo, Japan	9B-9-2 9:20 Preliminary Study of Fabrication of Ag-Ag ₂ S Nanoparticles and Random Network for Reservoir Computing Hadiyawarman 1, Y. Amano 1, M. Eguchi 2 and H. Tanaka 1, 1 Kyushu Inst. Technol. and 2 Fuzzy Logic Inst., Japan	9C-9-2 9:30 Patterning Performance Improvement in EUV Lithography Through Process Optimization S. Park, M. Lim, I. Lee, H. Kim, K. Kim and C.-M. Lim, SK hynix, Korea	9D-9-2 9:20 Sensitive Voltage Sensitive Dye Imaging in Living Neuronal Network on Bull's Eye-Plasmonic Chips W. Minoshima 1, S. Izumi 1, C. Hosokawa 1,2, S.N. Kudoh 1 and K. Tawa 1,2, 1 Kwansai Gakuin Univ. and 2 AIST, Japan
9A-9-3 9:50 5 MHz Pn-Diode Resonator with In-Plane Longitudinal Extensional Mode F. Miyazaki, K. Baba, H. Tanigawa, T. Furutsuka and K. Suzuki, Ritsumeikan Univ., Japan	9B-9-3 9:40 Multi-Functional Core/Shell Nanoparticles Fabricated by Atomic Layer Deposition Technology S. Seong, Y.C. Jung, T. Lee, I.-S. Park, K. Yoo, S. Lee and J. Ahn, Hanyang Univ., Korea	9C-9-3 9:50 3-Dimensional Photolithography D. Sugihara, H. Kikuta, H. Kawata, M. Yasuda, M. Sasago and Y. Hirai, Osaka Pref. Univ., Japan	9D-9-3 9:40 (Invited) H.-N. Kim, KIST, Korea
9A-9-4 10:10 Selective Molecular Detection on a Suspended Graphene Developed by Low-Pressure Dry Transfer Technique S. Kidane 1, H. Ishida 1, K. Sawada 1 and K. Takahashi 1,2, 1 Toyohashi Univ. of Technol. and 2 JST-PRESTO, Japan	9B-9-4 10:00 Effective Excitation of Copper Surface Plasmon Resonance and Its Applications (Invited) K. Sugawa, Nihon Univ., Japan		
9A-9 Author's Interview: 10:30-10:40	9B-9 Author's Interview: 11:50-12:00	9C-9 Author's Interview: 11:40-11:50	9D-9 Author's Interview: 11:40-11:50
Convention Lobby (2F)			
Coffee Break			
Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
9A-10: Inorganic Nano Materials II (10:50-12:00) Chairs: D.H. Kim (Chungbuk Natl. Univ.) M. Suzuki (AIST)	9B-10: Nanofabrication IV (10:50-11:50) Chairs: H. Tanaka (Kyushu Inst. of Technol.)	9C-10: Advanced Lithography II (10:30-11:50) Chairs: S.-S. Kim (Samsung Electronics) J. Miyazaki (ASML)	9D-10: Bio MEMS and Lab on a Chip II (10:30-11:40) Chairs: K. Furukawa (Meisei Univ.) W. PARK (Kyung Hee Univ.)
9A-10-1 10:50 Recent Progress of Droplet Epitaxy to Form Type-II Quantum Ring Nanostructures (Invited) J.S. Kim 1, V. Dahiya 2,3, M. Zamiri 3,4, S. Krishna 2,3 and S.J. Lee 5, Yeungnam Univ., Korea, 2 Ohio State Univ., 3 Univ. of New Mexico, 4 Univ. of Wisconsin, USA and 5 Korea Res. Inst. of Standards & Sci., Korea	9B-10-1 10:50 Investigation of Piezoresistive Effect in PMOSFETs Fabricated on Circular SOI Diaphragms Using Minimal ICP-RIE and Mask Aligner Y.X. Liu, H. Tanaka, N. Umeyama, S. Khumpuang, M. Nagao, T. Matsukawa and S. Hara, AIST, Japan	9C-10-1 10:30 Does Litho Need MI's Help? (Invited) B.-H. Lee, SK Hynix, Korea	9D-10-1 10:30 Programming Anisotropy in Soft Materials Using Magnetic Self-Assembly for Bioapplications (Invited) J. Kim, UNIST, Korea

