Tuesday, October 25

Room A (2F)

25P-1: Plenary Session
Chairpersons: T. Meguro (Tokyo Univ. of Sci.) and M. Nagase (Univ. of Tokushima)

9:30-9:50
Opening Remark: H. Yamaguchi (NTT)
Award Presentation: Y. Miyamoto (Tokyo Inst. of Technol.) and H. Yamaguchi (NTT)
MNC 2010 Outstanding Paper, Most Impressive Presentation, Most Impressive Poster and Young Author's Award Announcement from Committee: T. Itani (EIDEC) and T. Meguro (Tokyo Univ. of Sci.)

25P-1-1
9:50-10:30
Solving Energy and Environmental Problems (Plenary)
S. Wasaka, NEDO, Japan

Room P (2F)

Coffee Break

Room A (2F)

25P-1-2
10:50-11:30
Toward the Achievement of Ultra-Low Power Systems by taking advantages of BEOL Devices (Plenary)
N. Sumihiro, LEAP, Japan

25P-1-3
11:30-12:10
Chemistry of Graphene (Plenary)
L.K. Ping, Natl. Univ. of Singapore, Singapore

LUNCH

Room A (2F)	Room B (2F)	Room C (2F)
25A-2: Symp. A: Graphene I Chairpersons: K. Maehashi (Osaka Univ.) M. Nagashio (Univ. of Tokyo)	**25B-2: Microsystem Technology and MEMS I** Chairpersons: N. Miki (Keio Univ.) T. Ando (Ritsumeikan Univ.)	**25C-2: BioMEMS, Lab on a Chip I** Chairpersons: Y. Murakami (Hiroshima Univ.) T. Matsumoto (Tokyo Medical and Dental Univ.)
25A-2-1 **13:40** Graphene-metal Contacts: Influence of Graphene Layer Orientation and Thickness (Invited) S. Kodambaka 1, Y. Murata 1, A. Ebnonnasir 2, E. Starodub 3, B.B. Kappes 2, S. Nie 3, N.C. Bartelt 3, K.F. McCarty 3 and C.V. Ciobanu 2, 1 UCLA, 2 Colorado School of Mines and 3 Sandia Natl. Labs., USA	**25B-2-1** **13:40** Vibration MEMS Power Generator using Polymer Electrets for Energy Harvesting Application (Invited) Y. Suzuki, Univ. of Tokyo, Japan	**25C-2-1** **14:00** Microfluidic Assembly with Molecules and Cells (Invited) S.Takeuchi, Univ. of Tokyo and JST-ERATO, Japan
25A-2-2 **14:10** Synthesis of a Novel Carbon Structure: Multi-layer Graphene formed at the Both Sides of Catalyst Film on a Substrate D. Kondo 1,2, S. Sato 1,2, K. Yagi 2, M. Nihei 1,2 and N. Yokoyama 1,2, 1 Fujitsu Labs and 2 AIST, Japan	**25B-2-2** **14:10** Thermal-photovoltaic Hybrid Solar Generator using Thin-film Thermoelectric Modules M. Mizoshiri, M. Mikami and K. Ozaki, AIST, Japan	**25C-2-2** **14:30** Quasi-in vivo Heart Electrocardiogram Measurement using Convolution of Field Potential Propagation in Cardiomyocytes Network Circuit F. Nomura, T. Kaneko and K. Yasuda, Tokyo Medical and Dental Univ., Japan
