Tuesday, November 8

Room B (Suzaku 2, 2F)

13:10-17:05 MNC 2016 Technical Seminar in Japanese

Room P (Heian 1, 2F)

17:25-19:25 Get Together Party

Wednesday, November 9

9P-1: Plenary Session
Cnairs: T. Tsuchiya (Kyoto Univ.) and T. Sato (Toshiba)

9P-1-0 9:30-9:50
Opening Remarks: H. Kotera (Kyoto Univ.)
Award Presentation: T. Tsuchiya (Kyoto Univ.) and H. Kotera (Kyoto Univ.), MNC 2015 Outstanding Paper, Most Impressive Presentation, Most Impressive Poster and Young Author's Award
Announcement from Committee: M. Suzuki (Kyoto Univ.)

9P-1-1 9:50-10:30
2D Crystals for Smart Life (Plenary)
K. Banerjee, UCSB, USA

Room P (Heian 1,2,3, 2F)

Coffee Break

9P-1-2 10:50-11:30
New Device Application of Organic Semiconductors (Plenary)
S. Lee, Samsung Electronics, Korea

9P-1-3 11:30-12:10
Design Technology CoOptimization, The Key to Unlocking New Scaling Pathways (Plenary)
L. Liebmann, GLOBALFOUNDRIES, USA

Lunch

Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
9A-2: Nanocarbon Properties I K. Matsuda (Kyoto Univ.) R. Negishi (Osaka Univ.)	**9B-2: Organic Nanomaterials** S. Takami (Tohoku Univ.) H. Kasai (Tohoku Univ.)	**9C-2: NanoTool I** R. Kometani (Univ. of Tokyo) O. Kubo (Osaka Univ.)	**9D-2: Symp. D: Innovation from Open Facilities I** H. Arimoto (AIST) C. Gorecki (FEMTO-ST)
9A-2-1 **13:30** hBN-encapsulated Transition Metal Dichalcogenide van der Waals Heterostructures: Fabrication and Optical Properties M. Okada 1, Y. Kureishi 1, K. Watanabe 2, T. Taniguchi 2, H. Shinohara 1 and R. Kitaura 1, 1 Nagoya Univ. and 2 NIMS, Japan	**9B-2-1** **13:30** Protein Engineering for Interface Design on Inorganic Nanomaterials (Invited) M. Umetsu, Tohoku Univ., Japan	**9C-2-1** **13:30** Nanoscale Imaging and Fabrication by Focused Ion Beam System Equipped with Gas Field Ion Source (Invited) T. Kozakai, Hitachi High-Tech Science, Japan	**9D-2-1** **13:30** Overview of the Renatech Network of French Academic Clean-Rooms (Invited) M.de Labachelerie, I. Sagnes and C. Boisard, CNRS, France
9A-2-2 **13:50** Valley Relaxation in Transition Metal Dichalcogenide Monolayers S. Konabe, Tokyo Univ. of Sci., Japan	**9B-2-2** **14:00** Radial Mechanical Property of a Crossover Density-Varied DNA Nanotube Z. Ma 1, S. Park1, N. Yamashita 1, K. Kawai 2, D.N. Kim 3, Y. Hirai 1, T. Tsuchiya 1 and O. Tabata 1,4, 1 Kyoto Univ., 2 Osaka Univ., Japan 3 Seoul Natl. Univ., Korea and 3 Albert-Ludwigs-Univ., Germany	**9C-2-2** **14:00** Ion Scattering Spectroscopy Study of $ErSi_2$ Nanowires Formed on Si(001) K. Takahashi, O. Kubo, H. Kagitani, S. Osaka, H. Tabata and M. Katayama, Osaka Univ., Japan	**9D-2-2** **14:00** Plasmon-Induced Photoenergy Conversion Systems Using Nano-Engineered Gold Particles (Invited) H. Misawa 1,2, 1 Hokkaido Univ., Japan and 2 Natl. Chiao Tung Univ., Taiwan
9A-2-3 **14:10** Ambipolar Transistors Based on Random Networks of WS_2 Nanotubes M. Sugahara 1, H. Kawai 1, Y. Yomogida 1, Y. Maniwa 1, S. Okada 2 and K. Yanagi 1, 1 Tokyo Metropolitan Univ. and 2 Univ. of Tsukuba, Japan	**9B-2-3** **14:20** Hyaluronic Acid-Activatable Nanoparticles for Targeted Prostate Cancer Y.H. Lin 1, J.H. Lin 2, W.Y. Hua 3 and J.N. Li 1, 1 China Medical Univ., 2 Bio-medical Carbon Technol. and 3 Hung-Kuang Univ., Taiwan	**9C-2-3** **14:20** Intramolecular Structure Imaging of Endohedral Metallofullerenes Using Frequency-Modulation Atomic Force Microscopy at Room Temperature T. Yamashita, A. Noda, K. Kobayashi and H. Yamada, Kyoto Univ., Japan	**9D-2-3** **14:30** Fabrication of High Sensitive Magnetic Field Sensor with Amorphous Wire and Fine Pitch Coils T. Kato 1, S. Iwata 1 and Y. Honkura 2, 1 Nagoya Univ. and 2 Magnedesign, Japan
9A-2-4 **14:30** Opening a Gap in Graphene Encapsulated with hBN H. Tomori 1,2, K. Nakamura 1, N. Hoshi 1, Y. Ootsuka 1, K. Watanabe 3, T. Taniguchi 3 and A. Kanda 1, 1 Univ. of Tsukuba, 2 JST-PRESTO and 3 NIMS, Japan	**9B-2-4** **14:40** ASF-Coating PEI Nanoparticles with Layer Structure for Improved Gene Delivery Y. Liu, P. Wang, Y. Zhang and M.Z. Li, Soochow Univ., China	**9C-2-4** **14:40** Visualizing Three-Dimensional Adsorption Structures of Lubricant Molecules on a Hard Disk by Frequency Modulation Atomic Force Microscopy K. Miyazawa 1, N. Nakajima 1, M. Toyoda 1, R. Sagata 2, T. Shimizu 2 and T. Fukuma, 1 Kanazawa Univ., 2 MORESCO and 3 ACT-C, Japan	**9D-2-4** **14:50** Tensile Test of a Silicon Microstructure Fully Coated with Submicrometer-Thick DLC Film Using PECVD Method W. Zhang, A. Uesugi, Y. Hirai, T. Tsuchiya and O. Tabata, Kyoto Univ., Japan

9A-2-5 **15:10** Coexistence of Dirac Cones and Kagome Flat Bands in Porous Graphene M. Maruyama 1, N.T. Cuong 2 and S. Okada 1, 1 Univ. of Tsukuba and 2 NIMS, Japan	**9B-2-5** **15:00** Improvement of Ionic Liquids Wettability on Oxide Substrates and in Situ High-Speed Ellipsometry Diagnosis of IL Nano Thin Film Deposition K. Toyabe, S. Maruyama and Y. Matsumoto, Tohoku Univ., Japan	**9C-2-5** **15:00** Fluorescence Over-Recovery in Transient Response of Bacteriophage T4 DNA with YOYO-1 Electrical Stimulation of Virtual Electrode T. Hoshino an K. Mabuchi, Univ. of Tokyo, Japan	
9A-2: Author's Interview: 17:05-17:15	**9B-2: Author's Interview: 15:20-15:30**	**9C-2: Author's Interview: 16:55-17:05**	**9D-2: Author's Interview: 16:55-17:05**
Room P (Heian 1,2,3, 2F)			
Coffee Break			
Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
9A-3: Nanocarbon Growth M. Katagiri (Toshiba) M. Takamura (NTT)	**9B-3: Electron and Ion Beam Technologies** H. Yamashita (NuflareTechnol.) J. Yamamoto (Hitachi)	**9C-3: NanoTool II** R. Kometani (Univ. of Tokyo) T. Hoshino (Univ. of Tokyo)	**9D-2: Symp. D: Innovation from Open Facilities II** H. Arimoto (AIST) M. de Labachelerie (Univ. of Franchecomte)
9A-3-1 **15:25** Oxidative Decomposition of Carbon Nanotubes and Extraction of Encapsulated Materials H. Omachi, M. Yamagishi, M. Kato, R. Kitaura and H. Shinohara, Nagoya Univ., Japan	**9B-3-1** **15:35** An Application of 2-Dimensional Emitter Source for Multiple Electron Beam System (Invited) H.S. Kim, Y.B. Lee, S.W. Choi, H.W. Kim, D.-W. Kim, S.J. Ahn, T.S. Oh and Y.-H. Song, Sun Moon Univ., Korea	**9C-3-1** **15:35** Detection of Charge State of Single Molecules Using A GaAs-Based Nanowire Enhanced by Metal-Molecule Capacitive Coupling S. Okamoto, M. Sato, K. Sasaki and S. Kasai, Hokkaido Univ., Japan	**9D-3-1** **15:25** Vertical Comb-Drive Microscanner with 4x4 Array of Micromirrors for Phase-Shifting Mirau Micro-Interferometry (Invited) C. Gorecki, FEMTO-ST, France
9A-3-2 **15:45** Synthesis of Multi-Layer h-BN Dependent on Catalyst Thickness by Chemical Vapor Deposition D. Kondo 1,2, K. Hayashi 1,2, M. Kataoka 1, T. Iwai 1 and S. Sato 1,2, 1 Fujitsu Labs. and 2 Fujitsu, Japan	**9B-3-2** **16:05** Effect of Tertiary Electrons in Single Event Time-of-Flight Rutherford Backscattering Spectrometry S. Abo 1, A. Seidl 2, F. Wakaya 1, M. Abe 1 and M. Takai 1, 1 Osaka Univ., Japan and 2 Magdeburg-stendal Univ. of Applied Sci., Germany	**9C-3-2** **15:55** Geometry Dependence of Temperature Coefficient of Resonant Frequency for Resonant Thermal Sensors N. Inomata and T. Ono, Tohoku Univ., Japan	**9D-3-2** **15:55** Examples of CMOS-MEMS Realizations within a France-Japan Collaboration (Invited) M. Denoual 1, E. Lebrasseur 2 and Y. Mita 2, 1 Univ. of Normandie, France and 2 Univ. of Tokyo, Japan
9A-3-3 **16:05** Room Temperature Synthesis of Two-Dimensional Boron Sheets H. Nishino 1, T. Fujimori 1, A. Fujino 1, T. Fujita 2, N. Umezawa 3, S. Okada 1, E. Nishibori 1, S. Ito 1, J. Nakamura 1, H. Hosono 4 and T. Kondo 1,4, 1 Univ. of Tsukuba, 2 Tohoku Univ., 3 NIMS and 4 Tokyo Inst. of Technol., Japan	**9B-3-3** **16:25** Characteristics of Krypton Ion Emission from a Gas Field Ionization Source with a Single Atom Tip H. Shichi, S. Matsubara and T. Hashizume, Hitachi, Japan	**9C-3-3** **16:15** Mechanical Characterization of VLS-Grown Core-Shell SiC Nanowires for Nanomechanical Sensors S. Nakata 1, K. Sugano 1, F. Rossi 2, G. Salyiati 2, A. Lugstein 3 and Y. Isono 1, 1 Kobe Univ., Japan, 2 IMEM-CNR Inst., Italy and 3 Vienna Univ. of Technol., Austria	**9D-3-3** **16:25** Three-Axis Angular Rate Sensor by Sputtered Lead-Free KNN Piezoelectric Films F. Horikiri, K. Watanabe and K. Shibata, Sciocs, Japan
9A-3-4 **16:25** Influence of Copper Crystallographic Orientation on Growth and Etching of Graphene K.P. Sharma, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	**9B-3-4** **16:45** Electron Beam Sources Using Semiconductor Photocathodes for Single-Shot Imaging Electron Microscope T. Nishitani, Y. Honda, D. Sato, M. Tabuchi and H. Amano, Nagoya Univ., Japan	**9C-3-4** **16:35** Characterization Method of Relative Raman Enhancement for Surface Enhanced Raman Spectroscopy Using Gold Nanoparticle Dimer Array K. Ikegami, K. Sugano and Y. Isono, Kobe Univ., Japan	**9D-3-4** **16:45** MEMS-Based Near Infrared Region (NIR) Spectrometer with Silicon Prism Structure S.H. Son 1, S.J. Bang 1, S.Y. Kwon 1, D.G. Jung 1, W.I. Jang 2 and S.H. Kong 1, 1 Kyungpook Natl. Univ. and 2 ETRI, Korea
9A-3-5 **16:45** Direct Fabrication of Graphene on Atomically Flat Diamond (111) Surface by a Nickel Catalyst S. Kanada 1, Y. Katagiri 1, M. Nagai 1, S. Ito 1, T. Matsumoto, T. Ogura 2, D. Takeuchi 2, S. Yamasaki 2 N. Tokuda 1 and T. Inokuma 1, 1 Kanazawa Univ. and 2 AIST, Japan	**9B-3-5** **17:05** Scanning Electron Microscope Line-Profile Analysis of Less-Than-10-nm Patterns M. Hatano 1, Y. Nakayama 1, S. Hotta 1, Y. Momonoi 2, and Z. Wang 2, 1 Hitachi and 2 Hitachi High-Technologies, Japan		
9A-3: Author's Interview: 17:05-17:15	**9B-3: Author's Interview: 17:25-17:35**	**9C-3: Author's Interview: 16:55-17:05**	**9D-3: Author's Interview: 17:05-17:15**
Room A (Heian 4, 2F) and Room P (Heian 1,2,3, 2F)			
17:35-19:00 Happy Hour (Sponsored by Technical Exhibitors) Room A 17:35-17:40 Happy Hour Remark 17:40-17:45 JPK Instruments 17:45-17:50 Photo electron Soul Inc. 17:50-17:55 AGADVANTEST 17:55-18:00 GenISys		18:00-18:05 Nanotechnology Platform Japan 18:05-18:10 Quantum Design Japan, Inc. & Swiss Litho AG 18:10-18:15 Korean Physical Society / Organizing Committee of the MNC 2017	

