

Tuesday, November 13

Room C (The Terrace Room (1F))

13:00-16:45 Technical Seminar "EUV Lithography Tutorial" in Japanese

Park Hall (3F)

17:20-19:20 Welcome Reception**Wednesday, November 14**

Room P1 (Emelald, 3F)

14P-1: Plenary Session I

Chairs: Y. Ono (Shizuoka Univ.) and K. Nishiguchi (NTT)

14P-1-0 9:30-10:00Opening Remarks: S. Kasai (Hokkaido Univ.), Award Presentation: Y. Ono (Shizuoka Univ.) and S. Kasai (Hokkaido Univ.)
Local Announcement from Committee: T. Kozawa (Osaka Univ.)**14P-1-1 9:50**AI Based Self-Driving Vehicles and Its Relation with Nano Electronics (Plenary)
T. Nobe, Intel and Ngoya Univ., Japan

Coffee Break

14P-1-2 10:50EUV Lithography at Threshold of High-Volume Manufacturing and Beyond (Plenary)
A. Yen, ASML, USA**14P-1-3 11:30**Materials innovation and integration for new computing paradigms (Plenary)
K. Moselund, IBM Research Zurich, Switzerland**Lunch**

Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
14A-2: Symp. A: Nano-Metrology for Exploring the Limit I Chairs: T. Sato (Toshiba Memory) T. Azuma (EIDEC)	14B-2: Microsystem Technology and MEMS I Chairs: R. Takigawa (Kyushu Univ.) Y. Hasegawa (Hiroshima City Univ.)	14C-2: Nano-Tool Chairs: R. Kometani (Univ. of Tokyo) T. Hoshino (Hirosaki Univ.)	14D-2: Inorganic Nanomaterials I Chairs: T. Tsuchiya (NIMS) M. Suzuki (AIST)
14A-2-1 13:30 Thin Films and Nanoparticles Made from The Self-Assembly of Carbohydrates Block Copolymers (Invited) R. Borsali, Univ. of Grenoble Alpes, France	14B-2-1 13:30 Highly Sensitive Spintronic Strain-Gauge Sensor and Spin-MEMS Microphone (Invited) Y. Fujii, Y. Higashi, S. Kaji, K. Masunishi, A. Yuzawa, T. Nagata, K. Okamoto, S. Baba, T. Ono and M. Hara, Toshiba, Japan	14C-2-1 13:30 Application of Helium Ion Microscopy (HIM) to Nano-Electronics and bio-science (Invited) S. Ogawa, AIST, Japan	14D-2-1 13:30 Low-Temperature Formation of GeSn Nanodots by Tin Mediation H. Okamoto 1, K. Takita 1, K. Tsushima 1, T. Tawara 2, K. Tateno 2, G. Zhang 2, and H. Gotoh 2, 1 Hirosaki Univ. and 2 NTT, Japan
14A-2-2 14:00 CD SEM Metrology for the 5nm Technology Node and Beyond (Invited) G.F. Lorusso 1, N. Horiguchi 1, J. Bömmels 1, C.J. Wilson 1, G. Van den bosch 1, G.S. Kar 1, T. Ohashi 2, T. Sutani 3, R. Watanabe 3, Y. Takemasa 3, M. Ikota 3, 1 imec, Belgium, 2 Hitachi and 3 Hitachi High-Technologies, Japan	14B-2-2 14:00 A Study of Membrane Patterning and Sacrificial-Layer Removal Process for SiGe MEMS Enabling High-Sensitivity and Low-Power Inertial Sensors H. Tomizawa, T. Saito, A. Fujimoto, Y. Kurui and A. Kojima, Toshiba, Japan	14C-2-2 14:00 Damage-Free Nano Sampling Technique for Carbon Nanotube Characterization K. Beppu 1, A. Fukui 1, A. Takakura 2, T. Nishihara 2, Y. Miyauchi 3, K. Itami 2 and T. Namazu 1, 1 Aichi Inst. of Technol., 2 Nagoya Univ. and 3 Kyoto Univ., Japan	14D-2-2 13:50 Excited Spin Engineering of In _{0.5} Ga _{0.5} As Quantum Dots by an Adjacent Two-Dimensional In _{0.1} Ga _{0.9} As Quantum Well Potential S. Hiura 1, K. Takeishi 1, J. Takayama 1, T. Kiba 2 and A. Murayama 1, 1 Hokkaido Univ. and 2 Kitami Inst. of Technol., Japan
14A-2-3 14:30 Advanced CD-SEM Metrology for Novel Patterning Technologies (Invited) T. Kato, Hitachi High-Technologies, Japan	14B-2-3 14:20 Long-Term Mechanical Reliability of SiGe Film for MEMS Y. Matsuo 1, A. Uesugi 2, A. Fujimoto 3, T. Saito 3, H. Tomizawa 3 and T. Namazu 1, 1 Aichi Inst. of Technol., 2 Kobe Univ. and 3 Toshiba, Japan	14C-2-3 14:20 Temporal-Stop of Microtubule Movement by Electrical Stimulation on Virtual Cathode K. Hatazawa 1, H. Miyazako 2, R. Kawamura 3 and T. Hoshino 1,2, 1 Univ. of Hirosaki, 2 Univ. of Tokyo and 3 Saitama Univ., Japan	14D-2-3 14:10 Broadband Anti-Reflection Effect Based on Oblique Angle Deposition for InGaAsP/InGaAs Double Junction Solar Cells G. Oh, C.W. Ahn and E.K. Kim, Hanyang Univ., Korea
		14C-2-4 14:40 Removal of Surface Adsorbed Kinesin by Multi-Photon Laser Ablation and Reloading toward Arbitral Patterning of Microtubule Driving Track K. Meguriya, S. Kikuchi, N. Kobayashi, H.Y. Yoshikawa, S. Nakabayashi and R. Kawamura, Saitama Univ., Japan	14D-2-4 14:30 Solution-Processed All-Inorganic Silicon Nanocrystal Thin Film for Electronic Device Application S. Kano and M. Fujii, Kobe Univ., Japan
		14C-2-5 15:00 Development of Optomechanical Nanoresonators Elastically Coupled in Series for Q Factor Independent Wavelength Measurement K. Tanaka, S. Warisawa and R. Kometani, Univ. of Tokyo, Japan	

		14C-2-6 15:20 Development of 3D Formed Tactile Sensor by High Temperature Punch Creep Forming Technique K. Nimura, K. Osaka, T. Toyoda, A. Uesugi, K. Sugano and Y. Isono, Kobe Univ., Japan	
Author's Interview: none	Author's Interview: 16:35-16:45	Author's Interview: 15:40-15:50	Author's Interview: 16:45-16:55
Room P2 (Park Plaza BC (B2F))			
Coffee Break			
Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
14A-3: Symp. A: Nano-Metrology for Exploring the Limit II Chairs: T. Sato (Toshiba Memory) T. Azuma (EIDEC)	14B-3: Microsystem Technology and MEMS II Chairs: Y. Tomizawa (Toshiba) D. Yamane (Tokyo Inst. of Technol.)	14C-3: Nanodevices I Chairs: Y. Ishikawa (NAIST)	14D-3: Inorganic Nanomaterials II Chairs: T. Tsuchiya (NIMS) M. Suzuki (AIST)
14A-3-1 15:15 X-Ray Based Dimensional Metrology for The Semiconductor Industry (<i>Invited</i>) D.F. Sunday and J. Kline, NIST, USA	14B-3-1 14:55 Geometrical Compensation for Mode-Matching of (100) Silicon Ring Resonator for Vibratory Gyroscope Y. Shu, Y. Hirai, T. Tsuchiya and O. Tabata, Kyoto Univ., Japan	14C-3-1 16:05 Control of Heat and Charge Transport in Carbon-Nanotube-Based Thermoelectric Materials Using Bionanoparticles (<i>Invited</i>) M. Nakamura, NAIST, Japan	14D-3-1 15:05 Amorphous Transitional Metal Oxide Photocatalysts for Hydrogen Evolution Z.Y. Lin, C. Du, B. Yan and G.W. Yang, Sun Yat-sen Univ., China
14A-3-2 15:45 X-Ray Nanoscopic Phase Imaging with Grating Interferometry (<i>Invited</i>) A. Momose Tohoku University, Japan	14B-3-2 15:15 2D Fe-Based Metallic Glass Micromirror Driven by Electromagnetic Actuator C.-H. Ou 1, Y.-C. Lin 2, Y. Keikoin 3, T. Ono 2, M. Esashi 2 and Y.-C. Tsai 1, 1 Natl. Chung Hsing Univ., Taiwan, 2 Tohoku Univ. and 3 MEMS-CORE, Japan	14C-3-2 16:35 Anomalous Phonon Diffusion in Isotopically Disordered Armchair-Edge Graphene Nanoribbons N. Mori, T. Kamioka and G. Mil'nikov, Osaka Univ., Japan	14D-3-2 15:25 Investigation of Conducting Ni-Co Spinel Oxide Thin Film for Photoelectrochemical Cell Applications S.-Y. Tsa 1, K.-Z. Fung 1 and H.-C. Yang 2, 1 Natl. Cheng Kung Univ. and 2 Kun Shan Univ., Taiwan
14A-3-3 16:15 Development of EUV Phase Imaging Microscope for Mask-3D-Effect and Defect Evaluation (<i>Invited</i>) T. Harada, Univ. of Hyogo, Japan	14B-3-3 15:35 5 MHz p-n Diode Longitudinal Extensional Mode Resonator with High Efficiency K. Umeda, F. Miyazaki, H. Tanigawa, T. Furutsuka and K. Suzuki, Ritsumeikan Univ., Japan	14C-3-3 16:55 External Electric Field Induced Metal Insulator Transition in VO ₂ Thin Films for Critical Thermal Switching Device S. Jessadaluk 1,2, N. Khemasiri 1,2, P. Rattanawarinchai 1, S. Rahong 1,2, A. Rangkasikorn 1,2, N. Kayunkid 1,2, S. Wirunchit 1,2, A. Klamchuen 3 and J. Nukeaw 1,2, 1 King Mongkut Inst. of Technol. Ladkrabang, 2 Ministry of Education and 3 NANOTEC, Thailand	14D-3-3 15:45 Fabrication of Micro-Heater Integrated Pt Decorated ZnO Nanorods for MEMS Compatible High Performance Miniaturized Methane Gas Sensor V.V. Kondalkar, U.-H. Lim, Y.B. Lee and K. Lee, Ajou Univ., Korea
	14B-3-4 15:55 A Flexible Triboelectric Nanogenerator with Artificial Petal Surface G.-R. Chen, Y.-F. Huang, Y.-Y. Chen, C.-Y. Wu and Y.-C. Tsai, Natl. Chung Hsing Univ., Taiwan		14D-3-4 16:05 Enhancement on Densification and Crystallization of Conducting La _{0.7} Sr _{0.3} VO ₃ Perovskite Anode Derived from Hydrothermal Process C.-Y. Liu, S.-Y. Tsai, C.-T. Ni, K.-Z. Fung and C.-Y. Cho, Natl. Cheng Kung Univ., Taiwan
	14B-3-5 16:15 Development of Three Layered Tube Type Flow Sensor For Human Respiration Measurement Y. Mitsunari 1, S. Watanabe 1, Y. Hasegawa 1, M. Matsushima 2, T. Kawabe 2 and M. Shikida 1, 1 Hiroshima City Univ. and 2 Nagoya Univ., Japan		14D-3-5 16:25 Formation of Graphene-Like Films on Quartz and Si Substrates by Carbonization of Rigid-Chain Polyimide Langmuir-Blodgett Films V.V. Luchinin 1, S.I. Goloudina 1, V.M. Pasyuta 1, D.A. Kirilenko 2,3, A.N. Smirnov 2, G.A. Konoplev 1, V.V. Andrushkin 1, V.P. Sklizkova 4, I.V. Gofman 4, V.M. Svetlichnyi 4, V.V. Kudryavtsev 4, 1 St. Petersburg State Electrotechnical Univ., 2 Ioffe Inst., 3 ITMO Uni. and 3 Inst. of Macromolecular Compounds, RAS, Russia
Author's Interview: none	Author's Interview: 16:35-16:45	Author's Interview: 17:15-17:25	Author's Interview: 16:45-16:55
Room A (Park Plaza D (B2F)) and Room P2 (Park Plaza BC (B2F))			
17:35-19:00 Happy Hour			