25A-2-3 **14:30** Formation of Graphene on Diamond (111) Surfaces N. Tokuda 1,2,3, M. Fukui 1, K. Kojima 4, K. Komatsu 4, K. Funatsu 4, T. Makino 2,3, D. Takeuchi 2,3, S. Yamasaki 2,3 and T. Inokuma 1, 1 Kanazawa Univ., 2 AIST, 3 JST-CREST and 4 MST, Japan	**25B-2-3** **14:30** A Venturi-type Micro Mist Generator fabricated by MEMS Technology and its Application to Local Surface Cooling of Target Objects M. Arai, K. Terao, F. Shimokawa, T. Suzuki, F. Oohira and H. Takao, Kagawa Univ., Japan	**25C-2-3** **14:50** Immobilization and Observation of Exosomes in Microfluidic Device M. Sasaki, T. Akagi and T. Ichiki, Univ. of Tokyo, Japan
25A-2-4 **14:50** Tuning of Electronic Properties of Epitaxial Graphene on Microfabrication H. Fukidome 1, H. Handa 1, M. Kotsugi 2,3, T. Seyller 4, Y. Kawai 1, T. Ohkouchi 2, K. Horn 5, R. Takahashi 1, K. Imaizumi 1, Y. Enta 6, M. Suemitsu 1 and T. Kinoshita 2,3, 1 Tohoku Univ., 2 JASRI-SPring8, 3 JST-CREST, Japan, 4 Friedrich-Alexander-Univ. 5 Max-Planck-Gesselschaft, Germany and 6 Hirosaki Univ., Japan	**25B-2-4** **14:50** Demonstration of Vibrational Braille Code Display using Large Displacement MEMS Actuators J. Watanabe 1, H. Ishikawa 1, X. Arouette 1, Y. Matsumoto 1 and N. Miki 1,2, 1 Keio Univ. and 2 JST-PRESTO, Japan	**25C-2-4** **15:10** Simultaneous Filtration and Focusing of Cancerous Cells in an Insulator-based Dielectrophoretic Microchip W.-F. Chen and C.-P. Jen, Natl. Chung Cheng Univ., Taiwan
25A-2-5 **15:10** Characteristics of the Field Effect Transistor using Graphene Layers grown on Graphene Template by Chemical Vapor Deposition R. Negishi, Y. Ohno, K. Maehashi, K. Matsumoto and Y. Kobayashi, Osaka Univ., Japan	**25B-2-5** **15:10** A Miniaturized Dual-axis Electrolytic Tilt Sensor J.C. Choi 1, Y.C. Choi 1, W.-J. Kim 2 and S.H. Kong 1, 1 Kyungpook Natl. Univ. and 2 MENTech., Korea	**25C-2-5** **15:30** Airborne Virus Micro-hole Sampler designed by Particle Track Analysis for the Pandemic Prevention K. Takenaka, Y. Sasaki and S. Togashi, Hitachi, Japan