Thursday, November 10

Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
10A-4: Symp. C: Nanosensors and Their Promises for IoT Society I T. Yanagida (Kyushu Univ.) Y. Hotta (Univ. of Hyogo)	**10B-4: Nanocarbon Properties II** G. Kalita (Nagoya Inst. of Technol.) S. Konabe (Tokyo Univ. of Sci.)	**10C-4: Nanofabrication I** K. Makihara (Nagoya Univ.) Y. Liu (AIST)	**10D-4: Microsystem Technology & MEMS I** T. Namazu (Aichi Inst. of Technol.) S. Nagasawa (Shibaura Inst. of Technol.)
10A-4-1 **9:00** Ultra-Low Energy Nano-Scaled Sensors for IoT Systems (Invited) K. Uchida, Keio Univ., Japan	**10B-4-1** **9:00** Strain-Induced Semiconducting Electron Transport in Graphene Field Effect Device S. Higuchi 1, R. Hiraide 1, T. Kichikawa 1, Y. Ootuka 1, H. Tomori 1,2 and A. Kanda 1, 1 Univ. of Tsukuba and 2 JST-PRESTO, Japan	**10C-4-1** **9:00** Formation and Characterization of Elemental 2D Materials Beyond Graphene (Invited) Y. Yamada-Takamura, JAIST, Japan	**10D-4-1** **9:00** Application on SiC Power Semiconductors to Environmentally Friendly Vehicles (Invited) T. Nishiwaki, T. Koyama and T. Ito, Toyota Motor, Japan
10A-4-2 **9:30** Integrated Circuits for Big Data and Small Sensors (Invited) T. Kuroda, Keio Univ., Japan	**10B-4-2** **9:20** Electronic Properties of PCBM under an External Electric Field S. Furutani and S. Okada, Univ. of Tsukuba, Japan	**10C-4-2** **9:30** Experimental Study of Solid Source Diffusion by Spin on Dopants and Its Application for Minimal SOI-CMOS Fabrication Y.X. Liu, K. Koga, S. Khumpuang, M. Nagano, T. Matsukawa and S. Hara, AIST, Japan	**10D-4-2** **9:30** A Fully Printed Cantilever for Additive Manufacturing of Force Gauge S. Kanazawa, Y. Kusaka, N. Yamamoto and H. Ushijima, AIST, Japan
10A-4-3 **10:00** Macro-Scale, Multi-Sensing Flexible Devices for Human Interactive Applications (Invited) K. Takei, Osaka Pref. Univ., Japan	**10B-4-3** **9:40** Electrical Tunable Localized States in Sub-Band of Bilayer Graphene Nanoribbon J. Sun 1,2, M. Muruganathan 2, K. Ishibashi 1 and H. Mizuta 2,3, 1 RIKEN, 2 JAIST, Japan and 3 Univ. of Southampton, UK	**10C-4-3** **9:50** Low Temperature Formation of Crystalline Si:H/Ge:H Heterostructures by Plasma Enhanced CVD in Combination with Ni-NDs Seeding Nucleation Y. Lu, K. Makihara, D. Takeuchi, M. Ikeda, A. Ohta and S. Miyazaki, Nagoya Univ., Japan	**10D-4-3** **9:50** Microfabricated Emitter Arrays for an Ionic Liquid Electrospray Thruster K. Nakagawa 1, T. Tsuchiya 2 and Y. Takao 1, 1 Yokohama Natl. Univ., 2 Kyoto Univ., Japan
	10B-4-4 **10:00** Interaction of Few Lawer MoS_2 and Adsorbed Dopamine T.T. Nguyen 1,2, T. Komeda 1 and A. Ando 2, 1 Tohoku Univ. and 2 AIST, Japan	**10C-4-4** **10:10** Fabrication of Sub-20 nm Metal Electrodes on 2D Materials without a Charged Particle Beam F. Holzner 1, H. Wolf 2, C. Rawlings 2, U. Duerig 2, A.W. Knoll 2, M. Spieser 1, S. Bonanni 1 and P. Paul 1, 1 SwissLigho and 2 IBM Res., Switzerland	**10D-4-4** **10:10** SMA Rapid Cooling System Using Liquid Transport by Capillary Phenomenon I. Matsui and S. Nakagawa, Shibaura Inst. of Technol., Japan
10A-4: Author's Interview: 11:45-11:55	**10B-4: Author's Interview: 12:25-12:35**	**10C-4: Author's Interview: 10:30-10:40**	**10D-4: Author's Interview: 12:05-12:15**
Room P (Heian 1,2,3, 2F)			
Coffee Break			
Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
10A-5: Symp. C: Nanosensors and Their Promises for IoT Society II T. Yanagida (Kyushu Univ.) K. Uchida (Keio Univ.)	**10B-5: Nanocarbon Application** A. Ando (AIST) K. Yanagi (Tokyo Metropolitan Univ.)	**10C-5: Nanofabrication II** K. Takase (Nihon Univ.) H. Tanaka (Kyushu Inst. of Technol.)	**10D-5: Microsystem Technology & MEMS II** R. Takigawa (Kyushu Univ.) Y. Tomizawa (Toshiba)
10A-5-1 **10:45** On-Chip FRET Biosensor Build on Graphene-Biomolecular-Interface (Invited) Y. Ueno 1 and K. Furukawa 1,2, 1 NTT and 2 Meisei Univ., Japan	**10B-5-1** **10:35** Dry Manufacturing of Carbon Nanotube Thin Films for Flexible Electronics Applications (Invited) E.I. Kauppinen, Aalto Univ. School of Science, Finland	**10C-5-1** **10:55** Controlling Flake Size and Shape of MoS_2 Monolayers Grown by Chemical Vapor Deposition (Invited) A. Özden, F. Ay, C. Sevik and N.K. Perkgöz, Anadolu Univ., Turkey	**10D-5-1** **10:45** Young's Modulus Evaluation of Electroplated Ti/Au Structures for MEMS Devices D. Yamane 1,2, T. Konishi 3, T. Safu 3, H. Nakajima 1,2, M. Teranishi 1,2, C.-Y. Chen 1,2, T.-F.M. Chang 1,2, M. Sone 1,2, H. Toshiyoshi 2,3, K. Masu 1,2 and K. Machida 2,3, 1 Tokyo Inst. of Technol., 2 JST-CREST, 3 NTT-AT and 3 Univ. of Tokyo, Japan
10A-5-2 **11:15** High-Resolution 2D/3D Printing Techniques for Wearable Electronics (Invited) J.-U. Park, UNIST, Korea	**10B-5-2** **11:05** Photoinduced Force on Polystyrene Microsphere Measured by Carbon Nanotube Mechanical Resonator M. Yasuda, K. Takei, T. Arie and S. Akita, Osaka Pref. Univ., Japan	**10C-5-2** **11:25** Extraction of Bandgap in Graphene Nanoribbon by Adsorption of Molecular Nanoparticle R.R. Pandey, P. Liu and H. Tanaka, Kyushu Inst. of Technol., Japan	**10D-5-2** **11:05** Electroless Ni Plating of Seed Film of Electrophoresis of Ag Nanoparticles K. Nitta 1, R. Takigawa 1, A. Ikeda 1, M. Kumazawa 2, T. Hirai 2, M. Komatsu 2 and T. Asano 1, 1 Kyushu Univ. and 2 JGC Catalysts and Chemicals, Japan

