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
Cnairs: 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
Negative Capacitance Transistors (Plenary)
S. Salahuddin, Univ. of California, Berkeley, USA

7P-1-2 10:40-11:20
Progress and Perspective of Nano Imprint Lithography for Production in Semiconductor Devices (Plenary)
T. Higashiki, Toshiba Memory, Japan

7P-1-3 11:20-12:00
2D 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 (YonseiUniv.) 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 Resume 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 Swithching Characteristics in MnO/Ta_2O_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
Cnairs: 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 Selef-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 Reliable sub-10 nm Block Copolymers Development : Synthesis and Thermally Annealed Formation of Perpendicularly Orientated Lamellar Structures (Invited) T. Hayakawa 1, R. Nakatani 1, A. Chandra 1, Y. Yoshimura 1, Y. Seino 2, H. Sato 2, Y. Kasahara 2, T. Azuma 2, 1 Tokyo Inst. of Technol. and 2 EIDEC, 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. Dosho 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 Selef-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℃) 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.,Flance	**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. Shiraishi 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_3SbTe_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. Kodera1, K. Miyagi 1, M. Shiraisi 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. Kobayahsi 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_3N_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 Multilayerd 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. Lee1,2 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/*h*BN 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 Conductiong 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_2O/SiOx/n-SiC/n-Si/Al Nonvolatile pu Memory Diode with High Endurance Characteristics Fabricated by Sputtering of n-SiC and Reactive-Sputtering of SiOx 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_2O_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-Ga2O3 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_2S Core-Shell Nanoparticles Y. Amamoto, Hadiyawarman 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

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	**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	**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	**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
8P-7-42 Fabrication and Characterization of Bimetal Nanowires R. Akutsu, T. Aono, K. Takeda, K. Sugawa and K. Takase, Nihon Univ., Japan	**8P-7-43** Nanoinjection 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	**8P-7-44** *In-situ* 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	**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
2-5: Organic Nanomaterials			
Chair: T.W. Lee (SNU)			
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	**8P-7-47** High-Performance Piezoresistive Pressure Sensors Based on Three-Dimensional Electrospun Nanofibers O.Y. Kweon and J.H. Oh, POSTECH, Korea	**8P-7-48** Fabrication and Characterization of Dichroic Fine Crystals by the Reprecipitation 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	**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 dnd J.Y. Kim 1, 1 UNIST, 2 Korea Univ. and 3 Pusan Natl. Univ., Korea
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			
2-6: NanoTool			
Chair: R. Kometani (Univ. of Tokyo)			
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	**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	**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	~~**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~~
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	**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	**8P-7-86L** Submicron-Resoluved Luminescence Imaging for Detection of Grain Anisotropy Induced Stress in AL_2O_3 by Near-Field Spectroscopy T. Tomimatsu 1 and R. Takigawa 2, 1 Tohoku Univ. and 2 Kyushu Univ., Japan	**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
3: Nanoimprint, Nanoprint and Rising Lithography			
Chair: H. Lee (Korea Univ.)			