	25B-2-6 **15:30** A MEMS-based Micro Ro-boat using Water Steam Y.C. Choi, J.C. Choi and S.H. Kong, Kyungpook Natl. Univ., Korea	
Room P (2F)		
Coffee Break		
Room A (2F)	**Room B (2F)**	**Room C (2F)**
25A-3: Symp. A: Graphene II Chairpersons: D. Kondo (Fujitsu Labs.) K. Hirahara (Osaka Univ.)	**25B-3: Microsystem Technology and MEMS II** Chairpersons: H. Takao (Kagawa Univ.) Y.-C. Lin (Tohoku Univ.)	**25C-3: BioMEMS, Lab on a Chip II** Chairpersons: Y. Takamura (JAIST) T. Ichiki (Univ. of Tokyo)
25A-3-1 **15:50** Graphene as an Emerging Material for Future Electronics (Invited) X. Duan, UCLA, USA	**25B-3-1** **16:05** MEMS Resonator: What is the challenge? (Invited) K. Suzuki, Ritsumeikan Univ., Japan	**25C-3-1** **16:10** Effect of Microscale Surface Geometry of Electrodes on Performance of Microbial Fuel Cells T. Kano 1, E. Suito 1 and N. Miki 1,2, 1 Keio Univ. and 2 NEDO BEANS Project, Japan
25A-3-2 **16:20** Graphene: Production Strategies, Characterization and Applications (Invited) F. Bonaccorso and A.C. Ferrari, Univ. of Cambridge, UK	**25B-3-2** **16:35** High Q-factor 80 MHz MEMS Resonator utilizing Torsional-to-transverse Vibration Conversion M. Kiso 1, M. Okada 1, H. Fujiura 1, H. Miyauchi 1, K. Niki 1, H. Tanigawa 2 and K. Suzuki 2, 1 Sanyo Electric and 2 Ritsumeikan Univ., Japan	**25C-3-2** **16:30** Microfluidic Design of Catalytic Packed-bed Multi-channel Reactor for Gas-liquid Multiphase Reaction S. Murakami, K. Ohtaki, S. Matsumoto and T. Inoue, AIST, Japan
25A-3-3 **16:50** Evaluation of Graphene Thin Films by Surface Plasmon Resonance K. Murasaki, S. Akita and T. Arie, Osaka Pref. Univ., Japan	**25B-3-3** **16:55** Frequency Stability of MEMS Oscillators: Material Property Effect and Circuit Phase Effect T. Ikehara 1, M. Konno 1, S. Murakami 1 and T. Mihara 2, 1 AIST and 2 Olympus, Japan	**25C-3-3** **16:50** Microfluidic Chip-based Organophosphorus Detection using Bienzyme Bioelectrocatalysis C.Y. Jeong 1, Y.D. Han 1, D.S. Lee 2 and H.C. Yoon 1, 1 Ajou Univ. and 2 Electronics Telecommunications Res. Inst., Korea
25A-3-4 **17:10** Immunosensors based on Graphene Field-effect Transistors using Antigen-binding Fragments S. Okamoto, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, Osaka Univ., Japan	**25B-3-4** **17:15** Reliability of Organic Membrane Structure embedded in Silicon-interposer Chip M. Taketomo, S. Mitarai, K. Oniki and K. Ikeda, Sony, Japan	
	25B-3-5 **17:35** Variable Gap Silicon Waveguide Directional Coupler Switch Y. Akihama, Y. Kanamori and K. Hane, Tohoku Univ., Japan	25C-2, 3 Author's Interview: 17:10-17:20
25A-2,3 Author's Interview: 17:30-17:40	25B-2, 3 Author's Interview: 17:55-18:05	