	10B-5-3 **11:25** Intercalation Doping of $MoCl_5$ into Low-Temperature-Grown Multilayer Graphene M. Katagiri 1, H. Miyazaki 1, R. Matsumoto 2, T. Matsumoto 3, R. Ifuku 3, T. Sakai 1 and A. Kajita 1, 1 Toshiba, 2 Tokyo Polytechnic Univ. and 3 Tokyo Electron, Japan	**10C-5-3** **11:45** Rapid Visualization of Latent Fingerprints Using Gold Seed Enhancement C.-C. Yu 1, F.-Y. Cheng 2 and C.-H. Su 1, 1 Natl. Yang Ming Univ. and 2 Natl. Cheng Kung Univ. and Hospital, Taiwan	**10D-5-3** **11:25** Mechanical Properties Characterization and Fabrication Damage Investigation of Silicon Nanowires Based on Four-Different Sample Preparation Techniques G. Ina 1, T. Fujii 2, T. Kozeki 1, S. Inoue 1 and T. Namazu 3, 1 Univ. of Hyogo, 2 Akita Pref. Univ. and 3 Aichi Inst. of Technol., Japan
	10B-5-4 **11:45** Diffusion of Li Atom from a Solvated State to Interlayer of Graphite through Carbonylic Edge Termination for Fast Charge/Discharge of Li Ion Battery: First-Principles Calculations T. Kawai 1,2, S. Okada 2 and M. Otani 3, 1 NEC, 2 Univ. of Tsukuba and 3 AIST, Japan	**10C-5-4** **12:05** Dopant Distribution in Nickelided Si Nanowire Surrounded by SiO_2 Film Characterized by Laser-Assisted Atom Probe Tomography S. Hashimoto 1, S. Asada 1, T. Xu 1, S. Oda 1, T. Matsukawa 2 and T. Watanabe 1, 1 Waseda Univ. and 2 AIST, Japan	**10D-5-4** **11:45** Reduction of Thermal Resistance in Al/Ni-reactively-bonded Solder Joints by Thickening the Outermost Layers S. Kanetsuki 1,2, K. Kuwahara 3, S. Egawa 3, S. Miyake 4 and T. Namazu 2, 1 Kobelco Res. Inst., 2 Aichi Inst. of Technol., 3 Univ. of Hyogo and 4 Kobe City College of Technol., Japan
	10B-5-5 **12:05** Modeling and Technology Platform for Analog High Frequency Carbon Nanotube Transistors (Invited) S. Hermann 1,2,3, M. Claus 3, S.E. Schulz1,2,3, M. Schröter 3,4, 1 TU Chemnitz, 2 ENAS, 3 TU Dresden, Germany and 4 UC San Diego, USA		
	10B-5: Author's Interview: 12:35-12:45	**10C-5: Author's Interview: 12:25-12:35**	**10D-5: Author's Interview: 12:05-12:15**
Lunch			
Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
10A-6: Symp. B: Forefront of Graphene & Related 2D Materials D. Kondo (Fujitsu Labs.) K. Maehashi (Tokyo Univ. of Agriculture and Technol.)	**10B-6: Inorganic Nanomaterials I** M. Osada (NIMS) M. Suzuki (AIST)	**10C-6: Nanofabrication III** R. Hasunuma (Tsukuba Univ.) A. Kohno (Fukuoka Univ.)	**10D-6: Nanoimprint, Nanoprint and Rising Lithography** A. Yokoo (NTT) H. Lee (Korea Univ.)
10A-6-1 **14:10** Diamane and Diamond (Invited) (Invited) R.S. Ruoff, UNIST, Korea	**10B-6-1** **14:10** Indium Oxide Nanowires as Efficient Antireflection Layers in Multicrystalline Silicon Solar Cells T.-I. Chin 1, Y. -C. Wang 1, C.-W. Kuo 2, T.-M. Kuan 2, C.-Y. Yu 2 and I.-C. Chen 1, 1 Natl. Central Univ. and 2 TSEC, Taiwan	**10C-6-1** **14:10** III-V Nanowires for Solar Cell and Energy Applications (Invited) H.H. Tan, Australian Natl. Univ., Australia	**10D-6-1** **13:40** Enhanced Light Extraction Efficiency in Organic Light Emitting Diode Using NIL (Invited) Y.D. Kim, H.-J. Choi, Y.H. Sung and H. Lee, Korea Univ., Korea
10A-6-2 **14:40** Controlling Charge Transport, Spin Transport and Superconductivity in a Two-Dimensional Materials by the Electric Field Effect (Invited) B. Özyilmaz, National Univ. of Singapore, Singapore	**10B-6-2** **14:30** Crystallographic Polarity Effect of ZnO on Electronic State of Pentacene/ZnO Hetero Structure T. Nagata 1, T. Nakamura 1,2, R. Hayakawa 1, T. Yoshimura 2, S. Oh 1, N. Hiroshiba 1,3, T. Chikyow 1, N. Fujimura 2 and Y. Wakayama 1, 1 NIMS, 2 Osaka Pref. Univ. and 3 Tohoku Univ., Japan	**10C-6-2** **14:40** Evaluation of Titanium-Assisted Chemical Vapor Etching of Silicon Dioxide R. Kometani, T. Murakami and E. Maeda, Univ. of Tokyo, Japan	**10D-6-2** **14:10** Direct Imprinting of Liquid Silicon for Si Fine Patterns K. Yamazaki, T. Matsuda and T. Shimoda, JAIST, Japan
		10C-6-3 **15:00** Heterogeneous Integration of Vertical $InxGa_{1-x}As$ Nanowires on Ge(111) Substrates by Selective-Area MOVPE A. Yoshida 1, F. Ishizaka 1, K. Tomioka 1,2 and J. Motohisa 1, 1 Hokkaido Univ. and 2 JST-PRESTO, Japan	**10D-6-3** **14:30** Novel Computational Study on Sub-10nm UV Curing Characteristic in Nanoimprint Lithography by Stochastic Approach N. Koyama, M. Shirai, H. Kawata, Y. Hirai and M. Yasuda, Osaka Pref. Univ., Japan
10A-6-3 **15:10** Fundamental Properties and Applications of Two-Dimensional Materials (Invited) T. Kondo 1,2, 1 Univ. of Tsukuba and 2 Tokyo Inst. of Technol., Japan	**10B-6-3** **14:50** Facile Synthesis of Mesoporous $ZnCo_2O_4$ Nanoparticles Using Polyvinyl Pyrrolidone as Growth Modifier for High-Performance Supercapacitor G.M. Tomboc, H.S. Jadhav and H. Kim, Myongji Univ., Korea	**10C-6-4** **15:20** Nanofabrication of Magnetic Tunnel Junctions toward Sub-20 nm Φ for Embedded Cache Memory in High Performance CPUs T. Sugii, H. Noshiro, Y. Yamazaki, C. Yoshida and Y. Iba, Fujitsu, Japan	**10D-6-4** **14:50** High-resolution Embedded Printing Using Imprinted Microgrooves for Transparent Applications R. Hokai, K. Kurihara, N. Takada, S. Matumoto and H. Hiroshima, AIST, Japan

10A-6-4 **15:40** Graphene for Field Emission Applications (Invited) W.I. Milne 1,3, C. Li 2, W. Lei 2, B. Wang 2, G. Duesberg 4, T. Hallam 4 and M.T. Cole 1, 1 Univ. of Cambridge, UK, 2 SEU, China, 3 Tokyo Inst. of Technol., Japan and 4 Trinity College Dublin, Ireland	**10B-6-4** **15:10** Superlattice Study of Lanthanum Cuprate Nanoparticles Synthesized via Sol-Gel Process under Air Pressure F. Budiman, Y. Horibe, Y. Fusao and H. Tanaka, Kyushu Inst. of Technol., Japan	**10C-6-5** **15:40** The Design of High Resolution Low Temperature Polycrystalline Silicon Optical Fingerprint Sensor with 100 Nanometer Thick Absorption Layer Y.-C. Wei, Y.-C. Li, I.-C. Lee and H.-C. Cheng, Natl. Chiao Tung Univ., Taiwan	**10D-6-5** **15:10** Viscoelasticity of a Photoresist Used for Nanoimprint Lithography Measured Under Confinement in Nanometer-Sized Gaps S. Ito 1, K. Takahashi 2, K. Fukuzawa 1 and H. Zhang 1, 1 Nagoya Univ. and 2 Toyohashi Univ. of Technol., Japan
			10D-6-6 **15:30** Nanoimprint System Development and Status for High Volume Semiconductor Manufacturing (Invited) Y. Kondo 1, N. Nishimura 1, T. Takashima 1, T. Matsumoto 1, T. Hayashi 1, A. Kimura 1, K. Emoto 1, J. Choi 2 and P. Schumaker 2, 1 Canon, Japan and 2 Canon Nanotechnol., USA
	10B-6: Author's Interview: 15:30-15:40	**10C-6: Author's Interview: 16:00-16:10**	**10D-6: Author's Interview: 16:00-16:10**
Room P (Heian 1,2,3, 2F)			
Coffee Break			
Rooom P (Heian, 2F)			
10P-7: 16:10-18:10 POSTER SESSION I			
Electron and Ion Beam Technologies			
Chairperson: H. Yamashita (NuflareTechnol.)			
10P-7-1 Optimization of Gold Lamellae Nanostructures as Gas/Liquid Sensors Based on LSPRs S. Zhang, Y. Chen, B. Lu, J. Liu, J. Shao and C. Xu, Fudan Univ., China	**10P-7-2** Progress and Process Improvements for Multiple E-Beam Direct Write I. Servin 1, M.-L. Pouteau 2, P. Essomba 1, J. Pradelles 1, L. Lattard 1, P. Brandt 2 and M. Wieland 2, 1 CEA-LETI, France and 2 MAPPER Lithography, The Netherlands	**10P-7-3** Measurement of Fogging Electron Current for Various Beam Energies at Acceleration Bias in Scanning Electron Microscope Y. Hagiwara, T. Noda and M. Kotera, Osaka Inst. of Technol., Japan	**10P-7-4** Simulation of Charging Process of PMMA Film on Si Substrate under Electron Beam Irradiation A. Fukuzawa and M. Kotera, Osaka Inst. of Technol., Japan
10P-7-5 Surface Potential Distribution of a Resist Film Irradiated by Electron Beam under Acceleration Bias M. Tokai, T. Kawamoto and M. Kotera, Osaka Inst of Technol., Japan	**10P-7-6** Formation of Nano-bump Structures on Si(100) Surfaces by Low-Energy Ga Ion Irradiation S. Suzue, Y. Matsui and J. Yanagisawa, Univ. of Shiga, Japan	**10P-7-100L** Measurement of Fogging Electron Current at a Specimen Surface in Scanning Electron Microscope N. Taku, Y. Hagiwara and M. Kotera, Osaka Inst. of Technol., Japan	**10P-7-101L** Development of a Simulation of Fogging Electron Trajectories in a Scanning Electron Microscope T. Nishino, K. Terada, Y. Hagiwara, T. Noda and M. Kotera, Osaka Inst. of Technol., Japan
10P-7-102L Radial Field Gun Designs for Focused Multi-Beam Electron Columns A. Khursheed and W.K. Ang, Natl. Univ. of Singapore, Singapore	**10P-7-103L** Early Stages of Development Process in Electron-Exposed Resists: A Molecular Dynamics Study S. Hitomi, H. Kawata, Y. Hirai and M. Yasuda, Osaka Pref. Univ., Japan		
Nanocarbons			
Chairperson: S. Okada (Univ. of Tsukuba)			
10P-7-7 Formation of Co Capped Carbon Nanotube in TEM M.S. Rosmi 1,2, Y. Yaakob 1,3, M. Ibrahim Araby 1, S. Sharma 1, M. Z. Mohd Yusop 4, G. Kalita 1, M. Kitazawa 5 and M. Tanemura 1, 1 Nagoya Inst. of Technol., Japan, 2 Univ. Pendidikan Sultan Idris, 3 Univ. Putra Malaysia, 4 Univ. Technol. Malaysia, Malays and 5 Olympus, Japan	**10P-7-8** Electrochemical Study of Dopamine at Electrode Fabricated by Long-Length Carbon Nanotube Dispersed Solution Y. Inoue 1, H. Muguruma 1, H. Inoue 2 and T. Ohsawa 2, 1 Shibaura Inst. of Technol. and 2 Nippon Shizai, Japan	**10P-7-9** Growth of Nitrogen-Doped Graphene Constructed Nanofibers on Nichrome Foil R. Vishwakarma, G. Kalita and M. Tanemura, Nagoya Inst. of Technol., Japan	**10P-7-10** MoS_2 Based Back-Gate FETs for Photodetecters A. Ando 1, D. Kondo 2 and S. Sato 2, 1 AIST and 2 Fujitsu Labs., Japan
10P-7-11 Thermal Response Evaluation of Carbon-Nanotube-Composite Paper for "Thermoelectric Power Generation Paper" K. Kawata and T. Oya, Yokohama Natl. Univ., Japan	**10P-7-12** Effects of Pyrene Adsorption Density as an Anchor Molecules on Biosensor Response Using Reduced Graphene Oxide Thin Film Transistor R. Negishi, Y. Matsui and Y. Kobayashi, Osaka Univ., Japan	**10P-7-13** Novel Tetracationic Ionic Liquids: Synthesis, Characterization, and Application as Carbonaceous Precursors A.H. Tamboli and H. Kim, Myongji Univ., Korea	**10P-7-14** Superconducting Proximity Effect in Graphene/Layered Superconductor $NbSe_2$ Interface K. Yarimizu 1, Y. Ootsuka 1, H. Tomori 1,2, K. Watanabe 3, T. Taniguchi 3, K. Ueno 4 and A. Kanda 1, 1 Univ. of Tsukuba, 2 JST-PRESTO, 3 NIMS and 4 Saitama Univ., Japan