Thursday, November 15

Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
15A-4: Resist and Directed Self-Assembly Chairs: T. Azuma (EIDEC) T. Nagai (JSR)	15B-4: Nanocarbons I Chairs: S. Okada (Univ. of Tsukuba) K. Yanagi (Tokyo Metropolitan Univ.)	15C-4: Nanodevices II Chairs: M. Seki (Univ. of Tokyo) Y. Ishikawa (NAIST)	15D-4: Microsystem Technology and MEMS III Chairs: Y. Tomizawa (Toshiba) T. Nakakubo (Canon)
15A-4-1 9:00 Defect Reduction Strategies for Directed Self-Assembly Process (Invited) H.S. Suh, imec, Belgium	15B-4-1 9:00 Energetics and Spin-State Tuning of Triangular h-BN Nanoflakes by an Electric Field M. Maruyama and S. Okada, Univ. of Tsukuba, Japan	15C-4-1 9:00 Study on Electrical Discrimination of 2D Random Nanostructures Embedded in a Si MOSFET K. Shimizu 1, Y. Ueba 2, M. Kitamura 2, Y. Ohyagi 2, M. Hoga 3, N. Tate 4, M. Naruse 5, T. Matsumoto 6 and S. Kasai 1, 1 Hokkaido Univ., 2 Dai Nipporn Printing, 3 Compass Two-One, 4 Kyushu Univ., 5 NICT and 6 Yokohama Natl. Univ., Japan	15D-4-1 9:00 Surface Activated Bonding of LiNbO ₃ and Si for Optical Microsystem (Invited) R. Takigawa, Kyushu Univ., Japan
15A-4-2 9:30 Effect of Molecular Shape on Buckling Instabilities of Smectic Lamellar Phases M. Sakamoto and I. Hanasaki, Tokyo Univ. of Agriculture and Technol., Japan	15B-4-2 9:20 Electrostatic Actuation of Cantilevered h-BN Sheet D. Yoshikawa, Y. Miyamoto, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan	15C-4-2 9:20 Novel Stacked Floating Fin Structure Gate-All-Around Field-Effect Transistor for Design and Power Optimization M. Kim 1,2, K. Lee 1, S. Kim 1, S. Kim 1, S. Kim 1,2, K.H. Cho 2, S. Kim 3 and B.-G. Park 1, 1 Seoul Natl. Univ., 2 Samsung Electronics Semiconductor R&D ctr. and 3 Ajou Univ., Korea	15D-4-2 9:30 Seamless Fabrication Technique for 3D Structures from Micro to Milli Scales by Using 3D Printer and Backside Exposure Method T. Tamura 1, K. Yamada 1 and T. Suzuki 1,2, 1 Gunma Univ. and 2 JST-PREST, Japan
15A-4-3 9:50 Absorption Mechanism of Metal Precursors in Resist Polymer for Improving Etch Resistance K. Asakawa, N. Sasao and S. Sugimura, Toshiba Memory, Japan	15B-4-3 9:40 Synthesis of Sulfur- And Phosphorous-Doped Graphene H. Omachi 1, Z. Syrgiannis 2, T. Inoue 1, S. Hatao 3, H. Shinohara 1, H. Yoshikawa 3, M. Prato 2, 1 Nagoya Univ., Japan, 2 Univ. di Trieste, Italy, 3 Kwansai Gakuin Univ., Japan	15C-4-3 9:40 Impact of Gate Oxide Densification Methods on P-Type Pi-Gate Poly-Si Junctionless Accumulation Mode (JAM) FinFETs D.-R. Hsieh, K.-C. Lin and T.-S. Chao, Natl. Chiao Tung Univ., Taiwan	15D-4-3 9:50 Fracture Strength of a Silicon Torsional Mirror Resonator Fully Coated with Submicrometer-Thick PECVD DLC Film W. Zhang, K. Obitani, Y. Hirai, T. Tsuchiya and O. Tabata, Kyoto Univ., Japan
15A-4-4 10:10 Improvement of Sensitivity of Chemically Amplified Resists by Adding Diphenyl Sulfone Derivatives S. Kawai 1, K. Okamoto 2, H. Yamamoto 3 and T. Kozawa 2, 1 Hokkaido Univ., 2 Osaka Univ. and 3 Quantum and Radiological Sci. and Technol., Japan	15B-4-4 10:00 Wearable Strain Sensor with Electrothermal Property Based on Reduced Graphene Oxide Modified Conductive Fabric D. Li 1, D. Wang 1 and Y. Fu 1,2, 1 Jiangnan Univ. and 2 Nantong Univ., China	15C-4-4 10:00 Charge Coupling between Polyoxometalate Molecule and a GaAs-Based Nanowire for Readout of Molecular Multiple Charge State K. Sasaki 1, S. Okamoto 1, S. Tashiro 2, T. Asai 1 and S. Kasai 1, 1 Hokkaido Univ. and 2 Univ. of Tokyo, Japan	15D-4-4 10:10 Micro-Fabricated Alkali Vapor Cells Sealed at Low Temperature Using asymmetric Au-in-Based Transient Liquid Phase (TLP) Bonding Y. Wang 1,2, Y. Wu 2, X. Xia 2, B. Zhang 2 and P. Jin 1, 1 Harbin Inst. of Technol. and 2 Chinese Academy of Sci., China
15A-4-5 10:30 Reaction Mechanism of Zr Metal Resist Y. Yamashita 1, T. Chikyow1 J. Santillan 2 and T. Itani 2, 1 NIMS and 2 EIDEC, Japan		15C-4-5 10:20 Shape Change Dynamics of Cu Filament in Double Layer CBRAM R. Ishikawa 1, A. Tsurumaki-Fukuchi 1, M. Arita 1, Y. Takahashi 1, M. Kudo 2 and S. Matsumura 2, 1 Hokkaido Univ. and 2 Kyushu Univ., Japan	
Author's Interview: 10:50-11:00	Author's Interview: 10:20-10:30	Author's Interview: 12:35-12:45	Author's Interview: 10:30-10:40
Room P2 (Park Plaza BC (B2F))			
Coffee Break			
Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
15A-5: Electron and Ion Beam Technologies Chairs: H. Yamashita (NuflareTechnol.) J. Yanagisawa (Univ. of Shiga Pref.)	15B-5: Inorganic Nanomaterials III Chairs: K. Tsukagoshi (NIMS) M. Osada (Nagoya Univ.)	15C-5: Nanodevices III Chairs: T. Yanagida (Kyushu Univ.) M. Seki (Univ. of Tokyo)	15D-5: Organic Nanomaterials I Chairs: A. Masuhara (Yamagata Univ.) R. Hayakawa (NIMS)
15A-5-1 11:10 Sources of Resist Surface Charging in Electron Beam Lithography (Invited) N. Nakayamada, H. Nomura and T. Kamikubo, NuFlare Technol., Japan	15B-5-1 10:45 Heterojunction Based on Atomically Thin Semiconductor and Its Application (Invited) K. Tsukagoshi, NIMS, Japan	15C-5-1 10:55 Selective ZnO Deposition on Polysilicon Nanobelt Device via Atomic Layer Deposition and Device-Localized Joule Heating for H ₂ Sensing Y.-S. Lin and J.-T. Sheu, Natl. Chiao Tung Univ., Taiwan	15D-5-1 10:55 Composite Nanomaterial Semiconductor Inks for High Performance Printed Transistors and Near Infrared Photodectors (Invited) Y.-Y. Noh, Dongguk Univ., Korea