Wednesday, October 26

Room A (2F)	Room B (2F)	Room C (2F)
26A-4: Nano Carbon I Chairpersons: J. Fujita (Univ. of Tsukuba) M. Tanemura (Nagoya Inst. of Technol.)	**26B-4: Symp. B: Molecular Modification /molecular Self -assembly for Micro/ nano-structure** Chairpersons: Y. Ono (NTT) A. Kohno (Fukuoka Univ.)	**26C-4: Novel Transistors** Chairpersons: N. Banno (Leap) K. Nishiguchi (NTT)
26A-4-1 **9:00** Complementary in-situ probing of Graphene and Carbon Nanotube CVD (Invited) S. Hofmann, Univ. of Cambridge, UK	**26B-4-1** **9:00** Au Nanoparticle Single-Electron Transistors on Electroless Gold-Plated Nanogap Electrodes (Invited) Y. Majima, Tokyo Inst. of Technol., Japan	**26C-4-1** **9:00** Atom Movement Controlled Three-terminal Device, 'Atom Transistor' (Invited) T. Hasegawa, NIMS and JST-CREST, Japan
26A-4-2 **9:30** CVD Gas Pressure Dependence of Horizontally Aligned Single-walled Carbon Nanotubes grown on R-cut Crystal Quartz Substrates T. Inoue, D. Hasegawa, S. Badar, S. Chiashi, J. Shiomi and S. Maruyama, Univ. of Tokyo, Japan	**26B-4-2** **9:30** Self-assembled Molecular Nanowires for Multi-channel Transistor (Invited) Y. Wakayama, NIMS, Japan	**26C-4-2** **9:30** Fabrication of Vertical $In_{0.7}Ga_{0.3}As$ Nanowire Surrounding-gate Transistors with High-*k* Gate Dielectric on Si Substrate K. Tomioka 1, 2M. Yoshimura 1 and T. Fukui 1, 1 Hokkaido Univ. and 2 JST-PRESTO, Japan
26A-4-3 **9:50** In-situ Observation of Current-pulse-induced Fullerene Production T. Nishijima 1,2, R. Ueki 1,2, E. Kano 1,2 and J. Fujita 1,2, 1 Tsukuba Res. Ctr. for Interdisciplinary Materials Sci. and 2 Univ. of Tsukuba, Japan	**26B-4-3** **10:10** Overview of Directed Self-Assembly / Basic and application (Invited) M. Muramatsu, Tokyo Electron Kyushu, Japan	**26C-4-3** **9:50** Fabrication and Characterization of InAs Nanowire Vertical Surrounding-gate FETs Y. Kobayashi, Y. Kohashi, S. Hara and J. Motohisa, Hokkaido Univ., Japan
26A-4-4 **10:10** Characterization of Carbon Nanotubes by Atomically Resolved Electron-diffraction Microscope T. Dobashi 1, Y. Maehara 2, K. Gohara 2 and O. Kamimura 1, 1 Hitachi and 2 Hokkaido Univ., Japan	**26B-4-4** **10:40** Directed Self-Assembly of Block Copolymers toward Single-Digit Nanolithography (Invited) T. Yamaguchi 1,2*, H. Yamaguchi 1, T. Iyoda 2, 1 NTT and 2 Tokyo Inst. of Technol., Japan	**26C-4-4** **10:10** Low-frequency Noise in GaAs Nanowire MISFETs having SiN_x Gate Insulator T. Muramatsu, K. Miura, Y. Shiratori and S. Kasai, Hokkaido Univ., Japan
26A-4-5 **10:30** Recovery Force of Carbon Nanotube Shape Memory S. Itaya, K. Hirahara and Y. Nakayama, Osaka Univ., Japan		**26C-4-5L** **10:30** L-Shaped Tunneling Field-Effect Transistors (TFETs) for Low Subthreshold Swing and High Current Drivability S.W. Kim 1, W.Y. Choi 2, M.-C.Sun 1, H.W. Kim 1, J.-H. Lee 1, H. Shin 1 and B.-G. Park 1, 1 Seoul Nat. Univ. and 2 Sogang Univ., Korea
	26B-4 Author's Interview: 11:10-11:20	**26C-4-6** **10:50** Characteristics of Gate-all-around Hetero-gate-dielectric Tunneling FETs J.S. Lee 1, W.Y. Choi 2 and I.M. Kang 1, 1 Kyungpook Natl. Univ.and 2 Sogang Univ., Korea

Room P (2F)

Coffee Break

Room A (2F)	Room B (2F)	Room C (2F)
26A-5: Nano Carbon I Chairpersons: T. Takenobu (Waseda Univ.) S. Okada (Univ. of Tsukuba)	**26B-5: Nanomaterials I** Chairpersons: J. Kawakita (NIMS)	**26C-5: New Functional Devices** Chairpersons: N. Banno (Leap) K. Nishiguchi (NTT)
26A-5-1 **11:05** Electric Field Enhancement by Laser Light focused on Electrode Edges for Controlled-positioning of Carbon Nanotubes T. Takahashi, R. Inori, T. Okada, T. Arie and S. Akita, Osaka Pref. Univ., Japan	**26B-5-1** **11:25** Single-Electron Tunneling via Molecular Quantum Dots Embedded in a Metal-Insulator-Semiconductor Structure (Invited) R. Hayakawa 1, N. Hiroshiba 2, T. Chikyo 1 and Y. Wakayama 1, 1 NIMS and 2 Univ. of Tsukuba, Japan	**26C-5-1** **11:25** Ag_2S Synaptic Device showing Short and Long Term Memory T. Ohno 1, T. Hasegawa 1, T. Tsuruoka 1, K. Terabe 1, J.K. Gimzewski 1,2 and M. Aono 1, 1 NIMS, Japan and 2 UCLA, USA