8P-7-57 Self-Aligned, High Resolution Conductive Lines on Microstructured Imprinted Substrate V.M. Di Pietro, H. Außerhuber and M. Mühlberger, Profactor, Austria	**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	**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	**8P-7-60** Infiltration Behaviors of AlOx into Positive-Tone Electron Beam Resists by Sequential Infiltration Synthesis Y. Ozaki, S. Ito, N. Hiroshiba, T. Nakamura and M. Nakagawa, Tohoku Univ., Japan
8P-7-61 Nanoimprint System Development and Status for High Volume Semiconductor Manufacturing H. Namba, Canon, Japan	**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	**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	**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

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_2O_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
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 in-*Vitro* 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 Ubump 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 Microorganizms 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 Aarea 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 Microstructrured 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. Niijima 1,3, M. Takayasu 1,3, D. Yamane 1,3, T. Konishi 1,2,3, T. Safu 2, H. Ito 1,3, S. Dosho 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. Takahasi 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 Utilizaiton 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: Nanfabrication 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 8D-8-1 Unconventional Micro-/Nanofabrication Materials and Processes (Invited) J. Lee, B. Lee, J. Ko and Y. Yoon, 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 Tokyyo 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

8A-8-3 16:30 Fabrication of p-type Monolayer WSe_2 Field Effect Transistor H.M. Oh, C. Park, S. Bang, S.J. Yun, Y.H. Lee and M.S. Jeong, Sungkyunkwan Univ., Korea	**8B-8-3** 16:30 Hf Layer Thickness Dependence of Resistive Swithcing Characteristics of Ti/Hf/HfO_2/Au(Pt) ReRAM Device R. Nakajima, A. Azuma, H. Yoshida, T. Shimizu, T. Ito and S. Shingubara, Kansai Univ., Japan	**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	**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
8A-8-4 16:50 Quantum Dot Transport in Two-Terminal Devices on a Few Layers of ReS_2 J. Park, J. Seo and M. Jung, DGIST, Korea	**8B-8-4** 16:50 Characterization of $BaTiO_3$ Nanoparticles Formed in the Pores of Mesoporous Silica SBA-15 Thin Films A. Kohno and T. Tajiri, Fukuoka Univ., Japan	**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	**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
8A-8-5 17:10 Pushing the Subthreshold Swing to the Thermal Limit Using h-BN Dielectrics in Monolayer MoS_2 Channel FETs Q.A. Vu, S. Fan, S.H. Lee, M.-K. Joo, W.J. Yu and Y.H. Lee, Sungkyunkwan Univ., Korea	**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	**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, Germnay	**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
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	**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	**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	**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., Taiwam
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 Appications(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_2S 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 Kwansei 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 Straion 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 Selctive-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. Fujiie 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 $La_{2-x}Sr_xCuO_4$ and La_2CuO_{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 Microorganizms 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: 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 EUV Lithography Industrialization and Technology Progress (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_2Te_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. Taksatorn 1, K. Yoshida 2, N. Unal 1, GenISys, 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 Kwansei 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 $Mo_{1-x}W_xS_2$ Fabricated by Co-Sputtering and Post-Deposition Sulfurization with $(t\text{-}C_4H_9)_2S_2$ 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 *Insitu* 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**~~ **Withdrawn** ~~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_2Se and Ta_2O_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, Kwangwoon 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 Hf0.5Zr0.5O2 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