15A-5-2 11:40 Experimental Demonstration of Large Depth of Focus Using Annular Illumination Scanning Electron Microscope M. Kimura 1, M. Enyama 1, K. Hamada 1, H. Kazumi 2 and K. Kurosawa 2, 1 Hitachi and 2 Hitachi High-Technol., Japan	15B-5-2 11:15 Controlled Synthesis and Transport Properties of 2D Oxide Nanosheets Y. Shi 1, M. Osada 1,2, T. Sasaki 2, 1 Nagoya Univ. and 2 NIMS, Japan	15C-5-2 11:15 Super-Nernstian pH Sensors Based on Hydrothermally Grown NiO Nanosheets with Sputtered WO ₃ Nanoparticles C.-Y. Kuo, S.-J. Wang, R.-M. Ko and S.-Y. Wang, Natl. Cheng Kung Univ., Taiwan	15D-5-2 11:25 Coordination Polymers Boost Nano- and Micro-Fabrication (Invited) K. Hirai, Hokkaido Univ., Japan
15A-5-3 12:00 A Novel Ion Beam Generator Using a Micromachined Si Emitter with an Integrated Ionic Liquid Flow Control Structure N. Van Chinh, L. Van Minh, T. Ono and H. Kuwano, Tohoku Univ., Japan	15B-5-3 11:35 Integration of Functional Oxide Nanosheets for Solution-Processed Ultra-Thin Electromagnetic Shielding T. Taniguchi, S. Li, H. Takehira, M. Osada, NIMS, Japan	15C-5-3 11:35 Modification of Photoanode by Means of Localized Surface Plasmon Resonance from Au-NPs Decorated on ZnO-NRs for Photoelectrochemical Applications N. Khemasiri 1,2, N. Soyeux 3, P. Rattanawarinchai 1, S. Jessadaluks 1, A. Klamchuen 4, A. Rengkasikorn 1, 2, S. Wirunchit 1,2, S. Rahong 1,2, N. Kayunkid 1,2 and J. Nukeaw 1,2, 1 King Mongkut Inst. of Technol. Ladkrabang, 2 Ministry of Education, 3 Univ. of Burgundy and 4 Natl. Sci. Technol. Develop. Agency, Thailand	15D-5-3 11:55 Organic Anti-Ambipolar Transistor for Multivalued Logic Circuit K. Kobashi 1,2, R. Hayakawa 1, T. Chikyow 1 and Y. Wakayama 1,2, 1 NIMS and 2 Kyushu Univ., Japan
15A-5-4 12:20 Characterization of Proximity Effects in Helium Ion Beam Lithography by Direct Monte Carlo Simulation and Resist Calibration C.-L. Lee, S.-W. Chien, K.-Y. Tsai, Natl. Taiwan Univ., Taiwan	15B-5-4 11:55 Atomic Layer Engineering of 2D Perovskite Nanosheets M. Osada 1,2 and T. Sasaki 2, 1 Nagoya Univ. and 2 NIMS, Japan	15C-5-4 11:55 High Resonsivity of Solar-Blind Photodetectors Based on an Exfoliated β -Ga ₂ O ₃ Flakes S. Oh and J. Kim, Korea Univ., Korea	
		15C-5-5 12:15 Nano-Junction Effect on Electroluminescence Colors of <i>n</i> -ZnO Wire or Disk Arrays/ <i>p</i> -GaN Film Heterojunction Light-Emitting Diodes J. Jeong and Y.J. Hong, Sejong Univ., Korea	
Author's Interview: 12:40-12:50	Author's Interview: 12:05-12:15	Author's Interview: 12:35-12:45	Author's Interview: 12:15-12:25
Lunch			
Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
15A-6: Photolithography and Patterning Chairs: T. Uchiyama (Toshiba Memory) T. Harada (Univ. of Hyogo)	15B-6: Inorganic Nanomaterials IV Chairs: K. Tsukagoshi (NIMS) M. Osada (Nagoya Univ.)	15C-6: Symp. C: Thermal and Electronic Properties of Nanoscale Interfaces Chairs: S. Okada (Univ. of Tsukuba) K. Yanagi (Tokyo Metropolitan Univ.)	15D-6: Organic Nanomaterials II Chairs: A. Masuhara (Yamagata Univ.) R. Hayakawa (NIMS)
15A-6-1 14:10 EUV Material Challenges and Solutions (Invited) G. Vandenberghe, imec, Belgium	15B-6-1 13:50 Room Temperature coating of Ceramic Film by Aerosol Deposition (Invited) J. Akedo, AIST, Japan	15C-6-1 13:40 Thermal and Thermoelectric Transport in Metal-Coordinated Polymers: Towards Flexible Devices (Invited) S.K. Yee, Georgia Inst. of Technol., USA	15D-6-1 13:40 Quaternized Polysulfone/N,N-dimethyl Chitosan Based Anion Conducting Membrane for Fuel Cell Applications C.Y. Kim, G. Das, N.P.K. Thinh, B.H. Kim and H.H. Yoon, Gachon Univ., Korea
15A-6-2 14:40 (Invited) H. Kawada, Hitachi High-Technologies, Japan	15B-6-2 14:20 Solution-Processed 2D Organic Crystals for Transistor Applications (Invited) Y. Li, Nanjing Univ., China	15C-6-2 14:10 Study of the Thermal Properties of Nanoscale Interface with High Temporal Resolution (Invited) W. Ma, C. Dong and X. Zhang, Tsinghua Univ. China	15D-6-2 14:00 Fabrication of Polymer pn Homo-Junction Diodes by Spray Deposition S. Sakiyama, T. Komura, N. Mizutani and K. Fujita, Kyushu Univ., Japan
15A-6-3 15:20 Fabrication Challenge: Standard Sample with Programmed Defect for Evaluation of beyond-7 nm-Node Pattern Inspection Tool S. Iida and T. Uchiyama, EIDEC, Japan	15B-6-3 14:50 Conductivity Modulation in SrVO ₃ -Based All-Solid-State Redox Transistor with Ion Transport of Li ⁺ or H ⁺ M. Takayanagi 1,2, T. Tsuchiya 2, W. Namiki 1,2, Y. Kitagawa 1,2, T. Higuchi 1 and K. Terabe 2, 1 Tohoku Univ. and 2 NIMS, Japan	15C-6-3 14:40 Measurements of Charge, Heat and Spin Transport in Organic Semiconductors (Invited) D. Venkateshvaran, Univ. of Cambridge, UK	15D-6-3 14:20 Room-Temperature Printing Techniques for Fabricating Organic Electronics X. Liu 1, 2, M. Kanehara 2 and M. Takeo 2, 1 Zhengzhou Univ., China and 2 NIMS, Japan

	15B-6-4 15:10 Photoelectron Spectroscopic Study on Electronic State and Surface Structure of in-Situ Cleaved In ₂ O ₃ (111) Single Crystal T. Nagata 1, O. Bierwagen 2, Z. Galazka 3, M. Imura 1, S. Ueda 1, Y. Yamashita 1 and T. Chiyow 1, 1 NIMS, Japan, 2 Paul-Drude-Institut für Festkörperelektronik, 3 Leibniz Inst. for Crystal Growth, Germany	15C-6-4 15:10 Tuning of the Thermoelectric Properties of High-Purity Single-Chirality Single-Walled Carbon Nanotubes by Electrolyte Gating Y. Ichinose, A. Yoshida, K. Fukuhara, J. Eda, H. Okubo, Y. Yomogida and K. Yanagi, Tokyo Metropolitan Univ., Japan	
		15C-6-5 15:30 Thermal Conductivity Measurement of a Suspended Single-Walled Carbon Nanotube by Photoluminescence Spectroscopy S. Chiashi 1,2, K. Yoshino 2, T. Kato 2, Y. Saito 2, J. Shitaba 2, T. Hanashima 2, K. Nagano 2 and Y. Homma 2, 1 Univ. of Tokyo and 2 Tokyo Univ. of Sci., Japan	
Author's Interview: 15:40-15:50	Author's Interview: 15:30-15:40	Author's Interview: 15:50-16:00	Author's Interview: 14:40-14:50
Room P (Park Plaza BC (B2F))			
Coffee Break			
Room P2 (Park Plaza BC (B2F))			
15P-7: Poster Session I (16:00-18:00, Nov. 15)			
Photolithography and Patterning		Chair: A. Yamaguchi (Hitachi)	
15P-7-1 Fabrication of High-Aspect-Ratio Transmission Grating Using Dry Development Process for 10-nm EUV Resist Evaluation by EUV Interference Lithography M. Yoshifuji, S. Niihara, T. Harada, and T. Watanabe Univ. of Hyogo, Japan	15P-7-2 Application of Projection Exposure Using a Gradient Index Lens Array and Wet Etching to Texturing and Hydrophobic-Property Control of Stainless-Steel Plates T. Horiuchi, Y. Kazama, H. Yoshida, A. Yanagida and H. Kobayashi, Tokyo Denki Univ., Japan	15P-7-3 Development and Its Application of One-Step Fabrication Process for Multi-Angled Micro-Structure via Synchrotron X-ray Lithography K. Kim, K. Park, G. Lim and J.H. Kim, POSTECH, Korea	
Electron and Ion Beam Technologies		Chair: J. Yamamoto (Hitachi)	
15P-7-4 Periodic Diamond Pattern Formation on Resist by Simple Orthogonally-Crossed Two Line-Scans of the Electron Beam K. Okada, T. Hioki, M. Ichimiya and J. Yanagisawa, Univ. of Shiga Pref., Japan	15P-7-5 Three-Dimensional Trajectory Simulation of Fogging Electrons in Scanning Electron Microscope Y. Ito, T. Donga, K. Morimoto and M. Kotera, Osaka Inst. of Technol., Japan	15P-7-6 Energy Analysis of Fogging Electrons by The Same Electric Field H. Mizuno, S. Nisimura, K. Kubo and M. Kotera, Osaka Inst. of Technol., Japan	15P-7-7 Energy Analysis of Fogging Electrons in Scanning Electron Microscope K. Morimoto, T. Donga, Y. Ito and M. Kotera, Osaka Inst. of Technol., Japan
15P-7-8 60 keV Ar Ion Irradiation Effect on Ge(110) Surfaces R. Tsukamoto 1, M. Ichimiya 1, K. Takamiya 2, A. Kinomura 2 and J. Yanagisawa 1, 1 Univ. of Shiga Pref. and 2 Kyoto Univ., Japan			
Resist and Directed Self-Assembly		Chair: H. Oizumi (Gigaphoton) and S. Nagahara (Tokyo Electron)	
15P-7-9 Refractive Index Tunable Metamaterial Fabrication by Block Copolymer Self-Assembly K.H. Han, J.Y. Kim, J. Shin and S.O. Kim, KAIST, Korea	15P-7-10 Rapid Self-Assembly of Large Area, Sub-10 nm Nanopattern with High Flory-Huggins Interaction Parameter Block Copolymer by Flash Light J.H. Kim, H.M. Jin, D.y. Park, K.J. Lee and S.O. Kim, KAIST, Korea	15P-7-11 Laser Writing Block Copolymer Self-Assembly on the Chemically Modified Graphene Light Absorbing Layer G.G. Yang, H.M. Jin and S.O. Kim, KAIST, Korea	15P-7-12 Au and Ag Nanoparticles Dual-Coated Calcium Alginate Fibers with Uniform Single-Layered Structure Fabricated by Molecule-Directed Self-Assembly L. Dong 1, X. Li 2, L. Yao 1, S. Xu 1, S. Xu 1 and G. Zhang 1, 1 Nantong Univ., China and 2 Shinshu Univ., Japan
15P-7-13 The Revolution of Machine Learning to Accelerate The Development of Nanotechnologies is Becoming a Reality A. Derville, G. Gey, J. Baderot, S. Martinez, G. Bernard, J. Foucher, POLLEN Metrology, France			