26A-5-2 **11:25** Single-welled Carbon Nanotube Transistors using Ion-gel Y. Yomogida 1, T. Takenobu 2, D. Wen 2, H. Shimotani 1, K. Yanagi 3 and Y. Iwasa 4, 1 Tohoku Univ., 2 Waseda Univ., 3 Tokyo Metropolitan Univ. and 4 Univ. of Tokyo, Japan	**26B-5-2** **11:55** Dielectric and Surface Morphology Properties of PVDF-TrFe/PMMA:TiO_2 Multilayer Dielectric Thin Films for Organic Field Effect Transistors Application L.N. Ismail, M.H.M. Wahid, Z. Habibah, S.H. Herman and M. Rusop, Univ. Teknologi MARA, Malaysia	**26C-5-2** **11:45** Proposal of 1-Diode Type Resistive Switching Memory using Crdoped $SrTiO_3$ M.Y. Song, Y. Seo, Y.S. Kim, J.H. Jeon, H.-D. Kim, H.-M. An, K.-H. Kim and T.G. Kim, Korea Univ., Korea
26A-5-3 **11:45** Carbon Nanotube-based Floating Gate Memory with High-k Dielectrics Y. Fujii, T. Ohori, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, Osaka Univ., Japan	**26B-5-3** **12:15** Ternary PbSSe Nanocrystal:poly (3-hexylthiophene) Nanocomposites for Near Infrared-sensitive Hyabrid Solar Cells M. Nam, S. Kim, S.-W. Kim and K.-K. Lee, Ajou Univ., Korea	**26C-5-3** **12:05** Color Filter using Dielectric Multilayer and Guided Mode Resonant Grating for CMOS Image Sensor Y. Konno, K. Shiozawa, K. Kokubun, T. Yorisaki, J. Tonotani, N. Momo, H. Sasaki, H.S. Momose, T. Ohguro and N. Okada, Toshiba, Japan
26A-5-4 **12:05** Extremely Flexible All-carbon Nanotube Field-effect Transistors without Device Degradation S. Aikawa 1,2, E. Einarsson 1, S. Chiashi 1, E. Nishikawa 2 and S. Maruyama 1, 1 Univ. of Tokyo and 2 Tokyo Univ. of Sci., Japan		
26A-4, 5 Author's Interview: 12:25-12:35		26C-4, 5 Author's Interview: 12:25-12:35
LUNCH		
Room A (2F)	**Room B (2F)**	**Room C (2F)**
26A-6: Lithogphay and Metrology Chairpersons: T. Sato (Toshiba) H. Yamashita (HOYA)	**26B-6: Nanomaterials II** Chairpersons: T. Ishida (AIST)	**26C-6: New Conceptual Devices** Chairpersons: S. Kasai (Hokkaido Univ.) H. Ikeda (Shizuoka Univ.)
26A-6-1 **14:00** Contribution of Optical Lithography to Development of Optical Designing Theory (Invited) M.Shibuya, Tokyo Polytechnic Univ., Japan	**26B-6-1** **14:00** Interfacial Reactions of Nickel Metal Nanodots on Single-crystal (001)$Si_{1-x}C_x$ Substrates S.L. Cheng, Y.C. Tseng and S.W. Lee, Natl. Ctrl. Univ., Taiwan	**26C-6-1** **14:00** Minimum Energy for Computation and the Landauer Principle (Invited) G. Snider, Univ.of Notre Dame, USA