9P-12-64L Characteristics of the Nano Structured P-I-N Gate FinFET for 1T DRAM S.-I. Kim 1, Y.T. Kim 1, C.K. Kim 1 and F. Gamiz 2, 1 KIST, Korea and 2 Univ. of Granada, Spain	**9P-12-65L** Memory Performance of Z2-FET Fabricated on 7nm SOI Substrate Y.T. Kim 1, S. Kwon 1,2, M. Choi 2, P. Galy 3 and J. Ahn 2, 1 KIST, 2 Hanyang Univ. and 3 ST Microelectronics, Korea	**9P-12-66L** Fabrication of Hybrid Quantum Dots/Monolayer MoS_2 Photodetector S. Cho, H. Woo, J. Kim, Y. Jo, S. Lee, J. Seo, H. Kim and H. Im, Dongguk Univ., Korea	**9P-12-67L** Improving Electrochromic and Electrochemical Energy Storage properties in WOx with an Embedded Metallic Nanofilaments array J. Kim, S. Lee, S. Cho, Y. Jo, H. Woo, H. Kim and H. Im, Dongguk Univ., Korea
9P-12-68L Gate-Tunable 2D Memristor Devices Based on Monolithically-Integrated Heterojunctions W. Huh 1, S.H. Jang 1, J.Y. Lee 1, D. Lee 1, H.Y. Jeong 2, G. Wang 1, C.-H. Lee 1, 1 Korea Univ. and 2 UNIST, Korea	**9P-12-69L** Improvement of Out-Coupling Efficiency in Organic Emitting Diodes using TiO_2 micro to nano structures P.-H. Jung , Y.H. Sung, S.J. Kim, Y. Kim, W.-J. Kim and H. Lee, Korea Univ., Korea	**9P-12-70L** Workfunction Engineering of Pocket Tunnel Field-Effect Transistor with Dual Material Gate J.C. Lee, T.J. Ann and Y.S. Yu, Hankyong Natl. Univ., Korea	
2-3: Nanofabrication			
Chair:			
9P-12-30 Fabrication of Hierarchical-Architectured Silicon with Superior Antireflective and Self-Cleaning Ability for Photovoltaics Applications B. Dudem, J.W. Leem and J.S. Yu, Kyung Hee Univ., Korea	**9P-12-31** Direct Laser Writing Using a CW Laser Diode for Microstructures in a Microchannel D. Jung 1, G.-H. Kim 1,2, K. Choi 1,2, S. Kwon 2, S. Lee 2, J. Lee 1,2 and H. Lim 1,2, 1 UST and 2 KIMM, Korea	**9P-12-32** Size Effects on Optical Properties of CdSe and CdSe/CdS Nanoheterostructures S.H. Kim, M.T. Man and H.S. Lee, Chonbuk Natl. Univ., Korea	**9P-12-33** Surface-Enhanced Raman Scattering Based on Hybrids Consisting of Plasmonic Silver Arrays-Satellite Ag Prisms W. Inoue, H. Takeda, K. Sugawa, K. Takase and J. Otsuki, Nihon Univ., Japan
9P-12-34 Plasmonic Structure on GaAs Substrate by 3-Dimensional Finite-Difference Time-Domain Method G. Oh and E.K. Kim, Hanyang Univ., Korea	**9P-12-35** Fabrication of High Conductivity of TTF-F4TCNQ Charge Transfer Complexes with High Crystallinity by Eutectic Melting Method J. Kim 1,2, S. Kwon 1, Y. Kang 2 and J. Lee 1, 1 KIMM and 2 Hanyang Univ., Korea	**9P-12-36 Withdrawn**	~~**9P-12-37**~~ **Withdrawn** ~~Synthesis of NiNW/ Cellulose Hybrid Structure and Their Adsorption Behavior~~ ~~S.R. Shmsuri 1, S. Shiomi 2 and E. Matsubara 1, 1 Kyoto Univ. and 2 Kyoto Municipal Inst. of Industrial Technol. and Culture, Japan~~
9P-12-38 Investigation of Surface Potentials in Reduced Graphene Oxide Flake by Kelvin Probe Force Microscopy R. Negishi, K. Takashima and Y. Kobayashi, Osaka Univ., Japan	**9P-12-39** Effects of Stacked Layers on Optical Properties in Multilayer Quantum Dots S.H. Ju 1, J.C. Choi 1 and H.S. Lee 2, 1 Yonsei Univ. and 2 Chonbuk Natl. Univ., Korea	**9P-12-40** Structural and Optical Properties of CdTe/ZnTe Quantum Dots on Si Substrates K.H. Lim 1, J.C. Choi 1 and H.S. Lee 2, 1 Yonsei Univ. and 2 Chonbuk Natl. Univ., Korea	**9P-12-71L** Synthesis of MO_1-$xWxS_2$ on CNT Yarn for High Performance Freestanding Electrode Hydrogen Evolution Reaction D.A. Nguyen, T.S. Le, D.S. Suh and M.S. Jeong, Sungkyunkwan Univ., Korea

9P-12-72L Synthesis of Ni Nanowire/ Cellulose Hybrid Structure via Liquid Phase Reduction S.R. Shamsuri 1, S. Shiomi 2 and E. Matsubara 1, 1 Kyoto Univ. and 2 Kyoto Municipal Inst. of Industrial Technol. and Culture, Japan			
2-4: Inorganic Nanomaterials			
Chair: J.S. Kim (Yeungnam Univ.)			