Nanocarbons		Chairs: S. Chiashi (Univ. of Tokyo)	
15P-7-14 Synthesis of S Doped g-C ₃ N ₄ Pinhole Nanosheet for Selectively Detection of Silver Ion A.N. Kadam, W.S. Jung, S.H. Park and S.W. Lee, Gachon Univ., Korea	15P-7-15 Geometric and Electronic Structures of Two-Dimensionally Polymerized Triptycene Y. Fujii, M. Maruyama and S. Okada, Univ. of Tsukuba, Japan	15P-7-16 Hydrogen Boride Sheets Showing Catalytic Activity As Solid Acid Catalyst A. Fujino 1, H. Nisino 1, R. Ishibiki 1, S. Ito 2, T. Fujitani 1,3, J. Nakamura 1, H. Hosono 2, T. Kondo 1,2, 1 Univ. of Tsukuba, 2 Tokyo Inst. of Technol. and 3 AIST, Japan	15P-7-17 Composite of Nanocellulose with SnO ₂ As Electrode Materials Q.N. Tran, I.T. Kim, J. Hur, C.W. Bark, H.W. Choi and S.J. Park, Gachon Univ., Korea
15P-7-18 Mechanism of Oxygen Reduction Reaction Studied with Model Catalysts of Pyridinic-N Containing Molecules on HOPG T. Akimitsu, R. Shibuya, K. Takeyasu, T. Kondo and J. Nakamura, Univ. of Tsukuba, Japan	15P-7-19 Temperature Dependence of Catalytic Activity in Graphitization for Sn Nanoparticles M.I. Araby, S. Sharma, S. Elnobi, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	15P-7-20 Theoretical Study on Adsorption/Desorption of Hydrogen Molecule to the Surface of Graphene Nanoflakes H. Kawabata and H. Tachikawa, Hokkaido Univ., Japan	15P-7-21 Improvement of Power Generating Ability of "Thermoelectric Power Generating Threads" Using Carbon-Nanotube-Composite Threads R. Arakaki and T. Oya, Yokohama Natl. Univ., Japan
15P-7-22 Facile Process for Additive-Free Electrode Fabrication with Reduce Graphene Oxide by High-Kinetic Spray for Flexible Lithium Ion Battery Anodes S.D. Kim 1, J.-G. Lee 2, T.-G. Kim 2, K. Rana 3, J.Y. Jeong 1, J.H. Park 1, S.S. Yoon 2 and J.-H. Ahn 1, 1 Yonsei Univ., 2 Korea Univ., Korea and 3 Ctr Power Res. Inst., India	15P-7-23 Evaluation of MoS ₂ Film Fabricated by DC Bias Sputtering Method with Raman Spectroscopy Y. Oyanagi 1, S. Ishihara 1,3, Y. Hibino 1,3, N. Sawamoto 1, T. Ohashi 2, K. Matsuura 2, H. Wakabayashi 2 and A. Ogura 1, 1 Meiji Univ., 2 Tokyo Inst. of Technol. and 3 JSPS, Japan	15P-7-24 Structural and Electrical Properties of Graphene-Polymer Composites Observed under Transmission Electron Microscope N.F. Hasmuni, I. Sudin, M. Aziz, A.Z.A. Kadir and M.Z.M. Yusop, Univ. Teknologi Malaysia, Malaysia	15P-7-25 Direct Electroluminescence Imaging of Polycrystalline Monolayer Transition Metal Dichalcogenide Light-Emitting Devices H. Matsuoka 1, T. Juliette 1, L.-J. Li 2, T. Sakanoue 1, J. Pu 1 and T. Takenobu 1, 1 Nagoya Univ., Japan and 2 KAUST, Saudi Arabia
15P-7-26 Electrical and Transport Properties of Single Hybrid Graphite-Diamond Nanowire Grown via a Wet Chemical Route L.-C. Li and K.W. Sun, Natl. Chiao Tung Univ., Taiwan			
Nanodevices		Chair: S. Hara (Hokkaido Univ.)	
15P-7-27 Ultra-Low Leakage Technology for Sub 10nm FinFET and GAAFET by Optimized Anti Punch-Through Implantation S. Kim 1,2, S. Kim 1,2, K. Lee 1, S. Kim 1, S. Kim 1, S. Kim 1,2, K.H. Cho 2, S. Kim 3 and B.-G. Park 1, 1 Seoul Natl. Univ., 2 Samsung Electronics and 3 Ajou Univ., Korea	15P-7-28 Investigation of SOI-CMOS Integrated Thermocouple and Heater for Antenna-Coupled Bolometer D. Elamaran, H. Satoh, N. Hiromoto and H. Inokawa, Shizuoka Univ., Japan	15P-7-29 Exploring 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	15P-7-30 Self-Consistent Simulations of Transport Characteristics in-Plane MoS ₂ /WS ₂ Heterojunction Tunnel Transistors T. Kuroda, F. Hashimoto and N. Mori, Osaka Univ., Japan
15P-7-31 Double-Gate Single-Electron Transistor Characteristics of Single-Layer Fe-MgF ₂ Granular Films T. Gyakushi, Y. Asai, A. Tsurumaki-Fukuchi, M. Arita and Y. Takahashi, Hokkaido Univ., Japan	15P-7-32 Fabrication and Evaluation of Multi Layered Nanoparticles Embedded V-Grooved Junctionless-FET T. Ban 1, M. Uenuma 2, S. Migita 3, I. Yamasita 2, Y. Uraoka 2 and S. Yamamoto 1, 1 Ryukoku Univ., 2 NAIST and 2 AIST, Japan	15P-7-33 Nonequilibrium Green Function Simulation of Coupled Electron-Phonon Transport in One-Dimensional Nanostructure Y. Kajiwara and N. Mori, Osaka Univ., Japan	15P-7-34 Green Nano-Second Laser Annealing for S/D Dopants Activation in n-Channel Polycrystalline-Germanium Thin-Film Transistors via Continuous Wave Laser Crystallization Y.-S. Li, H.-H. Liang, C.-Y. Wu and H.-C. Cheng, Natl. Chiao Tung Univ., Taiwan
15P-7-35 A Stand-Alone Synaptic Transistor Embedding SiGe Quantum Well And Charge-Trap Layer with Capabilities of Short- and Long-Term Potentiation in The Biological System E. Yu 1, S. Cho 1, and B.-G. Park 2, 1 Gachon Univ. and 2 Seoul Natl. Univ., Korea	15P-7-36 Sub-Bandgap Photodetection from Plasmonic Titanium Nitride and Germanium Heterostructure S.L. Shinde 1, S. Ishii 1 and T. Nagao 1,2, 1 NIMS and 2 Hokkaido Univ., Japan	15P-7-37 Fabrication and Evaluation of TiN-Ag Nano Cone Array toward Localized Surface Plasmon Resonance-Based Optical Sensor Applications D. Kawasaki 1, H. Yamada 1, K. Maeno 1, K. Sueyoshi 1, H. Hisamoto 1 and T. Endo 1,2, 1 Osaka Pref. Univ. and 2 JST-PRESTO, Japan	15P-7-38 ZnO Nanowire Functionalized Gold Nanoparticles Electrochemical Electrodes for Label-Free Glucose Detection P. Rattanawarinchai 1, N. Khemasiri 1,2, N. Soyueux 3, S. Jessadulak 1, A. Klanhuen 4, S. Wirunchit 1,2, A. Rengasikorn 1,2, N. Kayunkid 1,2, D. Phromyothin 1, S. Rahong 1,2 and J. Nukeaw 1,2, 1 King Mongkut Inst. of Technol. Ladkrabang, 2 Ministry of Education, Thailand, 3 Univ. of Burgundy, France and 4 Natl. Sci. Technol. Develop. Agency, Thailand
15P-7-39 Carbon Nanotube Sheet-Based Gas Sensor to Detect Carbon Monoxide Gas Molecules J.Y. Lee 1,2, J.K. Kim 1,2, S.H. Kong 1 and D. Jung 2, 1 Kyungpook Natl. Univ. and 2 KITECH, Korea	15P-7-40 Carbon-Based Conductive Fiber with Elastic Micro-Beads for Highly Sensitive Strain Sensors S. Jang, J. Lee and C. Pang, Sungkyunkwan Univ., Korea	15P-7-41 Fabrication and Characterization of Perovskite Solar Cells with ZnGa ₂ O ₄ Mixed TiO ₂ Photoelectrode H. Lee, C.w. Bark and H.W. Choi, Gachon Univ., Korea	15P-7-42 Fabrication and Performance Evaluation of Enzyme-Type Biofuel Cell Using Electrode Modified with Two Det-Type Enzymes by Covalent Bonding H. Fujita, Y. Nishioka and S. Imai, Nihon Univ., Japan

Nanofabrication		Chair: Y. Liu (AIST)	
15P-7-43 Threshold Switching of NbOx Device Prepared by DC Reactive Sputtering R. Nakajima, A. Azuma, T. Shimizu, T. Ito and S. Shingubara, Kansai Univ., Japan	15P-7-44 Preparation of Ion-Track Nanopores with Different Profiles: Precise Control of Depth-Energy Deposition Distribution Y. Sato 1, H. Koshikawa 2, S. Yamamoto 2, M. Sugimoto 2, S. Sawada 2 and T. Yamaki 1,2, 1 Gunma Univ. and 2 Quantum and Radiological Sci. and Technol., Japan		
Inorganic Nanomaterials		Chair: J. Kano (Okayama Univ.)	
15P-7-45 Enhanced Leakage Current Properties for C-Axis Preferred Bismuth Titanate Ceramic Films Prepared by Aerosol Deposition Method M. Suzuki, T. Tsuchiya and J. Akedo, AIST, Japan	15P-7-46 Nickel Nanoparticles Supported on MIL-101 as a Potential Catalyst for Urea Electro-Oxidation H.S. Gil, N.T.Q. Tran, D.T. Nhat and H.H. Yoon, Gachon Univ., Korea	15P-7-47 Self-Aligned Oxide Thin Film Transistors Using Metal Masking on Gas Treatment S.H. Jung, C.H. Ahn and H.K. Cho, Sungkyunkwan Univ., Korea	15P-7-48 TiO ₂ -Intercalated Graphene Oxides with Highly Efficient Photocatalytic Degradation for Methylene Blue S. Xu 1, L. Dong 1, S. Xu 1, G. Zhang ¹ and C. Zhu 1, 1 Nantong Univ., China and 2 Shinshu Univ., Japan
15P-7-49 Preparation of Mesoporous Thin Films by Using Cobalt/Chitosan on Fluorine-Doped tin Oxide Glass H.-C. Yang 1 and J.-C. Tsai 2, 1 Kun Shan Univ. and 2 TSMC, Taiwan	15P-7-50 Improvement of Crystallinity of ZnO with Inserting Multi-buffer Layer by RF Magnetron Sputtering A. Mori 1, C. Takada 1, S. Guan 1, S. Komuro 2 and X. Zhao 1, 1 Tokyo Univ. of Sci. and 2 Toyo Univ., Japan	15P-7-51 Optical Study on Thermal Activation Processes of Carrier Dynamics in In _{0.3} Ga _{0.7} N Nanodisks Y. Chen 1, T. Kiba 2, J. Takayama 1, A. Higo 3, T. Tanikawa 3, S. Samukawa 3 and A. Murayama 1, 1 Hokkaido Univ., 2 Kitami Inst. of Technol. and 3 Tohoku Univ., Japan	15P-7-52 Modal Gain at Excited States in High-Density InGaAs Quantum Dots Investigated by Variable Stripe Length Method A. Ohtake, S. Hiura, A. Washida, J. Takayama and A. Murayama, Hokkaido Univ., Japan
15P-7-53 Temperature-Persistent High Spin Polarization and Its Dynamics in InGaAs Quantum Dots Embedded in a GaAs Quantum Well M. Takishita, S. Hiura, J. Takayama and A. Murayama, Hokkaido Univ., Japan	15P-7-54 The Effect of Yttrium Addition on the Microstructures and Electrical Properties of Cu-Mn Alloy Thin Film Y.-T. Lee and Y.-C. Lee, Natl. Pingtung Univ. of Sci. & Technol., Taiwan	15P-7-55 Synthesis and Characterization of Iron-Doped Chalcogenide Spinel Nanoparticles C.-L. Pan, A. Spivakov, B.-Y. Chen, Y.-C. Chang, H.-S. Hsu, Y.-T. Tseng and C.-R. Lin, Natl. Pingtung Univ., Taiwan	15P-7-56 Spectroscopic Studies of Well-Dispersed Magnetite Nanoparticles Synthesized under Atmospheric Pressure Y.-C. Chang, A. Spivakov, C.-L. Pan, B.-Y. Chen, H.-S. Hsu, Y.-T. Tseng and C.-R. Lin, Natl. Pingtung Univ., Taiwan
15P-7-57 MCD Peak Shift of Mn-Ga Co-Doped ZnO Thin Films Fabricated by RF Magnetron Sputtering Y. Tamamoto, M. Yamanobe and X. Zhao, Tokyo Univ. of Sci., Japan	15P-7-58 Characteristics of Calcium, Strontium and Vanadium Doped TiO ₂ Nanoparticles by Solid-State Reaction Method for Perovskite Solar Cells H.V. Quy, D.H. Truyen, H. Rui, M. Kim, S. Kim and C.W. Bark, Gachon Univ., Korea	15P-7-59 Facile Synthesis of Cubic Hematite (α -Fe ₂ O ₃) with Nanosized Gold Deposition and Its Enhanced Photocatalytic Activity W.S. Jung, S.H. Park, A.N. Kadam and S.W. Lee, Gachon Univ., Korea	15P-7-60 Properties of SrMnO ₃ Films Grown on the SrTiO ₃ Substrate by Rf Sputtering with off-Axis Angle H. Rui, S.M. Kim, D.H. Truyen, H.V. Quy, N.T. Nguyen, T. Rui and C.W. Bark, Gachon Univ., Korea
15P-7-61 Magnetic Behavior of FeO@Carbon Core-shell Nanoparticles Prepared by Thermal Pyrolysis B.-Y. Chen, C.-L. Pan, Y.-C. Chang, Y.-T. Tseng and C.-R. Lin, Natl. Pingtung Univ., Taiwan			
Organic Nanomaterials		Chair: A. Masuhara (Yamagata Univ.)	
15P-7-62 Equilibrium Studies of the Adsorption of Copper Ion onto Nanobiomaterials H.-C. Yang and H.-H. Chou, Kun Shan Univ., Taiwan	15P-7-63 Silver Nanoparticles@Dendron-Exfoliated Reduced Graphene Oxide Nanohybrids for Surface-Enhanced Raman Scattering (SERS) Detection Y.-W. Cheng 1, C.-H. Wu 1, W.-T. Chen 2, T.-Y. Liu 2 and R.-J. Jeng 1, 1 Natl. Taiwan Univ. and 2 Ming Chi Univ. of Technol., Taiwan	15P-7-64 Anion Exchange Membranes Based on Poly(phenylene oxide)/Cellulose Composites D.H. Kang, G.Das and H.H. Yoon, Gachon Univ., Korea	15P-7-65 Properties of Water-Gated Organic Field-Effect Transistors Depending on Surface Morphology, Electrode Metals and Lipid Membrane T.R. Nguy 1,2, R. Hayakawa 1, V. Clinic 3, M. Petit 3, J.M. Raimundo 3, A. Charrier 3 and Y. Wakayama 1,2, 1 NIMS, 2 Kyushu Univ., Japan and 3 CNRS, France
15P-7-66 Transport Studied of Perovskites by 1/f Noise and Piezoelectric Photothermal Spectroscopy K. Lin, A*STAR, Singapore	15P-7-67 Ion Conducting Hybride Electrolyte Using Functionalized Silica Particle for Li-Ion Battery B.M. Jung 1, U.H. Choi 2 and S.-B. Lee 1, 1 Korea Inst. of Materials Sci. and Pukyong Natl. Univ., Korea	15P-7-68 Observation of Ambipolar Carrier Transport in Diarylethene-Photochromic-Channel Transistors Y. Kurokawa 1,2, R. Hayakawa 1, S. Shimada 3, K. Higashiguchi 3, Y. Noguchi 2, K. Matsuda 3 and Y. Wakayama 1, 1 NIMS, 2 Meiji Univ. and 3 Kyoto Univ., Japan	15P-7-69 Fabricating Novel Carbon Electrode Membrane by RAFT Polymerization Method for PEFC T. Nohara 1, S. Keiji 1, Y. Takahashi 1, S. Sekine ¹ , T. Arita 2, A. Masuhara 1, 1 Yamagata Univ. and 2 Tohoku Univ., Japan