10P-7-15 Large Scale Preparation of Mascroscopic Graphene Fiber Based on Acidic Condition Z. Zhang, D. Zhang, H. Lin and Y. Chen, Soochow Univ., China	**10P-7-16** Amperometric Biosensor with Single-Walled Carbon Nanotube and Flavin Adenine Dinucleotide-Dependent Glucose Dehydrogenase H. Hidaka 1, H. Muguruma 1, H. Iwasa 2, A. Hiratsuka 2 and H. Uzawa 2, 1 Shibaura Inst. of Technol. and 2 AIST, Japan	**10P-7-17** Li Atom Adsorption on Graphene with Various Defects for Large-Capacity Li Ion Batteries: First-principles Calculations K. Shiota 1 and T. Kawai 1,2, 1 Univ. of Tsukuba and 2 NEC, Japan	**10P-7-18** Numerical Simulation of High-Voltage Diamond Schottky Barrier Diodes D.-W. Kang 1, H.N. Chang 2 and M.-W. Ha 2, 1 Cheongju Univ. and 2 Myongji Univ., Korea
10P-7-19 Direct Deposition of Graphene on GaN by Thermal CVD at Low Temperatures K. Aida, T. Enomoto, H. Arai, K. Yokosawa and K. Ueno, Shibaura Inst. of Technol., Japan	**10P-7-20** Electronic Structure of Bilayer Graphene with Defects under an External Electric Field K. Kishimoto and S. Okada, Univ. of Tsukuba, Japan	**10P-7-104L** Electrochemical Ion-Storage Behavior of Organic Molecules Confined in Single-Walled Carbon Nanotubes C. Li, Y. Sakamoto, Y. Ishii and S. Kawasaki, Nagoya Inst. of Technol., Japan	**10P-7-105L** Gas Response Characteristics of Graphene/MoS_2 Heterojunction to NO_2 H. Tabata, Y. Sato, O. Kubo and M. Katayama, Osaka Univ., Japan

Nanodevices

Chairperson: Y. Hotta (Univ. of Hyogo)

10P-7-21 Magneto-Optical Cavity Effect on Perpendicular Magnetic Multilayers for Hydrogen Gas Sensing Application H. Yamane 1, H. Yamasaki 2, K. Sumiyoshi 2 and K. Shigemura 2, 1 Akita Industrial Technol. Ctr. and 2 NLT Technol., Japan	**10P-7-22** Effects of Post Metal Annealing Thermal Budget on Electrical Characteristics of HfO_x-Based RRAM Devices K.-C. Chuang, K.-Y. Lin, J.-D. Luo, C.-Y. Chu and H.-C. Cheng, Natl. Chiao Tung Univ., Taiwan	**10P-7-23** Nanofabrication of Polarizers for InP Based InGaAs Sensor by Electron Beam Lithography X. Huang 1, J. Shao 1, R. Wang 2, T. Li 2, X. Shao 2, X. Li 2, H. Gong 1 and Y. Chen 1, 1 Fudan Univ. and 2 SITP, China	**10P-7-24** p-Cu_2O/AlO_x/n-SiC/n-Si-Structured Nonvolatile pn Memory Diode with Low Switching Voltages M. Tsuchiya, T. Tsukamoto and Y. Suda, Tokyo Univ. of Agriculture and Technol., Japan
10P-7-25 Sodium Chloride Concentration Measurement with p-type Doping Nanowire Sensor C.-C. Hsu 1, Y.-T. Tsai 1, G.-W. Wu 1, C.-C. Wu 2 and C. -L. Dai 3, 1 Yuan Ze Univ., 2 Tamkang Univ. and 3 Natl. Chung Hsing Univ., Taiwan	**10P-7-26** Accepter Doping Effect on Rutile Type TiO_2/Ge Stack Structure by Combinatrial Synthesis Y. Suzuki 1,2, T. Nagata 2,3, Y. Yamashita 2, T. Nabatame 2, A. Ogura 1 and T. Chikyow 2, 1 Meiji Univ., 2 NIMS and 3 JST-PRESTO, Japan	**10P-7-27** Effects of Heater Power and Gas Medium on the Sesitivity of a CNT Yarn Inclinometer D.-W. Jung 1,3, Y.-H. Hwang 1, J.G. Kim 1, S.Y. Kwon 2, D.G. Jung 2, S.H. Kong 2 and G.S. Lee 3, 1 KITECH, 2 Kyungpook Natl. Univ., Korea and 3 Univ. of Texas, USA	**10P-7-28** Study of Single-Electron Information-Processing Circuit Mimicking Foraging Behavior of Honeybee Swarm T. Tanabe and T. Oya, Yokohama Natl. Univ., Japan
10P-7-29 Design of Slime-Mold-Inspired Multi-Layered Single-Electron-Circuit K. Satomi and T. Oya, Yokohama Natl. Univ., Japan	**10P-7-30** Fabrication of Single-Electron Transistor Made of Fe-Dot Film and Its Characteristics S. Honjo, T. Uchida, A. Tsurumaki-Fukuchi, M. Arita and Y. Takahashi, Hokkaido Univ., Japan	**10P-7-31** Temperature Dependence of the Biaxial Tensile Strain in Suspended Ge Cross-Shaped Microstructures S. Ishida 1, S. Kato 1, K. Oda 2, S. Iwamoto 1 and Y. Arakawa 1, 1 Univ. of Tokyo and 2 Hitachi, Japan	**10P-7-106L** Si_3N_4-Based RRAM with Flexibility of Physical Design S. Kim 1, S. Jung 1, M.-H. Kim 1, T. Kim 2, S. Bang 2, S. Cho 2, and B.-G. Park 1, 1 Seoul Natl. Univ. and 2 Gachon Univ., Korea
10P-7-107L The Study on the Application of Low-Temperature Polycrystaline-Silicon Thin-Film Transistors in Digital X-ray Image Sensors Y.-C. Wei 1, Y.-C. Li 1 , I-C. Lee 2 and H.-C. Cheng 1, 1 Natl. Chiao Tung Univ. and 2 ITRI, Taiwan	**10P-7-108L** Solution-Based Formation of High Quality Gate Dielectrics on Graphene Using Microwave-Assisted Annealing K.-S. Kim, G.-H. Park, H. Fukidome, T. Suemitsu, T. Otsuji and M. Suemitsu, Tohoku Univ., Japan	**10P-7-109L** Dimension Dependent Immunity of X-ray Irradiation on LTPS TFTs Y.-C. Wei 1, Y.-C. Li 1, I-C. Lee 2 and H.-C. Cheng 1, 1 Natl. Chiao Tung Univ. and 2 ITRI, Taiwan	**10P-7-110L** Systematic Analysis of Passivation and Annealing Effects on Degradation of Electrical Performance of Black Phosphorus FETs M.-K. Song 1,2, A.-J. Cho 1,2, H.-J. Kim 1,2 and J.-Y. Kwon 1,2, 1 Yonsei Univ. and 2 Yonsei Inst. of Convergence Technol., Korea

Nanofabrication

Chairperson: K. Takase (Nihon Univ.)

10P-7-32 Fiber-based Micro Temperature Sensor by Using Three-Dimensional Photomask Y. Kim 1,2, Y. Zhang 1 and M. Hayase 2, 1 AIST and 2 Tokyo Univ. of Sci., Japan	**10P-7-33** Single-cell Isolation of S. Cerevisiae Using Celluloid Microenclosure Array Formed by the SUMP Method A. Matsutani and A. Takada, Tokyo Inst. of Technol., Japan	**10P-7-34** Formation of Au Nanoparticle Arrays on Hydrogel 2-D Patterns Based on Poly(Vinylpyrrolidone) S. Tsukuda 1,3, K. Okamoto 2,3, H. Yamamoto 3, T. Kozawa 3 and T. Omata 1, 1 Tohoku Univ., 2 Hokkaido Univ. and 3 Osaka Univ., Japan	**10P-7-35** High Aspect Ratio GaN Nanorods Fabricated by Means of UV Photolithography and ICP Etching M. Ekielski 1, M. Wzorek 1, M.A. Borysiewicz 1, A. Domanowska 2, T. Wojtowicz 1, A. Piotrowska 1 and E. Kamińska 1, 1 Al. Lotników and 2 Silesian University of Technol., Poland
10P-7-36 Fabrication of Less Reflective Nanowhisker on Textured Substrates C.W. Lin and J.W. Wang, Tatung Univ., Taiwan	**10P-7-37** Graphene Oxide-assisted Preparation of Polyvinyl Alcohol (PVA) Hybrid Nanofiber by Electrospinning for Biomedical Application Z.-C. Chen and T.-L. Chang, Natl. Taiwan Normal Univ., Taiwan	**10P-7-38** A Novel Approach for Reducing Line Edge Roughness by a Thermal Radiation Induced Local Reflow Process C. Xu, S. Zhang and Y. Chen, Fudan Univ., China	**10P-7-39** Nanofabrication of Ultra-Tall Silicon Nano-Pillars by Inductively Coupled Plasma Etch with Hydrogen Silsesquioxane as Ethcing Mask X. Li, C. Shuo, J. Shao, L. Bingrui and Y. Chen, Fudan Univ., China