9A-10-2 11:20 Coupling Effect Characteristics of In _{0.4} Ga _{0.6} As/GaAs Multi-Stacked Quantum Dots without Strain Balancing Technique K. Goshima 1, N. Tsuda 1, K. Inukai 1, K. Komori 2 and T. Sugaya 2, 1 Aichi Inst. of Technol. and 2 AIST, Japan	9B-10-2 11:10 Composition Control of InGaAs Nanowires on Ge(111) Substrates by Selective-Area Growth A. Yoshida, K. Chiba, Y. Minami, K. Tomioka and J. Motohisa, Hokkaido Univ., Japan	9C-10-2 11:00 Characteristics of Silicon Nitride Composites for EUV Pellicle Application Y.J. Jang, J.H. Kim, I.S. Kim, S.G. Lee, H.K. Oh and J. Ahn, Hanyang Univ., Korea	9D-10-2 11:00 An Elastomer-Based MEMS Fabry-Perot Interferometric Biosensor with Open-Cavity Structure R. Teramoto 1, S. Maruyama 1, I. Takahashi 2, S. Takeoka 2, T. Fujie 2,3, K. Sawada and K. Takahashi 1,3, 1 Toyohashi Univ. of Technol., 2 Waseda Univ. and 3 JST-PRESTO, Japan
9A-10-3 11:40 Effect of The Particle Size on The Magnetic and Electric Properties of Free Standing La _{2-x} Sr _x CuO ₄ and La ₂ CuO _{4+y} Nanoparticles F. Budiman 1, Y. Horibe 1, M. Eguchi 2 and H. Tanaka 1, 1 Kyushu Inst. of Technol. and 2 Fuzzy Logic Systems Inst., Japan	9B-10-3 11:30 Confinement Effect on I-V Characteristics of Resistive Change Memory Using Oxide Nanowire T. Aono 1, K. Sugawa 1, T. Shimizu 2, S. Shingubara 2 and K. Takase 1, 1 Nihon Univ. and 2 Kansai Univ., Japan	9C-10-3 11:20 Feasibility of Multi-Stack EUV Pellicle Membrane for EUV Non-Actinic Mask Inspection System Using DUV Wavelength S.-G. Lee and H.-K. Oh, Hanyang Univ., Korea	9D-10-3 11:20 Laboratory-on-a-Chip for Express-Identification and Antibiotic Susceptibility Testing of Microorganisms V.V. Luchinin 1, T.M. Zimina 1, J.A. Grozdez 1, N.A. Sitkov 1, V.N. Lemosersky 1, A.V. Soloviev 1, L.A. Kraeva 2, G.N. Hamdulaeva 2 and A.F. Kosko 3, 1 St. Petersburg State Electrotechnical Univ., 2 St. Petersburg Pasteur Inst. and 3 St. Petersburg State
9A-10 Author's Interview: 12:00-12:10	9B-10 Author's Interview: 11:50-12:00	9C-10 Author's Interview: 11:40-11:50	9D-10 Author's Interview: 11:40-11:50
Lunch			
Room A (Ramada Ballroom 1, 2F)	Room B (Ramada Ballroom 2, 2F)	Room C (Ramada Ballroom 3, 2F)	Room D (Ramada Ballroom 4, 2F)
9A-11: Inorganic Nano Materials III (13:30-15:00) Chairs: M. Osada (NIMS) K. Kyhm (Pusan Natl. Univ.)	9B-11: Nanofabrication V (13:30-14:50) Chairs: A. Kohno (Fukuoka Univ.) G.H. Kim (KIMM)	9C-11: Advanced Lithography III (13:30-14:50) Chairs: C. Lim (SK Hynix) T. Uchiyama (Toshiba Memory)	9D-11: Bio MEMS and Lab on a Chip III (13:30-14:30) Chairs: T. Akagi (Univ. of Tokyo)
9A-11-1 13:30 Spin Dynamic of Ferromagnetic Nano- Multilayer Films over Wide Ranges of Timescale (Invited) D.-H. Kim, Chungbuk Natl. Univ., Korea	9B-11-1 13:30 Nanorods and Nanopores Fabricated by Liquid Crystalline Block Copolymer T. Iyoda, Doshisha Univ., Japan	9C-11-1 13:30 (Invited) J. Finders, ASML, The Netherland	9D-11-1 13:30 Development of Ceramic Three-Dimensional Micro Channel by Combined Process of Laser Processing and Imprinting K. Tokumaru, S. Hunt, F. Tsumori, K. Kudo and K. Shinagawa, Kyushu Univ., Japan