15P-7-70 Performance Research of Polypropylene Fibers Treated by Nano Titanium Dioxide(Nano-TiO ₂) Anti-Ultraviolet Finishing M. Zhu, S. Li and C. Zang, Nantong Univ., China	15P-7-71 Nanometer-Scale Observation of Dielectric Breakdown Path in Insulating Epoxy Resin by Using Micro-Gap Electrode Device R. Sankawa 1, T. Onishi 1, K. Takahashi 1, M. Tomita 1, T. Nakamura 2, K. Mura 2, T. Yoshimitsu 2, and T. Watanabe 1. 1 Waseda Univ. and 2 Toshiba Mitsubishi-Electric Industrial Systems, Japan	15P-7-72 Molecular Design of High-Performance π -Stacking Materials Caused by Hole Capture R. Iura and H. Tachikawa, Hokkaido Univ., Japan	15P-7-73 Significant Improvement of The Thermoelectric Properties of Pedot:Pss by The Synergetic Effect of Nitric Acid and the Pressure of N ₂ Gas M.T.Z. Myint 1, A.K.K. Kyaw 2, T. Yoshiyama 1, H. Inoue 1, T. Nishikawa 1, M. Hada 1 and Y. Hayashi 1, 1 Okayama Univ., Japan and 2 Southern Univ. of Sci. and Technol., China
15P-7-74 Controlling The Orientation of Metal-Organic Framework Crystals on Si wafer by The Carboxylic Acid Treatment on Surface C. Lee, S. Shin, C.J. Park, M. Kim and M.W. Shin, Yonsei Univ., Korea			
NanoTool		Chair: K. Sugano (Kobe Univ.)	
15P-7-75 Graphene Device Modification by Using Helium Ion Beam M.E. Schmidt 1, M. Haque 1, S. Kubo 1, M. Muruganathan 1, S. Ogawa 2 and H. Mizuta 1,3, 1 JAIST, 2 AIST, Japan and 3 Hitachi Europe, UK	15P-7-76 Structural Analysis of Germanene on Al(111) by Ion Scattering Spectroscopy S. Kinoshita, O. Kubo, H. Kagitani, R. Sugahara, H. Tabata and M. Katayama, Osaka Univ., Japan	15P-7-77 Real-Space Characterization of Reactivity towards Hydrogen Atoms at Sb ₂ Te ₃ (111) Surface S.H. Su 1 and J.C.A. Huang 1,2, 1 Natl. Cheng Kung Univ. and 2 Ministry of Sci. and Technol., Taiwan	15P-7-78 Interaction between Eddy Currents Induced by Oscillating Magnetic Moment in Magnetic-Force Microscopy F. Wakaya and K. Oosawa, Osaka Univ., Japan
15P-7-79 Development of Multiple-Probe AFM Combined with SEM for Investigation of Neuromorphic Nanowire Network System Y. Shingaya 1, R. Higuchi 1, M. Li 1, Q. Li 1,2 and T. Nakayama 1,2, 1 NIMS and 2 Univ. of Tsukuba, Japan	15P-7-80 Delivery of External Substance into Mouse Myoblast by Femtosecond Laser Induced Microbubbles R. Yasukuni 1, A. Koyanagi 1, G. Moran 2, K. Okano 1, S. Yamada 1, R. Meallet-Renault 2 and Y. Hosokawa 1, 1 NAIST and 2 Univ. d'Orsay Paris-Sud, France	15P-7-81 Introduction of Megadalton Molecules into Tobacco BY-2 Cells by Femtosecond Laser Photoporation T.I. Rukmana 1, S. Yamada 1, K. Okano 1 and M. Ohtani 1, G. Moran 2, T. Demura 1, R. Yasukuni 1 and Y. Hosokawa 1, 1 NAIST, Japan and 2 Univ. d'Orsay Paris-Sud, France	15P-7-82 Porous Silicon Chips Grafted with Flexible Styrenic Fragment for the Sensitive Detection of Volatile Organic Compounds V.-T. Vo, T.-A. Nguyen and S.-W. Lee, Gachon Univ., Korea
15P-7-83 Nonlinear Response of Oxygen Adsorption on ZnO Nanorods: the Development of Room Temperature Gas Sensor F.-M. Chang, S. Brahma, C.-W. Yang, C.-H. Wu, T.-J. Wu, C.-S. Huang and K.-Y. Lo, Natl. Cheng Kung Univ., Taiwan	15P-7-84 Surface-Enhanced Raman Spectroscopy of DNA Bases Using Gold Nanoparticle Dimer Array K. Maruoka, K. Ikegami, A. Uesugi, K. Sugano and Y. Isono, Kobe Univ., Japan	15P-7-85 Wavelength Detection by Optomechanical Resonator with Spiral Bull's Eye Antenna K. Penekwong 1, S. Warisawa 1, T. Sugaya 2, S. Hashimoto 2, Y. Kawano 2 and R. Kometani 1, 1 Univ. of Tokyo and 2 Tokyo Inst. of Technol., Japan	15P-7-86 Fabrication of Movable MIM Metamaterial with Air Gap Structures S. Sekiguchi, Y. Kanamori and K. Hane, Tohoku Univ., Japan
Microsystem Technology and MEMS		Chairs: Y. Tomizawa (Toshiba) and R. Takigawa (Kyushu Univ.)	
15P-7-87 Enhancing the Current state of Aluminum Nitride Contour-Mode Resonators by Minimizing the Damping and Optimizing the Bottom Electrode Design S.I. Jung, C. Ryu and H.J. Kim, DGIST, Korea	15P-7-88 Influence of Porosity on Tensile Mechanical Properties of Sintered Porous Silver Films K. Wakamoto 1, Y. Mochizuki 2, T. Otsuka 1, K. Nakahara 1 and T. Namazu 2, 1 ROHM and 2 Aichi Inst. of Technol., Japan	15P-7-89 Time-Resolved X-ray Diffraction Measurement during Exothermic Reaction of Al/Ni Multilayer Powder by synchrotron Radiation with High-Speed Two-Dimensional Detector S. Miyake, R. Yamamoto 1, S. Kanetsuki 2, T. Namazu 2 and T. Koganezawa 3, 1 Kobe City College of Technol., 2 Aichi Inst. of Technol. and 3 Japan Synchrotron Radiation Res. Inst., Japan	15P-7-90 Micro-Machined Flow Sensor Formed on Copper on Polyimide Substrate and Its Respiration Measurement Application A. Kato 1, Y. Hasegawa 1, K. Taniguchi 1, M. Matsushima 2, T. Kawabe 2 and M. Shikida 1, 1 Hiroshima City Univ. and 2 Nagoya Univ., Japan
15P-7-91 Withdrawn Process Dependence of Electrical Properties of a Si/TiN Structure for Microbolometer Applications H.-S. Jeon and W.-G. Lee, Natl. Nanofab Ctr., Korea	15P-7-92 Fabrication of Tunable Fabry-Perot Interferometer-Based Infrared Micro-Spectrometer Utilizing Electromagnetic Force D. Jung 1, J.Y. Lee 1,2, J.K. Kim 1,2, S.H. Kong 1 and D. Jung 2, 1 Kyungpook Natl. Univ. and 2 KITECH, Korea	15P-7-93 Modification of Frequency Properties of Surface Acoustic Wave Devices Using Thin Films of Aluminum nitride S. Murakami, S. Rikimaru and T. Ito, Kyushu Inst. of Technol., Japan	15P-7-94 Grinding and Chemical Mechanical Polishing Process of Micropore X-ray Optics Fabricated with Deep Reactive Ion Etching A. Fukushima 1, Y. Ezo 1, K. Ishikawa 2, M. Fujitani 1, M. Numazawa 1, D. Ishi 1, R. Otsubo 1, H. Nagatoshi 1, H. Suzuki 1, T. Yuasa 1, T. Ohashi 1 and K. Mitsuda 2, 1 Tokyo Metropolitan Univ. and 2 JAXA, Japan
15P-7-95 Development of Humidity Sensor for Real-Time Monitoring of Insulating Oil in Electric Transformer G. Ryu, V. kondalkar, Y. Lee and K. Lee, Ajou Univ., Korea	15P-7-96 Development of Pd-based MEMS Hydrogen Sensor for Transformer Oil M. Lee, V.V. Kondalkar, U. Lim and K. Lee, Ajou Univ., Korea	15P-7-97 Development of Battery-Free Underground Sensors and Its Wireless Measurement System S. Kim, L. xiang, J. Kim and K. Lee, Ajou Univ., Korea	15P-7-98 Effect of Oxidation Temperature on the Thermoelectric Performance of the Plate-Type Thermoelectric Power Generator N. Ogi and H. Tohmyoh, Tohoku Univ., Japan