10P-7-40 Cell Adhesion and Proliferation on Polytetrafluoroethylene with Plasma-metal and Plasma-Metal-Carbon Interfaces A. Reznickova, K. Kolarova, Z. Smejkalova, O. Kvitek and V. Svorcik, VSCHT, Czech	**10P-7-41** Precisive Tuuing of Surface Plasmon Resonance Wavelength of Anisotropic Silver Nanoprisms by Removing Surface Protective Agent S. Igari, R. Miyasaka, S. Jun, K. Uchida, K. Sugawa, K. Takase and J. Otsuki, Nihon Univ., Japan	**10P-7-42** Gas Barrier Performances of ALD-Al_2O_3/ZnO Laminated Films H. Zama and K. Honda, ULVAC, Japan	**10P-7-111L** Fabrication of Silicon Nano-Wedge Structure by Anisotropic Chemical Etch Process Using TMAH Solutions M.-H. Kim 1, S. Jung 2 and B.-G. Park 1, 1 Seoul Natl. Univ. and 2 Samsung Electronics, Korea
Inorganic Nanomaterials			
Chairperson:			
~~**10P-7-43**~~ **Withdrawn** ~~A Facile Synthesis of Silica-Coated FeCo Nanocubes~~ ~~K. Chokprasombat 1, S. Pinitsoontorn 2 and S. Maensiri 3, 1 Thaksin Univ., 2 Khon Kaen Univ. and 3 Suranaree Univ. of Technol., Thailand~~	**10P-7-44** Physically-Synthesized Porous Gold Nanoparticles for Biological Applications J. Park 1,2, H. Kang 1, Y.H. Kim 1, S.-W. Lee 1, T.G. Lee 1 and J.-S. Wi 1, 1 KRISS and 2 Sungkyunkwan Univ., Korea	**10P-7-45** Gas Sensor Applications of Zinc Oxide-Vanadium Oxide 1D Nanocpomosites Y.C. Liang and Y.R. Cheng, Natl. Taiwan Ocean Univ., Taiwan	**10P-7-46** Effect of Fe_2O_3 on the Supercacitive Property of $ZnFe_2O_4$ F.O. Agyemang and H. Kim, Myongji Univ., Korea
10P-7-47 Synthesis of Carbon-Co_3O_4 Nanorods Composite and Its Application towards Water Oxidation A.R. Jadhav, H.A. Bandal and H. Kim, Myongji Univ., Korea	**10P-7-48** High Stable Electron Emission of Surface-Modified ZnO Nanowires S.-H. Yang and N.-C. Hsu, Univ. of Applied Sci., Taiwan	**10P-7-49** Fabrication of Co_3O_4 Nanotube Arrays by Using Cobalt/chitosan Precursor on ZnO Nanorod Array Templates Y.-C. Lee 1, H.-C. Yang 1, H.-H. Chou 1 and J.-C. Tsai 2, 1 Kun Shan Univ. and 2 Natl. Cheng Kuang Univ., Taiwan	**10P-7-50** Study of Superior Photocatalytic and Photodetection Properties Using ZnO/ZnS Core-shell Nanorod Arrays Y.-R. Liu, S.-L. Tsai, S.-S. Lin, N.-C. Yu and C.-Y. Chen, Natl. Chi Nan Univ., Taiwan
10P-7-51 Solvothermal Preparation and Electrochromic Properties of $W_{18}O_{49}$ Nanowire Arrays on FTO Substrate C.-H. Lu 1, M.H. Hon 1, Y.-C. Lu 2 and I.-C. Leu 3, 1 Natl. Cheng Kung Univ., 2 Natl. Taiwan Univ. and 3 Natl. Univ. of Tainan, Japan	**10P-7-52** Metal-Organic Framework Coated Nanocarbon Electrodes for Low-Temperature Lithium-ion Battery Y. Ishii, Y. Taniguchi and S. Kawasaki, Nagoya Inst. of Technol., Japan	**10P-7-53** Design of Highly Efficient Thermoelectric Nanowires Based on First-Principles Electronic Structure K. Nakamura 1,2, 1 Kyoto Univ. and 2 Egypt-Japan Univ. of Sci. and Technol., Egypt	
Organic Nanomaterials			
Chairperson: S. Takami (Tohoku Univ.)			
10P-7-54 Nano Silver Particles Infiltrated Three-Dimensional Crimped Silk Yarn P. Wang, P. Zhang, Y.Y. Chen, H. Lin, D.S. Zhang, Y. Liu and Y. Zhang, Soochow Univ., China	**10P-7-55** Preparation of TPP/ Magnetic Chitosan Nanoparticles as a Drug Delivery System H.-H. Chou, H.-C. Yang and Y.-C. Lee, Kun Shan Univ., Taiwan	**10P-7-56** Technological Advanced by UV Irradiation of PEDOT Based Thin Film Using the Electrolysis Polymerization Method M. Takahasi, T. Deguchi and M. Takashiri, Tokai Univ., Japan	**10P-7-57** Effects of Pluronic and Fibronectin on JSR Photo-induced Surface Control Polymer for Cell Culturing Template K.S. Kiang 1, A. Desalvo 1, S. Peteers 2, K. Hoshiko 2, H. Hamaguchi 3, H. Morgan 1 and H.M.H. Chong 1, 1 Univ. of Southampton, UK, 2 JSR Micro NV, Belgium and 3 JSR, Japan
10P-7-58 Molecular Design of Radical-Functionalized Fullerene and Carbon Nanotubes (CNT): A DFT Study H. Tachikawa, T. Iyama and H Kawabata, Hokkaido Univ., Japan	**10P-7-59** Computer Aided-Molecular Design of Organic Radical-Functionalized Graphene: Density Functional Theory (DFT) Study T. Iyama, H. Kawabata and H. Tachikawa, Hokkaido Univ., Japan	**10P-7-112L** Synthesis and Adsorption Properties of Polymer-Mesoporous SiO_2 Nanocomposite Based on Cellulose Biomass Via Self-Assembly J. Tao 1, J. Xiong 2, C. Jiao 1, Y. Chen 1 and H. Lin 1, 1 Soochow Univ., China and 2 Nanyang Technol. Univ., Singapore	~~**10P-7-113L**~~ **Withdrawn** ~~Rambutan Rind Extract Assisted Silver Nanoparticle Synthesis and Its Antibacterial Activity~~ ~~N. Yongvanich and S. Phongtongpasuk, Silpakorn Univ., Thailand~~
NanoTool			
Chairperson: K. Sugano (Kobe Univ.)			
10P-7-60 Nanopipette-Based Atomic Force Microscope for Nanofabrication T.S. Song, S. An, J. Whang and W. Jhe, Seoul Natl. Univ., Korea	**10P-7-61** Cell Viability in Flash Freezing Method after Cryopreservation M. Shinose 1, A. Ueno 2, S. Yamaguchi 2 and Y. Akiyama 1, 1 Shinshu Univ. and 2 MICROJET, Japan	**10P-7-62** Approach to Chromosome Structure by Ga FIB/SEM and Ne FIB/HIM S. Sasakura 1, A. Yoshida 2, K. Kaneyoshi 1, A. Dwiranti 1, H. Takata 1, S. Uchiyama 1, Y. Otsuka 2, S. Ogawa 1,3 and K. Fukui 1,4, 1 Osaka Univ., 2 Toray Res. Ctr., 3 AIST and 4 Tottori Univ., Japan	**10P-7-63** Mixing and Blistering Phenomena in Etching Process of Gold Surface on Silicon Dioxide Layer Using Helium Ion Microscopy E. Maeda 1, T. Iijima 2, S. Migita 2, S. Ogawa 2 and R. Kometani 1, 1 Univ. of Tokyo and 2 AIST, Japan

10P-7-64 Enhanced the Sensitivity of AFM Cantilevers by Controlling the Irradiated Configuration of Laser N.D. Vy 1, L.T. Dat 2, H.T. Huy 2 and T. Iida 3, 1 Ton Duc Thang Univ., 2 Ho Chi Minh City Univ. of Sci., Vietnam and 3 Osaka Pref. Univ., Japan	**10P-7-65** Adhesion Measurement of Micro-patterned Surfaces Using 3D Printed AFM Tips C.-Y. Hung, Y.-P. Yeh, C.-K. Sung, W.-C. Liao, T.-H. Chuang and C.-C. Fu, Natl. Tsing Hua Univ., Taiwan	**10P-7-66** Drift Compensation for Measuring Lattice Constant by Atomic Force Microscopy B.-C. He, I-C. Lee, G.-J. Wu, and W.-E. Fu, ITRI, Taiwan	**10P-7-67** Molecular-Scale Imaging of Two-Dimensional Streptavidin Crystals in Aqueous Solutions by Frequency-Modulation Atomic Force microscopy M. Miyamoto, H. Kominami, K. Kobayashi and H. Yamada, Kyoto Univ., Japan
10P-7-68 Development of Combined System of Pulsed Laser Deposition and Non-Contact Atomic Microscopy and High Resolution Imaging of Anatase-TiO_2(001) Reconstructed Surface D. Katsube 1, H. Yamashita 1,2, S. Abo 1, F. Wakaya 1 and M. Abe 1, 1 Osaka Univ. and 2 JST-PRESTO, Japan	**10P-7-69** Molecular Scale Investigations of Hydration Structures of Hydrophilic Alkanethiol Self-Assembled Monolayers by FM-AFM A. Fujita, K. Kobayashi and H. Yamada, Kyoto Univ., Japan	**10P-7-70** STM-Induced Light Emission Annalysis of a Chiral Perylene Derivative on the Au(111) and NiAl(110) Surfaces N. Yajima, S. Chaunchaiyakul, P. Krukowski, M. Akai-Kasaya, A. Saito and Y. Kuwahara, Osaka Univ., Japan	**10P-7-71** Optimization of Gold Nanorod Array Structure on Microresonator for Resonant-Based Laser Wavelength Measurement Using Photothermal Conversion K. Sugano 1, Y. Tanaka 1, E. Maeda 2, R. Kometani 2 and Y. Isono 1, 1 Kobe Univ. and 2 Univ. of Tokyo, Japan
10P-7-72 Single-Molecule Surface-Enhanced Raman Spectroscopy of 4,4'-bipyridine on Fabricated Substrates with Directionally Arrayed Gold Nanoparticle Dimers K. Sugano, K. Aiba, K. Ikegami and Y. Isono, Kobe Univ., Japan	**10P-7-73** Optical Sensor Design Based on Bloch Surface Waves on One-Dimensional Photonic Crystal Substrate Y.-J. Hung and I.-S. Lin, Natl. Sun Yat-Sen Univ., Taiwan		

Nanoimprint, Nanoprint and Rising Lithography

Chairperson: A. Miyauchi (Hitachi)