9P-12-41 Preparation and Characterization of Alginate Based-Magnetic Nanoparticles for Fluorescence/Magnetic Resonance Multimodal Imaging Applications Y.-S. Kwon 1,2, E.-J. Won 2, K.-B. Choi 1, T.-J. Yoon 2 and J.-J. Lee 1, 1 KIMM and 2 Ajou Univ., Korea	**9P-12-42** Fabrication of ZnO-ZnS@polyaniline Nanohybrid on FTO Glass for Enhanced Hydrogen Generation A. Brayek, H. Kim and B. Yang, Kumoh Natl. Inst. of Technol., Korea	**9P-12-43** What is the Band Offsets of PANI/ZnS/ZnO Heterojunctions ? A. Brayek, H. Kim and B. Yang, Kumoh Natl. Inst. of Technol., Korea	**9P-12-44** Two-Dimensional Vertical Heterostructure for Efficient Bandgap Modulation of Black Phosphorus T. Eum, S. Song, M. Neumann, D.S. Chung and Y.H. Lee, Sungkyunkwan Univ., Korea
9P-12-45 Toward Ultraclean 2D Heterostructure Interfaces: h-BN As a Novel Tool to Visualize Organic Residues X. Wei, M. Neumann, S.H. Song and Y.H. Lee, Sungkyunkwan Univ., Korea	**9P-12-46** Tuning of the Optical Properties of Self-Assembled InAs/GaAsSb Quantum Dots Using InAs Stressor Layers Y. Kim, J.O. Kim, S.K. Noh and S.J. Lee, Korea Res. Inst. of Standards and Sci., Korea	**9P-12-47** Optical Transitions of Organic-Inorganic Perovskite Crystals under Pulsed Magnetic Fields Y. Kim 1, Y.H. Shin 1, M.S. Jeong 2, Y. Kohama 3 and H. Nojiri 4, 1 Dankook Univ., 2 Sung Kyun Kwan Univ., 3 Univ. of Tokyo and 4 Tohoku Univ., Japan	**9P-12-48** Low Temperature Growth of High Quality GaN Barrier for an InGaN/GaN Multiple Quantum Well Structure H. Woo 1,2, J. Kim 2, S. Cho 2, Y. Jo 2, C.H. Roh 1, J.H. Lee 1, J. Park 3, H. Kim 2, H. Im 2 and C.-K. Hahn 1, 1 Korea Electronics Technol. Inst., 2 Dongguk Univ. and 3 Korea Univ., Korea
9P-12-49 Enhanced Photocatalytic Degradation of Volatile Organic Compounds by the Hybridization of B-Ga_2O_3 and Reduced Graphene Oxide H.J. Bae, S. Kim, I.G. Lee and W.S. Hwang, Korea Aerospace Univ., Korea	**9P-12-50** Optical Imaging of Two-Dimensional MoS_2 H. Kim 1, S.M. Kim 2 and H. Rho 1, 1 Chonbuk Natl. Univ. and 2 KIST, Korea	**9P-12-51** Solution-Processed High-κ Dielectrics for Low-Operating Voltage Organic and Inorganic Field-Effect Transistors S.Y. Park, J. Heo, J. Kim, S. Song, Y.J. Yoon, J. Jung, H. Jang, K.T. Lee, J. Seo, B. Walker and J.Y. Kim, UNIST, Korea	**9P-12-52** Enhanced Polarization and Leakage Current Properties for Bismuth Titanate Ceramic Films Prepared by Aerosol Deposition Method M. Suzuki, T. Tsuchiya and J. Akedo, AIST, Japan