<p>15P-7-99 The Implantation of GaN Deep Etchnig for Flip-Chip Micro-LED Arrays C. Liou, M. Hsieh, F. Shih, Y. Huang, Z. Hu and C. Tsou, Feng Chia Univ., Taiwan</p>	<p>15P-7-100 Design and Fabrication of a Coupled Dual-Coil for Fingerprint Sensor Application S. Lin, M. Hsieh, Y. Huang, F. Shih, Z. Hu and C. Tsou, Feng Chia Univ., Taiwan</p>	<p>15P-7-101 Elctrowetting Device With Liquid Organic Semiconductor Emulsion H. Kuwae 1, A. Fujiwara 1, K. Sakamoto 1, J. Oshima 2, S. Shoji 1 and J. Mizuno 1, 1 Waseda Univ. and 2 Nissan Chemical, Japan</p>	<p>15P-7-102 Stacking of Through-Silicon-via Chip Formed by Notchless Si Etching and Wet Cleaning of First Metal Layer N. Watanabe 1, H. Kikuchi 2, A. Yanagisawa 2, H. Shimamoto 1, K. Kikuchi 1, M. Aoyagi 1, A. Nakamura 2 and K. Yabe 2, 1 AIST and 2 LAPIS Semiconductor, Japan</p>
<p>15P-7-103 Fabrication and Operation of Suspended-Polymer-Based Spatial Light Modulator Y. Hanabusa , T. Ikuta and K. Maehashi, Tokyo Univ. of Agriculture and Technol., Japan</p>	<p>15P-7-104 Laterally-Driven MEMS Tuning Fork Resonator with a p-n Diode Actuator and p-n Diode Sensor D. Nagai, F. Miyazaki, H. Tanigawa, T. Furutsuka and K. Suzuki, Ritsumeikan Univ., Japan</p>		

Room A (Heian 3,4, 2F)

18:20-20:20 Banquet

Friday, November 16

Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
16A-8: Symp. B: Recent Progress of Atomic Layer Processing (ALP) Technology Chairs: T. Nabatame (NIMS) H. Arimoto (AIST)	16B-8: Nanocarbons II Chairs: D. Kondo (Fujitsu Labs.) K. Yanagi (Tokyo Metropolitan Univ.)	16C-8: Symp. D: BioMEMS, Lab on a Chip, and Nanobiotechnology Chairs: A. Miura (Hokkaido Univ.) S. Kumagai (Toyota Technological Inst.)	16D-8: Nanofabrication I Chairs: R. Hasunuma (Tsukuba Univ.) K. Tomioka (Hokkaido Univ.)
16A-8-1 9:00 Ultra-Thin Ferroelectric HfZrO ₂ by Atomic-Layer Deposition (ALD) for Steep Slope Transistors Application (<i>Invited</i>) M.H. Lee 1, C.-Y. Liao 1, G.-Y. Siang 1, C. Lo 1, H.-Y. Chen 1, S.-Y. Chen 1, Y.-J. Tseng 1, K.-T. Chen 1,2, S.T. Chang 2, and K.-S. Li 3, 1 Natl. Taiwan Normal Univ., 2 Natl. Chung Hsing Univ. and 3 Natl. Applied Res. Labs., Taiwan	16B-8-1 9:00 Bottom-Up Chemical Synthesis of Atomically Precise Graphene Nanoribbons and Their Potentials (<i>Invited</i>) A. Narita, Max Planck Inst., Germany	16C-8-1 9:00 Three Dimensional UV Lithography Technologies for Microphysiological Systems (<i>Invited</i>) Y. Hirai, Kyoto Univ., Japan	16D-8-1 9:00 Etched Ge Surface Treatment for Ge NW/fin FETs (<i>Invited</i>) Y.-J. Lee, Natl. Nano Device Labs., Taiwan
16A-8-2 9:30 (<i>Invited</i>) J. Kim, Univ. of Texas at Dallas, USA	16B-8-2 9:30 Thermal Stability and Chemical Stability of Hydrogen Boride Sheets R. Ishibiki 1, A. Fujino 1, T. Goto 1, H. Nishino 1, S. Ito 2, N.T. Cuong 1, M. Miyauchi 2, J. Nakamura 1, H. Hosono 1,2, and T. Kondo 1, 1 Univ. of Tsukuba and 2 Tokyo Inst. of Technol., Japan	16C-8-2 9:30 Stimulation of Cells by Cold Atmospheric Plasma for Wound Treatment (<i>Invited</i>) T. Shimizu, AIST, Japan	16D-8-2 9:30 Evaluation of Thermal Conductivity Characteristics in Si Nanowire Covered with Oxide by UV Raman Spectroscopy R. Yokogawa 1,2, M. Tomita 1,3 T. Watanabe 2 and A. Ogura 1, 1 Meiji Univ., 2 JSPS and 3 Waseda Univ., Japan
16A-8-3 10:00 Study of High-k Gate Insulator for GaN Power Device by Atomic Layer Deposition (<i>Invited</i>) T. Nabatame 1, Y. Irokawa 1, K. Shiozaki 2 and Y. Koide 1, 1 NIMS and 2 Nagoya Univ., Japan	16B-8-3 9:50 Energetics and Formation Mechanisms of in-Plane Heterostructures of Graphene and h-BN H. Sawahata 1, A. Yamanaka 2, M. Maruyama 1 and S. Okada 1, 1 Univ. of Tsukuba and 2 RIST, Japan	16C-8-3 10:00 Toward a Data-Driven Strategy for Designs of Biomaterials (<i>Invited</i>) T. Hayashi, Tokyo Inst. of Technol. and JST-PRESTO, Japan	16D-8-3 9:50 Multi-Optical Analyses on Implanted Si and Embedded SiGe Ultra Shallow Junction: the Evolution of Structure and Chemical State within 10 nm via Annealing Y. Chen, Z.-Z. Wu, F.-Y. Lee, F.-M. Chang and K.-Y. Lo, Natl. Cheng Kung Univ., Taiwan
16A-8-4 10:30 Single Reaction Control in Atomic Layer Etching for LSI Device Fabrication (<i>Invited</i>) M. Kurihara, Hitachi, Japan	16B-8-4 10:10 In Situ TEM Study of Mechanical Folding of MoS ₂ Crystals Grown on Graphite S. Sharma, R. Mahyavanshi, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	16C-8-4 10:30 Next Breakthroughs in Pluripotent Stem Cell Applications (<i>Invited</i>) K. Tomoda Osaka Medical College, Japan	16D-8-4 10:10 Effect of Additives for Preparation of Vertical Holes in Si Substrate Using Metal-Assisted Chemical Etching R. Niwa, T. Shimizu, T. Ito and S. Shingubara, Kansai Univ., Japan
Author's Interview: none	Author's Interview: 12:05-12:15	Author's Interview: none	Author's Interview: 11:50-12:00
Room P2 (Park Plaza BC (B2F))			
Coffee Break			
Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
16A-9: Nanoimprint, Hybrid-NIL, Biomimetics, and Functional Surfaces I Chairs: A. Miyauchi (Tokyo Medical and Dental Univ.) J. Taniguchi (Tokyo Univ. of Sci.)	16B-9: Nanocarbons III Chairs: M. Tanemura (Nagoya Inst. of Technol.) K. Yanagi (Tokyo Metropolitan Univ.)	16C-9: BioMEMS, Lab on a Chip, and Nanobiotechnology I Chairs: A. Matsumoto (Tokyo Medical and Dental Univ.)	16D-9: Nanofabrication II Chairs: T. Shimizu (Kansai Univ.) T. Kawashima (Tohoku Univ.)
16A-9-1 11:15 Nanoimprint Lithography of Oxides via Better Chemistry (<i>Invited</i>) M.S.M. Saifullah, A*STAR, Singapore	16B-9-1 10:45 Field Emission Properties of Graphene Edges: The Edge Shape and Functionalization Y. Gao and S. Okada, Univ. of Tsukuba, Japan	16C-9-1 11:15 (<i>Invited</i>) K. Kimura, Kobe Univ., Japan	16D-9-1 10:50 Pillar Patterning of Silicon / III-V Vertical Nanowire FET for 7nm Node and beyond BT. Chan 1, Z. Tao 1, E. Altamirano 1, A. Veloso 1, A. Singh 2 and J.-F. de Marneffe 1, 1 imec and 2 K.U. Leuven, Belgium