10P-7-74 Prototype of Complementary Pattern Generator for Control of Residual Layer Uniformity in Nanoimprint Lithography S.-W. Youn, K. Suzuki and H. Hiroshima, AIST, Japan	**10P-7-75** Study of Organic Thin Film Transistors with 3-D Finlike Channels Fabricated by Nanoimprint Technology H.J.H. Chen 1, T.-N. Lee 2, J.-S. Tang 1 and K.-C. Hsieh 2, 1 Natl. Chi Nan Univ. and 2 Natl. Tsing Hua Univ., Taiwan	**10P-7-76** Growth of Aluminum Oxide on and in Imprinted Resin Patterns by an Atomic Layer Deposition Technique N. Hiroshiba, S. Kuroyanagi and M. Nakagawa, Tohoku Univ., Japan	**10P-7-77** Evaluation of Thermal Nanoimprint Resin with PDMS Additive for Improving Release Property S. Fukui, M. Okada and Y. Haruyama, Univ. of Hyogo, Japan
10P-7-78 Fabrication of Nanogratings on Nanocellulose Films Using a Roll-to-Roll Nanoimprinting Method T. Mäkelä, M. Kainlauri, T. Tammelin and U. Forsström, VTT Technical Res. Ctr., Finland	**10P-7-79** Nanoimprinting Silica Templates with Micro-, Sub-20-nm, and 7-nm Patterns Fabricated by Electron Beam Lithography S. Ito 1, E. Kikuchi 1, M. Watanabe 2, Y. Sugiyama 2 and M. Nakagawa 1, 1 Tohoku Univ. and 2 ELIONIX, Japan	**10P-7-80** Nanoimprint of High Refractive Index Resin Composed of Episulfide Material K. Namiki, S. Fuse, E. Koshiishi and K. Furukawa, Mitsubishi Gas Chemical, Japan	**10P-7-114L** Fabrication of Self-Standing Thin Polystyrene Films with Through Holes by use of Imprint Process N. Sakamoto, H. Kawata, M. Yasuda and Y. Hirai, Osaka Pref. Univ., Japan

BioMEMS, Lab on a Chip

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

10P-7-81 A Single Human Pluripotent Stem Cell Culture Platform L. Yu 1, J. Li 1, W. Yang 2, F. Tang 2, N. Fujimoto 1, M. Nakajima 1, Y. Chen 1,3, L. Liu 1 and H. Kotera 1, 1 Kyoto Univ., Japan 2 Peking Univ., China and 3 CNRS-ENS-UPMC, France	**10P-7-82** Development of a Fluorescence Polarization-Based High-Throughput Assay System for Molecular Interaction Screening O. Wakao 1, M. Maeki 1, A. Ishida 1, H. Tani 1, A. Hibara 2 and M. Tokeshi 1, 1 Hokkaido Univ. and 2 Tohoku Univ., Japan	**10P-7-83** Polymer Film-Based Flow Regulatory Valves for Disposable Microfluidics X. Zhang, G. Zhao, N. Xiang and Z. Ni, Southeast Univ., China	**10P-7-84** Reconfigurable Microfluidic Channel Capable of Patterning of Cells M. Oono, A. Takano and N. Futai, Shibaura Inst. of Technol., Japan
10P-7-85 Label-Free Detection of Influenza Subtypes Based on Multisite Binding to Sialic Acid Receptors Immobilized Gold Electrode Y. Horiguchi, T. Goda, A. Matsumoto and Y. Miyahara, Tokyo Medical and Dental Univ., Japan	**10P-7-86** Demonstration of ELISA on Steadily Rotating Centrifugal Microfluidic Device with Three-Dimensionally Extended Solid Phase S. Okamoto and Y. Ukita, Univ. of Yamanashi, Japan	**10P-7-87** Neuronal Activity Evoked by Femtosecond Laser-Induced Stimulation C. Hosokawa 1, Y. Nakagawa 1,2, S.N. Kudoh 2 and T. Taguchi 3, 1 AIST, 2, Kwansei Gakuin Univ. and 3 NICT, Japan	**10P-7-88** Evaluation of the Diffusion Progress in the Microfluidic Static Gradient Generator M. Tamura 1, Y. Shiota 1, A. Yoshino 1, T. Ogawa 2, A. Takano 1 and N. Futai 1, 1 Shibaura Inst. of Technol. and 2 Tokyo Medical and Dental Univ., Japan

Microsystem Technology and MEMS

Chairperson: T. Namazu (Aichi Inst. of Technol.)

10P-7-89 The Development of a Resonant Temperature Micro-Sensor by Electroforming Process Y.-H. Lin 1, Y.-C. Shieh 2, C.-C. Chen 1, C.-N. Hsiao 1, M.-H. Shiao 1 and C.-T. Lin 1, 1 Natl. Applied Res. Labs. and Natl. Chiao Tung Univ., Taiwan	**10P-7-90** Dependency of Microstructure on Exothermic Characteristics for Al/Ni Multilayer Materials Based on Cold-rolled Method N. Kametani 1, T. Izumi 1, S. Miyake 1, S. Kanetsuki 1,2 and T. Namazu 2, 1 Kobe City College of Technol. and 2 Aichi Inst. of Technol., Japan	**10P-7-91** Thermoplasmonic Marangoni Flow Around a Microbubble in Degassed Water K. Namura, K. Nakajima and M. Suzuki, Kyoto Univ., Japan	**10P-7-92** Fabrication of Thin-Film Thermoelectric Generators with Ball Lenses for Conversion of Near-infrared Solar Energy Y. Ito, M. Mizoshiri, M. Mikami, J. Sakurai and S. Hata, Nagoya Univ., Japan
10P-7-93 Fabrication of Ni/Cr_2O_3 Composite Microstructures Using Femtosecond Laser Reductive Sintering of NiO/Cr Mixed Nanoparticles K. Tamura, M. Mizoshiri, J. Sakurai and S. Hata, Nagoya Univ., Japan	**10P-7-94** Microscale Phloem Sap Dynamics Measurement Sensor Device for Monitoring the Transport of Nutritive Substances in Plant Shoots A. Ono 1, Y. Yano 2, K. Terao 1, H. Takao 1, R. Ichihashi 2, T. Kobayashi 2, I. Kataoka 2 and F. Shimokawa 1, 1 Kagawa Univ. and 2 Mitsubishi Electric, Japan	**10P-7-95** Optimisation of Subthreshold Leakage Current in Resonant Gate Transistor R Latif 1,2, B.Y. Majlis 2 and R Cheung 1, 1 Univ. of Edinburgh, UK and The Natl. Univ. of Malaysia, Malaysia	**10P-7-96** X-ray Evaluation of High Verticality Sidewalls Fabricated with Deep Reactive Ion Etching K. Takeuchi 1, Y. Ezoe 1, K. Ishikawa 2, K. Nakamura 1, M. Numazawa 1, M. Terada 1, M. Fujitani 1, D. Ishii 1, Y. Noda 1, T. Ohashi 1, K. Morishita 3, K. Nakajima 4 and K. Mitsuda 2, 1 Tokyo Metropolitan Univ., 2 ISAS/JAXA, 3 Kyoto Univ. and 4 JST, Japan
10P-7-97 Floating Thin-membrane Based SAW Gyroscope for Higher Sensitivity M.H. Lee, H.S. Choi, C.H. Choi and K.K. Lee, Ajou Univ., Korea	**10P-7-98** Enhancement of Efficiency for Power Generation of a Plate-Type Thermoelectric Power Generator by Stacking the Thermoelectric Plates T. Daimon and H. Tohmyoh, Tohoku Univ., Japan	**10P-7-99** Fabrication of Thick Glass Layers for Thermal Isolation by Glass Reflow Process N.V. Toan and T. Ono, Tohoku Univ., Japan	**10P-7-115L** $LiNbO_3$/Si Hybrid Wafer Bonded in Ambient Air Using Laser Irradiation R. Takigawa, H. Kawano, H. Ikenoue and T. Asano, Kyushu Univ., Japan
10P-7-116L Development of a Small RF Variable Capacitor Integrated with Authomatic Fluid Carrying System S. Kanazawa 1, T. Nishihara 1, Y. Shibasaki 2, Y. Ogawa 2, H. Fujii 1, T. Furutsuka 1 and K. Suzuki 1, 1 Ritsumeikan Univ. and 2 Taiyo Ink, Japan			

Room A (Heian 3,4, 2F)