26A-6-2 **14:30** EUV Lithography: NXE:3100 delivered to Fabs and building of NXE:3300B has started R. Peeters, S. Young, H. Meiling, N. Harned, R. Droste, J. Stoeldraaijer, H. Meijer and R. Kool, ASML Netherlands, Netherlands	**26B-6-2** **14:20** Fast Formation of Conductive Material by Simultaneous Chemical Process for Infilling TSV J. Kawakita and T. Chikyow, NIMS, Japan	**26C-6-2** **14:30** Fabrication of Functional Oxide Nanostructures and the Electronic Application utilizing Stochastic Resonance T. Kanki, H. Takami, K. Kawatani and H. Tanaka, Osaka Univ., Japan
26A-6-3 **14:50** Characterization of Anode-shockwave and Plasma Diffusion in a Laser Assisted Discharge Produced Plasma 13.5 nm EUV Source for Lithography Q. Zhu, T. Muto, J. Yamada, N. Kishi, M. Watanabe, A. Okino, K. Horioka and E. Hotta, Tokyo Inst. of Technol., Japan	**26B-6-3** **14:40** Properties of Nitrogen-atom Endohedral Fullerene efficiently synthesized using Controlled Radio-frequency Discharge Plasma S.C. Cho, T. Kaneko and R. Hatakeyama, Tohoku Univ., Japan	**26C-6-3** **14:50** Noise-induced Stochastic Enhancement for a Device based on Redox-active Huge Molecule and DNA Nanonetwork T. Matsumoto, Y. Hirano, Y. Segawa, and T. Kawai, Osaka Univ., Japan
26A-6-4 **15:10** 2D and 3D Resist Line Roughness Characterization A.V. Pret 1,2, E. Kunnen 1, R. Gronheid 1, E. Pargon 3, O. Luere3 and D. Bianchi 4, 1 IMEC, 2 K.U.Leuven, Belgium, 3 CNRS-LTM, France and 4 AC²T res. Austria	**26B-6-4** **15:00** Fabrication of Metal Thin Film Patterns on Hydro-gels N. Shimamoto 1,2, H. Mitomo 1,2, R. Kawamura 1, K. Kawabata 1, R. Kishi 3 , K. Sano 1,4, K. Ijiro 1,2and Y. Osada 1, 1 RIKEN, 2 Hokkaido Univ., 3 AIST and 4 Nippon Inst. Technol., Japan	**26C-6-4** **15:10** Stochastic Resonance using a Steep-subthreshold-swing Transistor K. Nishiguchi and A. Fujiwara, NTT, Japan
26A-6-5 **15:30** Photoresist Shrinkage caused by Single-line Scan of Electron Beam T. Ohashi and J. Tanaka, Hitachi, Japan	**26B-6-5** **15:20** Driving Water Droplets on Superhydrophobic-hydrophilic Patterned Si Nanowire Surface S. Lee, J. Seo and T. Lee, Yonsei Univ., Korea	**26C-6-5L** **15:30** Single-Photon Detection by a Simple SOI MOSFET W. Du, H. Inokawa and H. Satoh, Shizuoka Univ., Japan
26A-6 Author's Interview: 15:50-16:00	26B-5, 6 Author's Interview: 15:40-15:50	26C-6 Author's Interview: 15:50-16:00