9A-11-2 14:00 Electron Transport Calculation of Nanocrystalline Bi ₂ Te ₃ Thin Films by Oblique Deposition Method S. Morikawa, Y. Satake and M. Takashiri, Tokai Univ., Japan	9B-11-2 13:50 Solvent-Assisted Universal Transfer for 2D Layered Materials I. Gasparutti, S. Song and Y.H. Lee, Sangkyunkwan Univ., Korea	9C-11-2 14:00 Using Platinum for Absorber Stack of Phase Shift Mask in High Numerical Aperture Extreme Ultraviolet Lithography J.S. Kim, D.G. Woo and J. Ahn, Hanyang Univ., Korea	9D-11-2 13:50 Blast-Induced Intracranial Brain Deformation Sensor S. Song 1, N. Race 2, A. Kim 3, T. Zhang 2, R. Shi 2 and B. Ziaie 2, 1 Sngkyunkwan Univ., Korea, 2 Purdue Univ. and 3 Temple Univ., USA
9A-11-3 14:20 A Novel and Facile Route to Synthesize Atomic-Layered MoS ₂ Film for Large-Area Electronics S. Boandoh 1, S.M. Kim 2 and K.K. Kim 1, 1 Dongguk Univ. and 2 KIST, Korea	9B-11-3 14:10 Formation of Silicon Nanoporous and Silicon Nanowires on V-groove Textured Silicon Using Metal Assisted Chemical Etching Method M.K.N. Azmi 1, Y. Nakajima 2, T. Maekawa 2 and A.M. Hashim 1, 1 Univ. Teknologi Malaysia, Malaysia and 2 Toyo Univ., Japan	9C-11-3 14:20 Thermal and Structural Deformation of Extreme Ultraviolet Mask by Exposure C.-H. Ban, E.-S. Park, J.-H. Park and H.-K. Oh, Hanyang Univ., Korea	9D-11-3 14:10 Magnetic Beads Based Local Enzyme Immobilization Method for Multi-Neurotransmitter Image Sensor with Microhole Array Structure Y. Ogaeri, M. Mitsudome, Y.-N. Lee, T. Iwata, K. Takahashi and K. Sawada, Toyohasi Univ. of Technol., Japan
9A-11-4 14:40 First-Principles Simulation on Thermoelectric Properties in Transition Metal Dichalcogenide Monolayers K. Nakamura 1,2, 1 Kyoto Univ., Japan and 2 Egypt-Japan Univ. of Sci. and Technol., Egypt	9B-11-4 14:30 Fabrication of MoS ₂ Quantum Dots by High Power Femtosecond Laser Irradiation S.-J. An, S. Bang, D.Y. Park, N.D. Anh, J.-H. Kim, H.Y. Kim, H.J. Jeong and M.S. Jeong, Sangkyunkwan Univ., Korea		
9A-11 Author's Interview: 15:00-15:10	9B-11 Author's Interview: 14:50-15:00	9C-11 Author's Interview: 14:40-14:50	9D-11 Author's Interview: 14:30-14:40

Convention Lobby (2F)			
9P-12: 15:20-17:20 POSTER SESSION II			
1-1: Advanced Photolithography			
Chair: S. Kim (Ajou Univ)			
9P-12-1 Timing Aware Advanced Retargeting P. Mantripragada 1, A. Mampazhy 1, B. Sayah 2, S. Mandal 3, 1 GlobalFoundries Eng., India, 2 GlobalFoundries, USA and 3 Maxlinear Technologies, India	9P-12-2 Selective Defocus Grey-Scale Mask to Address Local Bridging and Pinch-off Issues S. Srivatsa 1, M. Ghosal 1, A. Mampazhy 1, I. Stobert 2, R. Viswanathan 2 and M. Gheith 2, 1 GlobalFoundries Eng., India and 2 GlobalFoundries, USA	9P-12-3 Thermo-Mechanical Analysis of the Extreme Ultraviolet Pellicle with the Residual Stress E.-S. Park, C.-H. Ban, J.-H. Park and H.-K. Oh, Hanyang Univ., Korea	9P-12-4 Lithography Simulation and OPC for Next Generation Display Technology N. Taksatom 1, K. Yoshida 2, N. Unal 1, GenlSys, Germany and 2 Hoya, Japan
2-1 Nanocarbons			
Chair:			
9P-12-5 Effect of Various Surfactants on Morphology of Cu/SWCNT Electroplating Films M. Shimizu, T. Ogasawara and S. Arai, Shinshu Univ., Japan	9P-12-6 Surface Morphology Changes of CVD-Graphene/Cu ₁₂₀ Induced by Post-Annealing Processes Y. Ogawa 1, Y. Murata 2, S. Suzuki 1, H. Hibino 1,3, S. Heun 2, K. Kumakura 1, 1 NTT, Japan and 2 NEST, Italy and 3 Kwansai Gakuin Univ., Japan	9P-12-7 Chemical Vapor Deposition Based Rapid Graphene Growth System K.P. Sharma, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	9P-12-8 Withdrawn