18:20-20:20
Banquet

Friday November 11

Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
11A-8: Symp. A: Metrology and Inspection for Advanced Patterning S. Nagahara (Tokyo Electron) A. Yamaguchi (Hitachi)	**11B-8: Inorganic Nanomaterials II** M. Suzuki (AIST) T. Taniguchi (NIMS)	**11C-8: Nano Resistive and Atomic Switching Devices** T. Yanagida (Kyushu Univ.) N. Banno (NEC)	**11D-8: BioMEMS, Lab on a Chip I** T. Akagi (Univ. of Tokyo) K. Tawa (Kwansei Gakuin Univ.)
11A-8-1 **9:00** Metrology and Inspection for Next Generation Lithography (Invited) M. Asano, Toshiba, Japan	**11B-8-1** **9:00** Nature of $BaTiO_3$ Nanocubes for Self-Assembly and Dielectric Abnormally (Invited) K. Kato, K. Mimura, Q. Ma, Z. Liu and K. Yasui, AIST, Japan	**11C-8-1** **9:00** Conductance Quantization in Binary-Oxide-Based ReRAM Cells (Invited) Y. Nishi, H. Sasakura, Y. Kuriyama and T. Kimoto, Kyoto Univ., Japan	**11D-8-1** **9:00** Cell-Generated Niches for Organ-on-a-Chip Microdevices (Invited) Y. Torisawa, Kyoto Univ., Japan
11A-8-2 **9:30** Current and Future Requirements for Metrology and Inspection for Advanced Patterning (Invited) P. Leray, A.L. Charley, P. Wong, S. Halder and P. Foubert, imec, Belgium	**11B-8-2** **9:30** Universal Design Rule for Single Crystalline Oxide Nanowires Growth K. Nagashima 1, H. Anzai 1, D. Sakai 1, Z. Zhu 1, A. Inoue 1, C. Nakamura 1, A. Klamchuen 2, M. Suzuki 1, H. Yoshida 3, M. Kanai 1, G. Meng 1, F.W. Zhuge 1, Y. He 1, S. Takeda 3, T. Kawai 3 and T. Yanagida 1, 1 Kyushu Univ., Japan, 2 NANOTEC, Thailand and Osaka Univ., Japan	**11C-8-2** **9:30** Resistive Switching Mechanisms in Memristors with TiO_2/Al_2O_3 Bilayer Structures L. Alekseeva 1, M. Baranovskii 1, V. Luchinin 1, A. Petrov 1, T. Chikyow 2 and T. Nabatame2, 1 St. Petersburg Electrotechnical Univ., Russia and 2 NIMS, Japan	**11D-8-2** **9:30** Development of a Microfluidic Probe Integrated Device for High Resolution Spatial Chemical Stimulation Control K. Shinha 1, M. Horayama 1, T. Fujii 2 and H. Kimura 1, 1 Tokai Univ. and 2 Univ. of Tokyo, Japan
11A-8-3 **10:00** Outlook of Mask Registraton and Required Metrology Technology (Invited) K.-D. Roeth, KLA, Germany	**11B-8-3** **9:50** Highly Organized Layer-by-Layer Assembly of Perovskite Ferroelectric Superlattices M.S. Khan 1,2, M. Osada 1,2, Y. Ebina 1 and T. Sasaki 1, 1 NIMS and 2 Waseda Univ., Japan	**11C-8-3** **9:50** p-type Polymer-Based Ag_2S Atomic Switch for 'Tug of War' Operation C. Lutz 1,2, T. Hasegawa 1 and T. Chikyow 2, 1 Waseda Univ. and 2 NIMS, Japan	**11D-8-3** **9:50** A Prime-Boost Vaccination Strategy Based on Chitosan/Gamma-Polyglutamic Acid Microneedle Patches with a Two-Stage Release Profile M.-C. Chen and Y.-Y. Chen, Natl. Cheng Kung Univ., Taiwan
11A-8-4 **10:30** Electron-Beam Metrology and Inspection: Scaling, Variability, and Productivity (Invited) Y. Momonoi and H. Fukuda, Hitachi High-Technologies, Japan	**11B-8-4** **10:10** Crystal Orientation Dependence of Bi-layered Ferroelectric Nanostructures in Epitaxial Pillar-Matrix Nanocomposite Films Y. Kawahira, S. Maruyama and Y. Matsumoto, Tohoku Univ., Japan	**11C-8-4** **10:10** Quantized Conductance Operation Near a Single-Atom Point Contact in a Polymer-Based Atomic Switch K, Krishnan, T. Tsuruoka and M. Aono, NIMS, Japan	**11D-8-4** **10:10** Measurement of the Surface Protein Level and Diameter of Individual Extracellular Vesicles of Human Breast Cancer Cells on a Microfluidic Chip T. Akagi 1, H. Kishita 1, Y. Suehiro 1, S. Oniyanagi 1 and T. Ichiki 1,2, 1 Univ. of Tokyo and 2 iCONM, Japan
	11B-4: Author's Interview: 11:55-12:05	**11C-4: Author's Interview: 12:05-12:15**	**11D-8: Author's Interview: 11:55-12:05**
Room P (Heian 1,2,3, 2F)			
Coffee Break			
Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
11A-9: Advanced Photolithography J. Miyazaki (ASML) T. Sato (Toshiba)	**11B-9: Inorganic Nanomaterials III** T. Taniguchi (NIMS) J. Hamagami (Kanto Gakuin)	**11C-9: Nanosensor Devices** K. Takei (Osaka Pref. Univ.) T. Yanagida (Kyushu Univ.)	**11D-9: BioMEMS, Lab on a Chip II** H. Nagai (AIST) Y. Takamura (JAIST)
11A-9-1 **11:15** Readiness of EUV Lithography and Its Impacts on Design and Patterning of Backend Layers for 5nm Node and Beyond (Invited) T.-B. Chiou 1, A. Chen 2 and M. Dusa 2, 1 ASML Taiwan, Taiwan and 2 ASML US, USA	**11B-9-1** **10:45** Laser Ablation in Liquid: from Nanocrystals Synthesis to Nanostructures Fabrication (Invited) G.W. Yang, Sun Yat-sen Univ., China	**11C-9-1** **10:45** Acetone Sensing by Graphene Sensor H. Nemoto, R. Ueki, Q. Fang, T. Matsuki, R. Fukui and S. Warisawa, Univ. of Tokyo, Japan	**11D-9-1** **10:45** Combination of Microdevices and Biological Cells to Create Novel Principle Devices (Invited) Y. Tanaka, RIKEN, Japan
11A-9-2 **11:45** Development of 250w 13.5nm LPP-EUV Light Source for HVM Lithography J. Fujimoto, T. Saito and H. Mizoguchi, Gigaphoton, Japan	**11B-9-2** **11:15** A Dual-Mode Substrate Based on Ultrathin Silica Coated Silver Nanocubes and Modified Aluminum Sheet for Biomolecular Detection N.M. Kha 1, W.-N. Su 1 and B.-J. Hwang 1,2, 1 Natl. Taiwan Univ. of Sci. and Technol. and 2 Natl. Synchrotron Radiation Res. Ctr., Taiwan	**11C-9-2** **11:05** Effect of Yttrium Content and Thermal Annealing on the Structural Properties and Sensing Characteristics of YbY_xO_y Sensing Membranes T.-M. Pan 1, C.-W. Wang 1, H.-C. Wang 1 and L. Chi 2, 1 Chang Gung Univ., Taiwan and 2 Westfälische Wilhelms Univ. Münster, Germany	**11D-9-2** **11:15** Patterning of Kinesin Molecules on Au Nano-Pillars by Selective SAM Coatings T. Kaneko, S. Ando, H. Shintaku, H. Kotera and R. Yokokawa, Kyoto Univ., Japan

11A-9-3 **12:05** Process-Induced Variability in Multiple Patterning Extension M. Yamato, A. Hara, S. Natori, K. Koike, S. Yamauchi, K. Oyama and H. Yaegashi, Tokyo Electron, Japan	**11B-9-3** **11:35** Characterization of $Cu_2ZnSnSe_4$ Nanoparticles Prepared at Various Temperatures T. Suzuki 1, T. Suzuki 2, S. Hori 2 and S. Nonomura 2, 1 Japan Fine Ceramics Ctr. and 2 Gifu Univ., Japan	**11C-9-3** **11:25** Design and Fabrication of Polymer-based Photonic Crystal Waveguide for Sensing Application J. Sun, H. Hisamoto, K. Sueyoshi and T. Endo, Osaka Pref. Univ., Japan **11C-9-4** **11:45** Voltammetric Detection of Hydrochlorothiazide Using Functionalized CNT K.K. Reddy and H. Kim, Myongji Univ., Korea	**11D-9-3** **11:35** Application of a Bull's Eye-plasmonic Chip to Highly Sensitive Bio-detection with a Microscope S. Izumi 1, M. Toma 1, C. Hosokawa 2 and K. Tawa 1,2, 1 Kwansei Gakuin Univ. and 2 AIST, Japan
11A-9: Author's Interview: 12:25-12:35	**11B-9: Author's Interview: 11:55-12:05**	**11C-9: Author's Interview: 12:05-12:15**	**11D-9: Author's Interview: 11:55-12:05**
Lunch			
Room A (Heian 4, 2F)	Room B (Suzaku 2, 2F)	Room C (Suzaku 1, 2F)	Room D (Daigo, 2F)
11A-10: Resist and Directed Self-Assembly T. Nagai (JSR) T. Azuma (Toshiba)	**11B-10: Inorganic Nanomaterials IV** J. Hamagami (Kanto Gakuin) M. Suzuki (AIST)	**11C-10: Nano Devices** T. Maemoto (Osaka Inst. of Technol.) Y. Hotta (Univ. of Hyogo)	**11D-10: Microsystem Technology and MEMS III** S. Nagasawa (Shibaura Inst. of Technol.) M. Ikeuchi (Univ. of Tokyo)
11A-10-1 **14:00** Directed Self-Assembly of High-χ Block Copolymers (Invited) A. Vora, N. Arellano, K. Schmidt, D.P. Sanders and R.D. Allen, IBM Research Almaden, USA	**11B-10-1** **13:30** Preparation of Graphene Oxide-Coated Silk Fibers through HBPAA Induced Layer-by-Layer Self-assembly J. Song 1,2, S. Xu 1, T. Chen 2, S. Yamanaka 1 and H. Morikawa 1, 1 Shinshu Univ., Japan and 2 Jiang Univ. of Sci. & Technol., China	**11C-10-1** **13:30** Structural Properties and Electrical Characteristics of Sm_2Tio_5 Gate Dielectrics for InGaZnO Thin-Film Transistors T.-M. Pan 1, H.-C. Wang 1, Y.-H. Huang 1, C.L. Chan 1, J.-L. Her 1 and K. Koyama 2, 1 Chang Gung Univ., Taiwan and 2 Kagoshima Univ., Japan	**11D-10-1** **13:30** Tactile Display for Stiffness Distribution Using Magnetorheological Fluid Array H. Ishizuka 1 and N. Miki 2, 1 Kagawa Univ. and 2 Keio Univ., Japan
11A-10-2 **14:30** A Molecular Dynamics Analysis on PS-Brush Surface Modification for Pre-Treatment of DSA T. Nakano 1 and M. Muramatsu 2, 1 Tokyo Electron and 2 Tokyo Electron Kyushu, Japan	**11B-10-2** **13:50** Pulse-induced Resistive Switching Device of $Pt/TiO_{2-5}/Pt$ Cross-Point Structure with Electron-Ion Mixed Conduction K. Kawamura 1, T. Tsuchiya 2, M. Takayanagi 1, M. Minohara 3, M. Kobayashi 3, K. Horiba 3, H. Kumigashira 3, K. Terabe 2 and T. Higuchi 1, 1 Tokyo Univ. of Sci., 2 NIMS and 3 KEK, Japan	**11C-10-2** **13:50** Impact of Ti Content on Electrical Characteristics of ErTixOy Charge Storage Layer in InGaZnO Thin-Film Transistor Nonvolatile Memories T.-M. Pan, C.-H. Chen, Y.-H. Hu and J.-L. Her, Chang Gung Univ., Taiwan	**11D-10-2** **13:50** Development of a Fully Flexible Micro-stimulation Electrode Tip R. David and N. Miki, Keio Univ., Japan
11A-10-3 **14:50** Sensitivity Enhancement of Chemically Amplified EUV Resist by Adding Acid Generation Promoters S. Fujii 1, K. Okamoto 1, H. Yamamoto 2, T. Kozawa 2 and T. Itani 3, 1 Hokkaido Univ., 2 Osaka Univ. and 3 EIDEC, Japan	**11B-10-3** **14:10** Structural and Magnetic Domain Characterization of Lateral MnAs Nanowires R. Horiguchi, H. Kato, K. Kabamoto, R. Kodaira and S. Hara, Hokkaido Univ., Japan	**11C-10-3** **14:10** Temperature Dependence of Gate-all-around Poly-Si Nanowire Junctionless Transistors with Multiple Channels and Sub-50 nm Twin Gate C.-T. Tso, T.-Y. Liu, F.-M. Pan and J.-T. Sheu, Natl. Chiao Tung Univ., Taiwan	**11D-10-3** **14:10** Breathing Signal Analysis of Mouse during Drug Inhalation H. Kawaoka 1, Y. Hasegawa 1, M. Matsushima 2, T. Kawabe 2 and M. Shikida 1, 1 Hiroshima City Univ. and 2 Nagoya Univ., Japan
	11B-10-4 **14:30** Shape Control of Ferromagnetic MnAs Nanoclusters and Their Magnetization in Semiconducting InAs Nanowires R. Kodaira, K. Kabamoto and S. Hara, Hokkaido Univ., Japan	**11C-10-4** **14:30** Molecular Dynamics Study on Dipole Layer Formation at High-k/SiO_2 Interface: -Possibility of Oxygen Ion Migration Induced by the Imbalance of Multipole Potentials- R. Kunugi, N. Nakagawa and T. Watanabe, Waseda Univ., Japan	**11D-10-4** **14:30** Effect of Guide Tube Length on Sensor Output in Inspired Airflow Measurement Y. Hasegawa 1, N. Harada 1, M. Matsushima 2, T. Kawabe 2 and M.Shikida, 1 Hiroshima City Univ. and 2 Nagoya Univ., Japan
	11B-10-5 **14:50** Nanoscale Liquid as a Novel Nanomaterial and Its Atomic Force Microscopic Study M. Lee, S. An, T.S. Song and W. Jhe, Seoul Natl. Univ., Korea	**11C-10-5** **14:50** MEMS Fabricated Conformal Electrodes Attempting Thermotunnelling Refrigeration A. Banerjee, Y. Hirai, T. Tsuchiya and O. Tabata, Kyoto Univ., Japan	**11D-10-5** **14:50** Finger-tip Size Quantitative Real-time PCR Device for Early Detection of Cancer 2nd Report: The Detection of Cancer Specific MicroRNA Y. Kimura, M. Ikeuchi and K. Ikuta, Univ. of Tokyo, Japan
11P-10: Author's Interview: 15:10-15:20	**11B-10: Author's Interview: 15:10-15:20**	**11C-10: Author's Interview: 15:10-15:20**	**11D-10: Author's Interview: 15:10-15:20**