16A-9-2 11:45 Realization of Butterfly Colours by Imprinting of Undercut Features I. Prinz 1, A. Prinz 1, A. Moharana 2, H. Außerhuber 2, H. Wanzenboeck 4, S. Ruttloff 3, D. Nees 3, M.R. Belegatis 3, P. Schaeffner 3 and M. Muehlberger 2, 1 STRATEC Consumables, 2 PROFACTOR, 3 JOANNEUM RES. Forschungsgesellschaft and 4 Vienna Technical Univ., Austria	16B-9-2 11:05 A Flexible and Highly Sensitive Tactile Sensor with CB/CNT Composite Film Y.-S. Lin, Y.-Y. Chen, Y.-F. Huang and Y.-C. Tsai, Natl. Chung Hsing Univ., Taiwan	16C-9-2 11:45 (Invited) K. Ikuta, Univ. of Tokyo, Japan	16D-9-2 11:10 Fabrication of InAs Quantum Dots on SiO _x Films by Molecular Beam Deposition A. Makaino, Y. Tanaka and K. Yamaguchi, Univ. of Electro-Comm., Japan
16A-9-3 12:05 High Volume Semiconductor Manufacturing Using Nanoimprint Lithography A. Yabuki 1, Z. Hamaya 1, J. Seki 1, T. Asano 1, K. Sakai 1, A. Aghili 2, M. Mizuno 2, J. Choi 2 and C. Jones 2, 1 Canon, Japan and 2 Canon Nanotechnologies, USA	16B-9-3 11:25 NaCl-Assisted CVD Synthesis of MoS ₂ and Its Application for Phototransistors A. Ando, M. Okada, T. Mori and T. Irisawa, AIST, Japan		16D-9-3 11:30 Ultra-Fine H-ELGP Pt-Based Nanogap Electrodes Y.Y. Choi, A. Kwon and Y. Majima, Tokyo Inst. of Technol., Japan
16B-9-4 11:45 Room Temperature Valley Polarized Light-Emitting Diodes of Monolayer Transition Metal Dichalcogenides J. Pu 1, W. Zhang 2, Y. Kobayashi 3, Y. Takaguchi 3, Y. Miyata 3, K. Matsuda 2, Y. Miyauchi 2 and T. Takenobu 1, 1 Nagoya Univ., 2 Kyoto Univ. and 3 Tokyo Metropolitan Univ., Japan			
Author's Interview: 12:25-12:35	Author's Interview: 12:05-12:15	Author's Interview: none	Author's Interview: 11:50-12:00
Lunch			
Room A (Park Plaza D (B2F))	Room B (Park Plaza A (B2F))	Room C (The Terrace Room (1F))	Room D (Emina (1F))
16A-10: Nanoimprint, Hybrid-NIL, Biomimetics, and Functional Surfaces II Chair: Y. Shimazaki (Hitachi) K. Suzuki (AIST)	16B-10: Nanocarbons IV Chairs: A. Ando (AIST) K. Yanagi (Tokyo Metropolitan Univ.)	16C-10: BioMEMS, Lab on a Chip, and Nanobiotechnology II Chairs: A. Matsumoto (Tokyo Medical and Dental Univ.) T. Hayashi (Tokyo Inst. of Technol.)	16D-10: Nanofabrication III Chairs: T. Hasegawa (Waseda Univ.) H. Tanaka (Kyushu Inst. of Technol.)
16A-10-1 13:50 Biomimetics: Emulation of Biological "Bricolage" for Sustainable Paradigm Shift toward Survival in Anthropocene (Invited) M. Shimomura, Chitose Inst. of Sci. and Technol., Japan	16B-10-1 13:30 (Invited) S.C. Jun, Yonsei Univ., Korea	16C-10-1 13:30 Injection Molding of Micro and Nanostructures for Diagnostic Applications I. Prinz 1, A. Prinz 1, G. Hawa 2, L. Sonnleitner 2, A. Missbichler 2, G. Bauer 1, C. Mauracher 1, 1 STRATEC Consumables and 2 Fianostics, Austria	16D-10-1 13:40 Cu-Based Three-Dimensional Microfabrication Using Femtosecond Laser Pulse-Induced Reduction of Cu ₂ O Nanospheres M. Mizoshiri 1, Y. Kondo 2 and A. Tanokuchi 1, 1 Nagaoka Univ. and 2 Nagoya Univ., Japan
16A-10-2 14:20 Improvement of Efficiency of Water-Splitting Photoanode by 3D Au/SnO ₂ /BiVO ₄ Micro-Cone Structure S. Ju, J. Jun, P.-H. Jung, S. Son, J. Park, M. Byun, J.-H. Jung and H. Lee, Korea Univ., Korea	16B-10-2 14:00 Effect of Persistent Photoconductivity on MoS ₂ Mechanical Resonator T. Inoue 1, T. Saito 2, K. Takei 1 T. Arie 1, Y. Miyata 2 and S. Akita 1, 1 Osaka Pref. Univ. and 2 Tokyo Metropolitan Univ., Japan	16C-10-2 13:50 A Wireless Powered Smart Soft Contact Lens for Bioapplications T. Takamatsu, L. Chen and T. Miyake, Waseda Univ., Japan	16D-10-2 14:00 Fabrication of Fe ₃ O ₄ Nanostructures and Investigation of Relationship between Diameter and Coercivity of Nanoparticles R. Akutsu 1, Y. Hara 2, R. Niwa 3, K. Yoshikawa 3, T. Shimizu 3, S. Shingubara 3, K. Sugawa 1, T. Toyama 1 and K. Takase 1, 1Nihon Univ, 2 Natl. Inst. of Technol. Ibaraki Colle and 3 Kansai Univ., Japan
16A-10-3 14:40 Increase of a Liquid Rising Velocity of Biomimetic Microfine Structures by Sequence Regulations T. Yaeo, T. Kashima, K. Muto, K. Kawai and D. Ishii, Nagoya Inst. of Technol., Japan	16B-10-3 14:20 Electronic Structure of Thin Films of Hydrocarbon Molecules under an External Electric Field M. Matsubara and S. Okada, Univ. of Tsukuba, Japan	16C-10-3 14:10 Fabrication of Protein Microarray by Combination of Sortase-Mediated Peptide Ligation and Microintaglio Printing Y. Shirakata 1, R. Wakai 1, S. Ueno 1,2 and T. Ichiki 1,2, 1 Univ. of Tokyo and 2 iCONM, Japan	16D-10-3 14:20 Microstructure and Electrical Properties of HfO ₂ Thin Films Using La(NO ₃) ₃ ·6H ₂ O Solution As an Oxidant S.Y. Kim, Y.C. Jung, S. Seong, T. Lee, I.-S. Park and J. Ahn, Hanyang Univ., Korea
16A-10-4 15:00 Fabrication Technique of a Hydrophobicity 3D Hybrid Structure Using UV-Curable EB Resist K. Goto, T. Okabe and J. Taniguchi, Tokyo Univ. of Sci., Japan	16B-10-4 14:40 Topological Dipoles and Quadrupoles F. Liu and K. Wakabayashi, Kwansei Gakuin Univ., Japan	16C-10-4 14:30 Development of Immuno-Wall Device for Biomarker Detection in Clinical Diagnosis K. Nishiyama 1, T. Kasama 2,3 M. Maeki 1, A. Ishida 1, H. Tani 1, and M. Tokeshi 1,3, 1 Hokkaido Univ., 2 Univ. of Tokyo and 3 Nagoya Univ., Japan	16D-10-4 14:40 Fabrication and Evaluation of Multi-Walled Carbon Nanotube Polymer Actuator Using Electrospinning Method K. Kida, H. Kato, K. Sato and M. Kushida, Chiba Univ., Japan

	16B-10-5 15:00 Charge Transfer Interaction in Cul and MoS ₂ Layer p-n Heterojunction R.D. Mahyavanshi, P. Desai, A.K. Ranade and M. Tanemura and G. Kalita, Nagoya Inst. of Technol., Japan	16C-10-5 14:50 PDMS Replica Leaf Surfaces for Phyllosphere Microbiology R. Soffe, M. Bernach, N. Altenhuber, M. Remus-Emsermann and V. Nock, Univ. of Canterbury, New Zealand	
Author's Interview: 15:20-15:30	Author's Interview: 15:20-15:30	Author's Interview: 15:10-15:20	Author's Interview: 15:00-15:10
Room P2 (Park Plaza BC (B2F))			
Coffee Break			
Poster Session II (15:30-17:30, Nov. 16)			
Nanocarbons		Chair: K. Yanagi (Tokyo Metropolitan Univ.)	
16P-11-1 pH-Sensible Carbon Dot Coated Surface for Evaluation of Antifouling Activity-Based Fluorescence ON/OFF P.T.M. Phuong and S.Y. Park, Korea Natl. Univ. of Transportation, Korea	16P-11-2 Preparation of Fluorescent Polymer Dot from The Carbonized of MnO ₂ Nanosheets Encapsulated Hyaluronic Acid for Smart Redox-Responsive Release of Paclitaxel B. Ryplida and S.Y. Park, Korea Natl. Univ. of Transportation, Korea	16P-11-3 Observation of the Interaction between Avidin and Iminobiotin Using Graphene FET on SiC Substrate Y. Taniguchi, T. Miki, Y. Ohno, M. Nagase, Y. Arakawa, and M. Yasuzawa, Tokushima Univ., Japan	16P-11-4 Vertically Aligned Single-Walled Carbon Nanotube Growth from Ir Catalysts by Alcohol Gas Source Method T. Okada, K.P. Sharma, T. Saida, S. Naritsuka and T. Maruyama, Meijo Univ., Japan
16P-11-5 Comparative Study of Direct and Mediated Electron Transfer in Biosensors with Flavin Adenine Dinucleotide Glucose Dehydrogenase K. Ishida 1, A. Suzuki 1, K. Orihara 1,2, H. Muguruma, 1,2, H. Iwasa 2, A. Hiratsuka 2, K. Tsuji 3 and T. Kishimoto 3, 1 Shibaura Inst. of Technol., 2 AIST and 3 TOYOBO, Japan	16P-11-6 Electrochemical Determination of Individual Catechins in Green Tea with Electrode Fabricated by Long-Length Carbon Nanotube Dispersed Solution S. Murakami 1, S. Takahashi 1, H. Muguruma 1, N. Osakabe 1, H. Inoue 2, and T. Ohsawa 2, 1 Shibaura Inst. of Technol. and 2 Nippon Shizai, Japan	16P-11-7 Carbon Nanotube-Based Strain Sensor for Structural Health Monitoring J.Y. Lee 1,2, J.K. Kim 1,2, S.H. Kong 1 and D. Jung 2, Kyungpook Natl. Univ. and 2 KITECH, Korea	16P-11-8 Biosensors and Biofuel Cells Based on Anode with Single- Walled Carbon Nanotube and Flavin Adenine Dinucleotide- Dependent Glucose Dehydrogenase K. Orihara 1,2, H. Muguruma 1,2, H. Iwasa 2, A. Hiratsuka 1,2 and H. Uzawa 2, 1 Shibaura Inst. of Technol. and 2 AIST, Japan
16P-11-9 Energetics of Water Migration through Unstitched Grain Boundaries of Graphene K. Yasuraoka, M. Maruyama and S. Okada, Univ. of Tsukuba, Japan	16P-11-10 Topological Edge States Induced by Zak's Phase in A ₃ B Monolayers T. Kameda, F. Liu and K. Wakabayashi, Kwansai Gakuin Univ., Japan	16P-11-11 The Nanoporous and Flat Substrate Effect for Graphene Humidity Sensors Y.-T. Huang 1, Y.-Y. Chen 1, C.-C. Huang 2, C.-Y. Su 2 and Y.-C. Tsai 1, 1 Natl. Chung Hsing Univ. and 2 Natl. Central Univ., Taiwan	16P-11-12 Synthesis of Graphene and Its Application for Solar Cells X. Jin, N. Ye, Y. Kong, T. Liang and M. Xu, Zhejiang Univ., China
16P-11-13 Mechanical Properties of Graphene Nanoribbons under the Structural Modulations K. Yoneyama 1, A. Yamanaka 2 and S. Okada 1, 1 Univ. of Tsukuba and 2 RIST, Japan			
Nanodevices		Chair: S. Hara (Hokkaido Univ.)	
16P-11-14 Carrier Polarity Control of MoTe ₂ Crystal by Laser Irradiation and Device Application K. Kamiya 1, H. Ouchi 1, K. Sakanashi 1, K. Ueno 2, P. Krüger 1, K. Miyamoto 1, T. Omatsu 1 J.P. Bird 1,3 and N. Aoki 1, 1 Chiba Univ. and 2 Saitama Univ., Japan and 3 SUNY Buffalo, USA	16P-11-15 Comparative Performance of GaNAs/GaAs Multi Quantum Well Photodetector for 1.0µm Wavelength M.S. Nordin 1, A.R. Mohmad 2, A. Boland-Thoms 1, K.A. Mohamad 3, A. Alias 3, M. Othman 4 and A.J. Vickers 1, 1 Univ. of Essex, UK, 2 Univ. Kebangsaan Malaysia, 3 Univ. Tun Hussein Onn Malaysia and 4 Univ. Sains Islam Malaysia, Malaysia	16P-11-16 Electric-Field Optical Device Controlling Electron-Spin Polarity of InGaAs Quantum Dots H. Chen, J. Takayama, S. Hiura, K. Sueoka and A. Murayama, Hokkaido Univ., Japan	16P-11-17 Spin Valves Comprising Fe ₃ Si/FeSi ₂ /Fe ₃ Si Trilayer Films K. Sakai 1, Y. Asai 2, K. Ishibashi 2 and T. Yoshitake 2, 1 Kurume Col. and 2 Kyushu Univ., Japan
16P-11-18 Metal/Insulator Multilayered Thermally Conductive Films M. Xu 1, T. Zhan 1, R. Yamato 1, H. Takezawa 1, K. Mesaki 1, M. Tomita 1, Y. Xu 2 and T. Watanabe 1, 1 Waseda Univ. and 2 NIMS, Japan	16P-11-19 Fabrication of Lateral Type Spin Valves Comprising Epitaxially Grown β-FeSi₂ Interlayers by Electron Beam Lithography H. Ishimoto 1, K. Kudo 1, T. Tabei 2, K. Sakai 3 and T. Yoshitake 1, 1 Kyushu Univ., 2 Hiroshima Univ. and 3 Kurume Col., Japan	16P-11-20 Effect of Oxygen Content on Ferroelectricity of Undoped Hafnium Oxide J.-D. Luo 1, H.-X. Zhang 1, Z.-Y. Wang 3, S.-S. Gu 3, H.-T. Chung 1, K.-C. Chuang 1, C.-Y. Liao 1, W.-S. Li 1, Y.-S. Li 1, K.-S. Li 2, M.-H. Lee 3 and H.-C. Cheng 1, 1 Natl. Chiao Tung Univ., 2 NARLabs. and 3 Natl. Taiwan Normal Univ., Taiwan	16P-11-21 Effective Doping of Semiconductors via Dopant Containing Homopolymer Brushes M. Perego 1, G. Seguini 1, E. Arduca 1,2, A. Nomellini 1,2, F. Caruso 1,2, K. Sparnacci 3, D. Antonioli 3, V. Gianotti 3, M. Laus 3, 1 IMM-CNR, 2 Univ. degli Studi di Milano and 3 Univ. del Piemonte Orientale, Italy