9P-12-53 Exploring Transparent Metal and Metal-Oxide Material for Transparent Cathode in Highly Efficient Transparent OLEDs B.H. Choi and J.H. Lee, KITECH, Korea	**9P-12-54** Optical Characterization of AlGaAs/GaAs Multiple Quantum Wells J. Cho 1, L. Ali 1, J.D. Song 2, J.S. Kim 3, H.-J. Jo 3, H. Kim 4, J.-H. Kim 4, M.S. Jeong 4 and C.C. Byeon 1, 1 Kyungpook Natl. Univ., 2 KIST, 3 Yeungnam Univ. and 4 Sungkyunkwan Univ., Korea	**9P-12-55** Surface Modifications of Titanium Oxide Thin Films by Plasma Treatment J.-S. Kim, H. Jeek and H.-W. Seo, Jeju Natl. Univ., Korea	**9P-12-73L** Ag Nanowire Embedded Flexible Transparent Electrode C.S. Kim, KIMS, Korea
9P-12-74L Metal and Chalcogen Vacancies in a Monolayer Transition Metal Dichalcogenide J. Jin 1, H.Y. Jeong 2, S.J. Yun 1, H.S. Lee 3 and Y.H. Lee 1, 1 Sungkyunkwan Univ., 2 Narthwestern Univ. and 3 Chungbuk Natl. Univ., Korea	**9P-12-75L** Study of Defect Passivation and Modulation of Optical Properties of Monolayer TMDs Caused by Simple Chemical Treatment S. Roy, D.-H. Kim, Y. Lee, H. Kim, S.J. Yun, G. Han, Y.-M. Kim and J. Kim, Sungkyunkwan Univ., Korea	**9P-12-76L** Non-Catalytic Synthesis and Photoluminescence of Well-Oriented ZnO Nanowires on (0001) Sapphire W.S. Yeoh, M.-A. Wu, S.-Y. Xie, D.-Y. Chiu, D. Yuan, C.-H. Liao, V. Yeh and Y.-L. Huang, Natl. Dong Hwa Univ., Taiwan	**9P-12-77L** Electrocatalytic Behaviour Difference between 2H and 1T' Phase Molybdenum Ditelluride J. Seok 1, J.-H. Lee 2, S. Cho 3, B. Ji 1, H.W. Kim 4, M. Kwon 1, D. Kim 1, Y.-M. Kim 1, S.H. Oh 1, S.W. Kim 1, Y.H. Lee 1, Y.-W. Son 2 and H. Yang 1, 1 Sungkyunkwan Univ., 2 Korea Inst. for Advanced Study, 3 Ewha Womans Univ. and 4 SAIT, Korea
9P-12-78L Highly Efficient Photocatalyst with Enhanced Optical Absorptance Using TiO_2/Dielectric/Mirror Structure R. Kakuki, K. Namura and M. Suzuki, Kyoto Univ., Japan	**9P-12-79L** Observation of Suppressed Exciton-Exciton Annihilation in Monolayer Tungsten Disulfide Induced by Laser Irradiation Y. Lee, G. Ghimire, Y. Kim, S. Roy and J. Kim, Sungkyunkwan Univ., Korea	**9P-12-80L** Near-field Excitons Imaging of Monolayer TMD with Chmical Treatment Y. Kim, H. Kim, S. Roy, Y. Lee and J. Kim, Sungkyunkwan Univ., Korea	**9P-12-81L** Time-Resolved Photoluminescence in ZnSe/CdS (Core/Shell) Type-II Quantum Dots for Magnetic Field and Circular Polarization W.J. Lee 1, A. Murayama 2, J.-S. Lee 3 and K. Kyhm 1, 1 Pusan Natl. Univ., Korea 2 Hokkaido Univ., Japan, 3 DGIST, Korea
9P-12-82L GaN-Based Light-Emitting Device Using Ionic Liquid T. Hirai, T. Sakanoue and T. Takenobu, Nagoya Univ., Japan	**9P-12-83L** Wafer-Scale Homogeneous Growth of Monolayer Tungsten Dichalcogenides Using Metal-Organic Chemical Vapor Deposition H.S. Kang and C.-H. Lee, Korea Univ., Korea	**9P-12-84L** Laser Control of Crystaline Structure and FET Property of $MoTe_2$ N. Aoki 1, K. Kamiya 1, H. Ouchi 1, K. Sakanashi 1, T. Yamanaka 1, K. Ueno 2, P. Kruger 1, K. Miyamoto 1, T. Omatsu 1 and J.P. Bird 2, 1 Chiba Univ., 2 Saitama Univ. and 3 SUNY Buffalo, Japan	