9P-12-9 Investigation on Mo _{1-x} W _x S ₂ Fabricated by Co-Sputtering and Post-Deposition Sulfurization with (t-C ₄ H ₉) ₂ S ₂ Y. Hibino 1, S. Ishihara 1,4, N. Sawamoto 1, T. Ohashi 2, K. Matsuura 2, H. Machida 3, M. Ishikawa 3, H. Sudoh 3, H. Wakabayashi 2 and A. Ogura 1, 1 Meiji Univ., 2 Tokyo Inst. of Technol., 3 Gas-Phase Growth and 4 JSPS, Japan	9P-12-10 Joule Heat Induced Synthesis and Nanosoldering of Carbon Nanotubes in <i>In situ</i> TEM S. Sharma, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	9P-12-11 GAS Sensor Using a Carbon Nanotube Yarn to Detect Acetylene Molecules J.K. Kim 1, S.Y. Kwon 2, J.Y. Lee 2, D.G. Jung 2, S.H. Kong 2 and D. Jung 1, 1 KITECH and 2 Kyungpook Natl. Univ., Korea	9P-12-12 Withdrawn
9P-12-13 Photoresponse of Graphene FET with n-type Si Schottky Gate S. Kobayashi, Y. Anno, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan	9P-12-56L Atmospheric-Pressure-Plasma-Jet Processed Reduced Graphene Oxides and Carbon Nanotubes for Supercapacitor Application F.-H. Kuok, C.-W. Chen, I.-C. Cheng, C.-C. Hsu and J.-Z. Chen, Natl. Taiwan Univ., Taiwan	9P-12-57L Stack Angle Dependency of Interlayer Excitons in MoSe ₂ /WSe ₂ van der Waals Heterostructures P.K. Nayak 1, Y. Horbatenko 2, S. Ahn 2, G. Kim 2, J.-U. Lee 3, K.Y. Ma 2, A.-R. Jang 2,4, H. Lim 5, D. Kim 6, S. Ryu 6, H. Cheong 3, N. Park 2, and H.S. Shin 2, 1 Indian Inst. of Technol. Madras, India, 2 Ulsan Natl. Inst. of Sci. and Technol., 3 Seogang Univ., Korea, 4 Oxford Univ., UK, 5 Chonnam Natl. Univ. and 6 POSTECH, Korea	9P-12-58L Electronic Structure of Graphene/h-BN Monolayer on Fe Substrate N.T. Cuong, NIMS, Japan
9P-12-59L Impact of Small Amount of Ni Atoms on Contact Resistance in Metal-Graphene System X. Yin and S. Kasai, Hokkaido Univ., Japan			
2-2: Nanodevices			
Chair: W.S. Hwang (Korea Aerospace Univ.)			
9P-12-14 Gate-Modulated Charge Transport and Photo-Induced Current in van Der Waals Heterostructures with Strong Interfacial Coupling M.-H. Doan, Y. Jin, J. Zhao and Y.H. Lee, Sungkyunkwan Univ., Korea	9P-12-15 Role of Hole Trap Sites in MoS ₂ for Inconsistent Optical and Electrical Phenomena M.D. Tran, J.-H. Kim, H. Kim, M.H. Doan, D.L. Duong and Y.H. Lee, Sungkyunkwan Univ., Korea	9P-12-16 DC and RF Performance Comparison of p-i-n TFET and p-n TFET Y.J. Yoon, J.H. Seo, J.-H. Lee and I.M. Kang, Kyungpook Natl. Univ., Korea	9P-12-17 Highly Sensitive pH Sensor Using NiO Nanosheets Sensing Electrode and Extended-Gate Field-Effect Transistor C.-Y. Kuo, H.-H. Tseng, R.-M. Ko and S.-J. Wang, Natl. Cheng Kung Univ., Taiwan
9P-12-18 Flexible Piezoelectric Nanogenerators Integrated with ZnO Nanoflowers/PDMS Composite Films D.H. Kim, B. Dudem and J.S. Yu, Kyung Hee Univ., Korea	9P-12-19 Evaluation of Optical Properties of Bismuth Telluride Nanoplate Thin Films K. Wada, K. Tomita and M. Takashiri, Tokai Univ., Japan	9P-12-20 Evaluation of Electrical Characteristics of V-Grooved FETs Using One-Dimensional Array of Gold Nanoparticles T. Ban 1, M. Uenuma 2, S. Migita 3, I. Yamashita 2, Y. Uraoka 2, S. Yamamoto 1, 1 Ryukoku Univ., 2 NAIST and 3 AIST, Japan	9P-12-21 A Study on the Resistance Switching of Ag ₂ Se and Ta ₂ O ₅ Heterojunctions Using Structural Engineering T.-S. Lee, N.-J. Lee, Q. Hu, H. Abbas, T.-S. Kang, T.-S. Yoon and C.-J. Kang, Myongji Univ., Korea