Room P (Heian 1,2,3, 2F)

11P-11: 15:20-17:20 POSTER SESSION II

Advanced Photolithography

Chairperson: J. Miyazaki (ASML)

11P-11-1
Actinic EUV Mask Inspection using Coherent EUV Light from High Harmonic Generation
B. Moon 1,2, Y.S. Kim 3, Y.T. Kim 1, H. Sung 4, J. Kim 4, B.-K. Ju 2 and Y.M. Jhon 1, 1 KIST, 2 Korea Univ., 3 Hanmi Semiconductor and 4 Laser Spectronix, Korea

11P-11-98L
Optimization of High Harmonic Generation of Coherent EUV Light for EUV Metrology: Simulations and Experiments
M.K. Jung 1,2, Y.S. Kim 3, Y. Kim 1, Y.T. Kim 1, H. Sung 4 and J. Kim 4, J.H. Lee 2 and Y.M. Jhon 1, 1 KIST, 2 Univ. of Seoul, 3 Hanmi Semiconductor and 4 Laser Spectronix, Korea

11P-11-99L
Improvement of Mask-Defect-Detection Performance of Coherent EUV Scatterometry Microscope with High-Harmonic-Generation EUV Source
D. Mamezaki 1, T. Harada 1, Y. Nagata 2 and T. Watanabe 1, 1 Univ. of Hyogo and 2 RIKEN, Japan

Resist and Directed Self-Assembly

Chairperson: K. Yoshimoto (Kyoto Univ.)

11P-11-2
Dependence of Dissolution Kinetics of ZEP 520A on Change of Molecular Weight Induced by Electron Beam Irradiation
A. Konda 1, H. Yamamoto 1, T. Kozawa 1 and S. Yoshitake 2, 1 Osaka Univ., and 2 NuFlare Technol., Japan

11P-11-3
In-situ Measurement of Outgassing Generated from EUV Resist Including Metal Oxide Nanoparticles During Electron Inradiation
S. Takahasi 1, Y. Minami 1, M. Kaboi 1, Y. Matsumoto 1, A. Sekiguchi 1 and T. Watanabe 2, 1 Litho Tech Japan and 2 Univ. of Hyogo, Japan

11P-11-4
Removal of SU8 with N-Methyl-2-Pyrrolidone Doping LiCl and H_2O
M. Yasui 1, H. Nakano 2, M. Kurouchi 1, T. Ozawa 1, S. Kawano 2 and S. Kaneko 1, 1 Kanagawa Industrial Technol. and 2 Nomura Micro Sci., Japan

11P-11-5
Controllable Micro-Optical Element Molds Fabricated by Self-Assembly and Metal-Assisted Chemical Etching
P. Jin, Y. Han, A. Jin and A. Wang, Harbin Inst. of Technol., China

11P-11-6
Polysaccharide Block Copolymers Made from Woods for the Contact Hole and L/S Applications on Directed Self-Assembly Lithography
K. Morita and K. Yamamoto, Oji Holdings, Japan

11P-11-7
PMMA-Selective Organic-Inorganic Hybridization Using Cylindrically Micro-Phase Separated PS-*block*-PMMA
N. Hiroshiba and M. Nakagawa, Tohoku Univ., Japan

Nanocarbons

Chairperson: S. Okada (Univ. of Tsukuba)

11P-11-8
A Top-Down Strategy towards Single-Digit Nanodiamonds
J. Xiao and G.W. Yang, Sun Yat-sen Univ., China

11P-11-9
Electronic Structure of CNT Thin Films with Nanoscale Interfaces under an Electric Field
T. Kochi and S. Okada, Univ. of Tsukuba, Japan

11P-11-10
Characterization of Coke, or Carbonaceous Matter, Formed on CoMo Catalysts Used in Hydrodesulfurization Unit in Oil Refinery
N. Kimura, Y. Iwanami, R. Koide and R. Kudo, JX Nippon Oil and Energy, Japan

11P-11-11
Energetics and Electronic Structures of Molecular Complexes Consisting of Large Fullerene and Cyclohydrocarbon
Y. Nagasawa and S. Okada, Univ. of Tsukuba, Japan

11P-11-12
Stretchable Fiber-Typed Supercapacitors Based on Carbon Fiber Electrodes Decorated with Three-Dimensional Carbon Nanotube-Graphene Hybrid Networks
N. Kim, H. Cha, W. Lee and Y. Oh, KIMS, Korea

11P-11-13
Synthesis of Highly Aligned Carbon Nanotubes by One-Step Liquid-phase Process: Effects of Carbon Sources on Morphology of Carbon Nanotubes
K. Yamagiwa 1, Y. Ayato 2 and J. Kuwano 3, 1 Teikyo Univ. of Sci., 2 Shinshu Univ. and 3 Tokyo Univ. of Sci., Japan

11P-11-14
Electrospun Carbon Nanofibers/nickel Hydroxide Composites as Supercapacitor Electrodes
C.-T. Lo and C.-C. Lai, Natl. Cheng Kung Univ., Taiwan

11P-11-15
Carbon Nanodots/silicon Nanowires Heterostructures for Efficient Photodegradation of Dyes
P.-H. Hsiao, B.-S. Chen and C.-Y. Chen, Natl. Chi Nan Univ., Taiwan

11P-11-16
Protein Adsorption Characteristics on Bare and Phosphorylcholine-Modified Graphene Film on SiC Substrate
Y. Taniguchi, T. Miki, T. Mituno, Y. Ohno, M. Nagase, K. Minagawa and M. Yasuzawa, Tokushima Univ., Japan

11P-11-17
Work Function Modulation of Edge Functionalized Graphene Nanoflakes
R. Taira, A. Yamanaka and S. Okada, Univ. of Tsukuba, Japan

11P-11-18
Energetics and Electronic Structure of h-BN Nanoribbons
A. Yamanaka and S. Okada, Univ. of Tsukuba, Japan

11P-11-19
High Performance Heat-Treated Mono-Layer Graphene-Based Hybrid Photo-Voltaic Device
S.M. Sanip and M.S. Shamsudin, Univ. of Southampton Malaysia, Malaysia

11P-11-20
Engineering Function Groups in Graphene Oxide
T. Taniguchi 1, M. Osada 1, K. Hatakeyama 2 and Y. Matumoto 2, 1 NIMS and 2 Kumamoto Univ., Japan

11P-11-21
Initial Stage of h-BN Growth in Diffusion and Precipitation Method
S. Suzuki, Y. Ogawa, S. Wang and K. Kumakura, NTT, Japan

11P-11-22
Porous Hydrocarbon Networks of Pyramidal Molecules
J. Sorimachi and S. Okada, Univ. of Tsukuba, Japan

11P-11-23
Effect of Metal Nanoparticles on Carrier Accumulation in Graphene under an Electric Field
M. Matubara and S. Okada, Univ. of Tsukuba, Japan

11P-11-24 Carrier Doping Effect of Humidity for Single-Crystal Graphene on SiC M. Kitaoka, T. Nagahama, K. Nakamura, T. Aritsuki, K. Takashima, Y. Ohno and M. Nagase, Tokushima Univ., Japan	**11P-11-25** Kondo Effect in Graphene Quantum Dots Y. Kanai 1, T. Ono 1, Y. Ohno 1,2, K. Maehashi 1,3, K. Inoue 1, and K. Matsumoto 1, 1 Osaka Univ., 2 Tokushima Univ. and 3 Toky Univ. of Agriculture and Technol., Japan	**11P-11-26** Energetics and Electronic Properties of a Hexagonally Bonded Sheet of GaN Under Biaxial Compression Y. Gao and S. Okada, Univ. of Tsukuba, Japan	**11P-11-100L** Platform for Electrical Measurement of π-Conjugated Polymer Wire with Graphene Nanogap Electrodes T. Ikuta 1, S. Tamba 1, Y. Kanai 1, Y. Ohno 1,2, K. Maehashi 1,3, K. Inoue 1, Y. Ie 1, Y. Aso 1 and K. Matsumoto, 1 Osaka Univ., 2 Univ. of Tokushima and 3 Tokyo Univ. of Agriculture and Technol., Japan
11P-11-101L Locally Pinned Free Standing Graphene Growth on C-face 4H-SiC{1-10n} Y. Kutsuma, D. Dojima, K. Ashida and T. Kaneko, Kwansei Gakuin Univ., Japan			
Nanodevices			
Chairperson: Y. Ishikawa (Nara Inst. of Sci. and Technol.)			
11P-11-27 Preliminary Study on Origin of Low and Broad V_{th} Fluctuation on Low-V_{th} Side Caused by Ion Implantation to Source and Drain Extensions of SOI Tri-Gate FinFET Using 3D Process and Device Simulations T. Tsutsumi, Meiji Univ., Japan	**11P-11-28** Fabrication and Characterization of Silicon Notched Nanowire FETs with Selective Channel Dopants Z. Tan 1, T. Iwasaki 1,2, L. Boodhoo 1, H. Mizuta 1,2 and H.M.H. Chong 1, 1 Univ. of Southampton, UK and 2 JAIST, Japan	**11P-11-29** Channel Shape Effects on the Electrical Characteristics of FinFETs I-C. Lee 1, B.-C. He 1, Y.-S. Chien 1, W.-E. Fu 1, Y.-C. Wei 2, J.-D. Luo 2, K.-C. Chuang 2, H.-C. Cheng 2, 1 ITRI and 2 Natl. Chiao Tung Univ. Taiwan	**11P-11-30** Nanocrystalline Graphite Coated SOI Nano-Electrome Chanical Switches L. Boodhoo 1, S. Rana 2, Y. Tsuchiya 1, W. Redman-White 1, S.H. Pu 1,3, H. Mizuta 1,4, D. Pamunuwa 2 and H.M.H. Chong 1, 1 Univ. of Southampton, 2 Univ. of Bristol, UK, 3 Univ. of Southampton Malaysia, Malaysia and 4 JAIST, Japan
11P-11-31 Simulation and Technical Feasibility Study of 80 nm Asymmetric T Shape Gate for High Breakdown Voltage at High Operation Frequency in GaN HEMTs J. Shao, J. Deng, X. Huang, S. Zhang and Y. Chen, Fudan Univ., China	**11P-11-32** Capacitorless 1T-DRAM Based on Double-Gate GaAs Junctionless Transistor Y.J. Yoon, J.H. Seo, Y.I. Jang, M.S. Cho, J.-H. Lee and I.M. Kang, Kyungpook Natl. Univ., Korea	**11P-11-33** Charge Retention in Vertical van der Waals Heterostructure Encapsulated Semi-Metallic Graphene D. Chu and E.-K. Kim, Hanyang Univ., Korea	**11P-11-34** Controlling Carrier Injection of QLEDs by Introducing Graphene Oxide Quantum Dots Doped PEDOT:PSS C.-C. Wu 1, H.-C. Yu 1 and Y.-K. Su 1,2, 1 Natl. Cheng-Kung Univ. and 2 Kun-Shan Univ., Taiwan
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