16P-11-22 Effective Wet Chemical Etching for n ⁺ -p-n-p ⁺ Thyristor Structures as Application of Memory Device J. Yoo, G. Oh, M.-W. Kim, S.-D. Yoo, T.-H. Shim and E.K. Kim, Hanyang Univ., Korea	16P-11-23 Coexistence of Unipolar Resistive Switching and Bipolar Resistive Switching Behaviors in Pt/NiO/ITO Structure H.-H. Tang 1, Y.-K. Su 1,2 and T.-J. Whang, 1 Natl. Cheng Kung Univ. and 2 Kun Shan Univ., Taiwan	16P-11-24 DC and AC Electrical Characteristics of Ta ₂ O ₅ -Based ReRAM Cells T. Miyatani, Y. Nishi and T. Kimoto, Kyoto Univ., Japan	16P-11-25 Self-Erasable Antireflection Films via Nanopatterning on Shape Memory Polymers Y. Han 1, P. Li 2 and P. Jin 1, 1 Harbin Inst. of Technol. and 2 Heilongjiang Univ., China
16P-11-26 A Study on the Effects of Microplasma Depending on the Detection Area of GM-APD H. Yoo, B.-T. Lim, J.-W. Park, B.-J. Lee, W.-S. Sul, Natl. Nanofab Ctr., Korea	16P-11-27 Vertically Stacked Graphene Tunnel Junction with Ultrathin Water Layer Barrier J. Du, Y. Kimura, M. Tahara, K. Matsui, H. Teratani, Y. Ohno and M. Nagase, Tokushima Univ., Japan	16P-11-28 Directivity for SOI Photodiode with Gold 2D Hole Array Grating A. Nagarajan 1, S. Hara 1, H. Satoh 1, A.P. Panchanathan 2 and H. Inokawa 1, 1 Shizuoka Univ. and 2 SRMIST, India	16P-11-29 Immobilization Technology of Hydrolyzed Pt Nanoparticles on Polyacrylonitrile-Based Nanofiber Paper S.Y. Kwon, D.G. Jung, Y.C. Choi, J.Y. Lee, S.D. Kim and S.H. Kong, Kyung Pook Natl. Univ., Korea
Nanofabrication		Chairs: Y. Liu (AIST) and K. Takase (Nihon Univ.)	
16P-11-30 Influences of Ti Seed Layers on the Structure of Self-Organized Au-Ag Alloy Nanodots on MgO(001) Substrates M. Kamiko 1, W.-S. Kim 2, T.-H. Kim 2, T.-W. Um 2 and J.-G. Ha 2, 1 Univ. of Tokyo, Japan and 2 Kwangwoon Univ., Korea	16P-11-31 Investigation of Simple and Easy Functionalization Method for Single Conical Pore with a Polydopamine Layer Y. Horiguchi, T. Goda and Y. Miyahara, Tokyo Medical and Dental Univ., Japan	16P-11-32 Fabrication of Graphitic Nanostructure with Catalytic Activity From Precursor Polymer Utilizing High Temperature-Electron Beam Irradiation A. Idesaki 1, Y. Kanuma 2, S. Yamamoto 1, M. Sugimoto 1 and T. Yamaki 1,2, 1 Natl. Inst. for Quantum and Radiological Sci. and Technol. and 2 Gunma Univ., Japan	16P-11-33 Evaluation of Inter-Particle Distance of Gold Nanoparticles Dispersed on Silane-Treated Substrates for Fabrication of Dithiol-Connected Arrays T. Yagai 1, K. Matsumoto 1, M. Moribayashi 1, M. Moriya 1, H. Shimada 1, A. Hirano-Iwata 2, F. Hirose 3 and Y. Mizugaki 1, 1 Univ. of Electro-Comm., 2 Tohoku Univ. and 3 Yamagata Univ., Japan
16P-11-34 Optical Strong Coupling of Localized Surface Plasmon Resonance with Q-Bands of Tetraphenyl Porphyrin over an Entire Visible Region N. Takeshima, S. Jin, K. Sugawa and J. Otsuki, Nihon Univ., Japan	16P-11-35 Far-Field Enhancement of Triplet-Triplet Annihilation Upconverted Luminescence in Solid Thicker Films S. Yoshinari, N. Takeshima, S. Jin, K. Sugawa and J. Otsuki, Nihon Univ., Japan	16P-11-36 Optical Properties of Au(Core)/Cu ₂ O(Shell)-Type Nanospheres As a Photothermal Therapy Agent J. Honda, K. Sugawa and J. Otsuki, Nihon Univ., Japan	16P-11-37 Surface-Enhanced Raman Scattering of Rhodamine 6G on Mie Resonance-Responsive Cu ₂ O Particle Assemblies M. Danno, W. Inoue, S. Igari, K. Sugawa and J. Otsuki, Nihon Univ., Japan
16P-11-38 Thickness Modulated MoS ₂ Film for Transistor-Based pH Sensing Application Y. Jang 1, Y. Jeong 1,2, Y. Wakayama 2 and J.-S. Bae 1, 1 Korea Basic Sci. Inst., and 2 NIMS, Japan	16P-11-39 Photo-Thermal Processing of Metal-Oxide Nano-Thin Film Using Ultra-Violet Laser for ReRAM Applications C.J. Park, C. Lee, S. Shin, M. Kim and M.W. Shin, Yonsei Univ., Korea	16P-11-40 Investigation of Optical Transitions for InAs/GaSb Quantum Ring by Photoreflectance Spectroscopy M.G. So 1, J.S. Kim 1, V. Dahiya 2, S. Krishna 2, M. Zamiri 3, J.O. Kim 4, S.J. Lee 4 and Y. Kim 5, 1 Yeungnam Univ., Korea, 2 Ohio State Univ., 3 Univ. of Wisconsin-Madison, USA, 4 Korea Res. Inst. of Standards and Sci. and 5 Dankook Univ., Korea	16P-11-41 Thermal Oxidation Kinetics of Vertically-Aligned Si Nanowires S.R. Chang, C.H. Lo and S.L. Cheng, Natl. Central Univ., Taiwan
16P-11-42 Electron Paramagnetic Resonance Spectra of Polyethylene with Grafted Phthalocyanine and Nanoparticles A. Reznickova 1, L. Grulich 1, E. Cizmar 2, M. Orendac 2, A. Zelenakova 2, Z. Kolska 3, F. Prusa 1 and V. Svorcik 1, 1 UCT Prague, Czech, 2 P.J. Safarik Univ. and 3 J.E. Purkyne Univ., Czech	16P-11-43 Microfabrication of Si-Based Concave Micromirror Array for Microbial Cell Trapping by XeF ₂ Vapor Etching A. Matsutani, M. Sato, K. Hasebe and A. Takada, Tokyo Inst. of Technol., Japan	16P-11-44 Enlargement of Neutron Absorption Grating Area in the Process of Oblique Gadolinium Evaporation T. Samoto, H. Takano and A. Momose, Tohoku Univ., Japan	16P-11-45 Removing Process of the Three-Dimension Periodic Nanostructure Fabricated from KMPR Photoresist X.D.F. Wang, Y. Ishikawa, M. Uenuma and Y. Uraoka, NAIST, Japan
16P-11-46 Surface-Enhanced Raman Scattering of Bioorthogonal Reporter on Gold and Silver Nanostructures A. Suzuki, S. Yoshinari, K. Sugawa and J. Otsuki, Nihon Univ., Japan	16P-11-47 Expansion of Driving Wavelength of Photothermal Conversion of Gold Nanosphere Using Upconverted Fluorescence Based on Triplet-Triplet Annihilation S. Jin, N. Takeshima, K. Sugawa, J. Otsuki, Nihon Univ., Japan	16P-11-48 Metal-Enhanced Fluorescence Based on Gold Nanoparticle Assemblies: Nanoparticle Size Dependence on Fluorescence Enhancement S. Igari, K. Sugawa and J. Otsuki, Nihon Univ., Japan	
Inorganic Nanomaterials		Chair: M. Suzuki (AIST)	
16P-11-49 Effects of Defects, Strains, and Strain Fluctuations on the Electrical Properties of CVD-Grown Monolayer Graphene Films H. Rho 1, T. Lee 1 and M.J. Kim 2, 1 Chonbuk Natl. Univ. and 2 KIST, Korea	16P-11-50 Chlorpyrifos Organophosphate Detection Based on Magnetic Molecularly Imprinted Polymers K. Chattrairat and D. Phromyothin, King Mongkut Inst. of Technol. Ladkrabang, Thailand	16P-11-51 Study on the Formation Mechanism of Bismuth-Mediated Ge Nanodots Fabricated by Vacuum Evaporation K. Tsushima 1, K. Takita 1, H. Nakazawa 1, T. Tawara 2, K. Tateno 2, G. Zhang 2, H. Gotoh 2 and H. Okamoto 1, 1 Hirosaki Univ. and 2 NTT, Japan	16P-11-52 Electrochemical Analysis of Cypermethrin Using Gold Printed Circuit Board Electrode Modified with Poly(Methyl Methacrylate) P. Leepheng and D. Phromyothin, King Mongkut Inst. of Technol. Ladkrabang, Thailand

16P-11-53 Fabrication of Gold Nanostructures Heterogeneously Grown on Micro Glass Bead N. Sekimoto, Y. Bando, S. Yanagiya and A. Furube, Tokushima Univ., Japan	16P-11-54 Atomistic Simulation of Thermoelectric Properties of High-Entropy Alloy Nanostructures K. Nakamura 1,2, 1 Kyoto Univ., Japan and 2 Egypt-Japan Univ. of Sci. and Technol., Egypt	16P-11-55 Magnetic and Dielectric Properties of CuBO ₂ Delafossite Oxide S. Traiphop, P. Thongbai and T. Kamwanna, Khon Kaen Univ., Thailand	16P-11-56 Oxide Ion and Proton Conduction Controlled in Nano-Grained Yttria Stabilized ZrO ₂ Thin Films Prepared by Pulse Laser Deposition D. Etoh 1,2, T. Tsuchiya 1,2, M. Takayanagi 1,2, T. Higuchi 2 and K. Terabe 1, 1 NIMS and 2 Tokyo Univ. of Sci., Japan
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<p>16P-11-100 Electrical Detection of DNA via Nanoparticles under Light-induced Assembly K. Ohashi 1, Y. Yamamoto 1, M. Tamura 1, Y. Nishimura 2, S. Tokonami 1 and T. Iida 1, 1 Osaka Pref. Univ. and 2 Osaka City Univ., Japan</p>			