9P-12-22 Electrical Properties of SiO ₂ Thin Films Grown by Plasma-Enhanced Atomic Layer Deposition M.-W. Ha 1, K. Choi 1, D.H. Kim 2 and T.J. Park 1,2, 1 Myongji Univ. and 2 Hanyang Univ., Korea	9P-12-23 Fabrication of Transparent FTO/ZnO/PEDOT:PSS Solar Cells H. Naganuma 1, A. Mori 1, C. Takada 1, S. Komuro 2 and X. Zhao 1, 1 Tokyo Univ. of Sci. and 2 Toyo Univ, Japan	9P-12-24 Atomic Layer Deposited SiO ₂ /4H-SiC Metal Oxide Semiconductor Using Ar Post-Deposition Annealing S. Lee 1, H. Kim 1, H.J. Kang 1, M.-W. Ha 2 and H.J. Kim 1, 1 Seoul Natl. Univ. and 2 Myongji Univ., Korea	9P-12-25 Development of Optimized Annealing Method for Graphene Source/Drain Electrodes in In-Ga-Zn-O Thin-Film Transistors Using Microwave Irradiation E.-K. Hong and W.-J. Cho, Kwanghoo Univ., Korea
9P-12-26 Evaluation of Carrier Transport Mechanism in Long P3HT Molecular Wire Using Graphene Nanogap Electrodes T. Ikuta 1,2, S. Tamba 2, K. Inoue 2, Y. Ie 2, Y. Aso 2, K. Matsumoto 2 and K. Maehashi 1,2, 1 Tokyo Univ. of Agriculture and 2 Osaka Univ., Japan	9P-12-27 Write-Once-Read-Many-Times Switching Behaviors of One Diode-One Resistor Nonvolatile Organic Memory Devices Based on Inorganic Schottky Diodes and Hybrid Nanocomposites S. Sung, C. Wu and T.W. Kim, Hanyang Univ., Korea	9P-12-28 Extraction of Subgap State Density in IGZO Thin-Film Transistors by Transmission Line Model Incorporated Conductance Method M.C. Nguyen 1, A.H.-T. Nguyen 1, J. Kim 1, S.-W. Kim 1, S.-J. Choi 1, J.-K. Jun 1, H.M. Ji 1, J.-H. Kim 1, K.M. Yu 1, J.K. Jeong 2 and R. Choi, 1 Inha Univ. and 2 Hanyang Univ., Korea	9P-12-29 Design of Multi-Layer Single-Electron Information-Processing Circuit for Nonlinear Problem Mimicking Foraging Behavior of Honeybees T. Tanabe and T. Oya, Yokohama Natl. Univ., Japan
9P-12-60L Effects of Trench Profile and SiO ₂ Spacer on Trench Sidewall 1.2 kV 4H-SiC Trench MOSFETs Employing Bottom Protection Well O. Seok 1, M.-W. Ha 2, I.H. Kang 1, H.W. Kim 1, D.Y. Kim 1,3 and W. Bahng 1, 1 Korea Electrotechnol. Res. Inst., 2 Myongji Univ. and 3 Gyeongsang Natl. Univ., Korea	9P-12-61L Hybrid Black Phosphorus-Quantum Dots Phototransistors A.-Y. Lee 1, H.-S. Ra 1, D.-H. Kwak 1, M.-H. Jeong 1, J.-H. Park 1, Y.-S. Kang 1, W.-S. Chae 2, J.-S. Lee 1, 1 DGIST and 2 Korea Basic Sci. Inst., Korea	9P-12-62L High Peak-to-Valley Current Ratio Tunnel Diodes with Chemically Doped MoTe ₂ /MoS ₂ Heterostructure N.T. Duong, S.H. Bang, D.X. Dang, Y.H. Lee, S.C. Lim and M.S. Jeong, Sungkyunkwan Univ., Korea	9P-12-63L Scaling of Atomic Layer Deposited Ferroelectric Hf _{0.5} Zr _{0.5} O ₂ Thin Films for Nextgeneration FRAM Applications S.J. Kim 1, J. Mohan 1, S.R. Summerfelt 2, T. San 2, L. Colombo 2 and J. Kim 1, 1 Univ. of Texas and 2 Texas Instruments, USA
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