Room P (2F)		
Coffee Break		
26P-7: 16:00-18:00 POSTER SESSION I		
Lithography and Metrology		
26P-7-1 GPU-based High Speed Algorithms for Photomask Layout Verification and Application Study on 2Xnm SRAM K. Kadota 1, K. Kato 2 and T. Inoue 2, 1 AIST and 2 SII Nano Technol., Japan	**26P-7-2** Micro Coherent EUV Scatterometry Microscope for a Defect Characterization on an EUV Mask T. Harada 1, M. Nakasuji 1, A. Tokimasa 1, T. Watanabe 1, Y. Usui 2and H. Kinoshita 1, 1 Univ. of Hyogo and 2 EIDEC, Japan	**26P-7-3** Micro Patterning on Nonplanar Substrates using Unconventional Photolithographic Technique with Flexible Photomask J. Park, H. Fujita and B. Kim, Univ. of Tokyo, Japan
26P-7-4 Optical Metrology of Shape-varying Nano-patterned Gratings by analyzing the Scattering Signals in their Pupil Images Y.M. Lee 1, J.H. Li 1, F.M. Wang 1, H.H. Cheng 1, Y.T. Shen 1, K.Y. Tsai 1 and A.C. Chen 2, 1 Natl. Taiwan Univ. and 2 ASML, Taiwan	**26P-7-5** The Effect on CD Performance for Carbon Contamination of EUV Mask using Coherent Scattering Microscopy / In-situ Contamination System J. Doh 1,2, S. Lee 1, J. Lee 1, S. Hong 1, I. Lee 1, S. Park 1, C.Y. Jeong 2, D.G. Lee 2, S.-S. Kim 2, H.-K. Cho 2 and J. Ahn 1, 1 Hanyang Univ. and 2 Samsung Electronics, Korea	**26P-7-6** Defect Inspection Technique using Surface Plasmon Resonance H. Kashiwagi, I. Yoneda, K. Morishita, R. Yoshikawa, T. Hirano and T. Nakasugi, Toshiba, Japan
26P-7-7 EUV Process Optimization for Contact Layer of 14nm Node Logic and 16nm Half Pitch Memory Devices S.-E. Tseng and A. Chen, ASML, Taiwan	**26P-7-8** An Optimized Multi-grid Strategy for Accurate Flare Modeling with 3D Mask Effect in EUV Lithography J. Lee 1, S. Lee 1, C. Kim 2, Y. Kim 2, S. Kim 2 and O. Kim 1, 1 POSTECH and 2 Hynix Semiconductor, Korea	**26P-7-9** Volume Production LLP EUV Sources J. Bonafede, Cymer Japan, Japan
26P-7-10 Maskless Lithographic Fine-patterning onto Deep or Slope Surface using a Newly Developed DMD Exposure Equipment W. Iwasaki 1, Y. Peng 1, T. Takeshita 1, H. Shibata 2, Y. Kudo 2,R.Maeda 3 and R. Sawada 1, 1 Kyushu Univ., 2 Nikon and 3 AIST, Japan	**26P-7-11** Cost Effective Lithography by Extension of Mask Aligner Lithography Techniques M. Hornung 1, A. Erdmann 2, M. Hennemeyer 1, U. Hofmann 3, K. Motzek 2 and N. Ünal 3, 1 SUSS MicroTec Lithography, 2 Fraunhofer Inst. for Integrated Systems & Device Technol. and 3 GenISys, Germany	**26P-7-12** Simulation Analysis of Image Drift induced by Charging N. Okai and Y. Sohda, Hitachi, Japan
26P-7-13 Patterning of Spiral Structure on Optical Fiber by Focused-ion-beam Etching H. Mekaru 1 and T. Yano 2, 1 AIST and 2 Inst. for Molecular Sci., Japan	**26P-7-14** Micro-IBIL Analysis as Diagnostic Tool for the Micro-structure Patterning on Diamond by Proton Beam Writing W. Kada 1, A. Yokoyama 1, M. Koka 1, K. Takano 2, T. Satoh 1 and T. Kamiya 1, 1 JAEA and 2 Osaka Univ., Japan	**26P-7-15** EB Drawing of 15 nm × 15 nm Pitched Nanodot Arrays with a Size of < 10nm using High Contrast Developer T. Komori, H. Zhang, T. Akahane, Z. Mohamad, Y. Yin and S. Hosaka, Gunma Univ., Japan
26P-7-138L Development of Coherent EUV Scatterometry Microscope with High-order Harmonic Generation Source for EUV Mask Inspection and Metrology M. Nakasuji 1,3, A. Tokimasa 1,3, T. Harada 1,3, Y. Nagata 2,3, T. Watanabe 1,3, K. Midorikawa 2 and H. Kinoshita 1,3, 1 Univ of Hyogo, 2 RIKEN and 3 JST-CREST, Japan	**26P-7-139L** Measurement of Surface Potential Distribution of Resist Irradiated by Fogging Electrons A. Osada 1, M. Otani 2 Y. Ohara 2 and M. Kotera 1,2, 1 Osaka Inst. of Technol. and 2 Nanomaterials Microdevices Res. Ctr., Japan	
Nanocarbons		
26P-7-16 Graphene/Cobalt Interface Structures in Cobalt-encapsulated Carbon Nanocapsules D. Matsuura and T. Kizuka, Univ. of Tsukuba, Japan	**26P-7-17** Atomic Layer Deposition of Amorphous Carbon and Multilayer Graphene using Carbon Tetrabromide as Carbon Solid Source T. Choi, H. Kang, J. Yoon, H. Jung and H. Kim, Yonsei Univ., Korea	**26P-7-18** Ni-particle as a Catalyst on Thermal Reduction of Graphene Oxide (GO): ReaxFF based on Molecular Dynamics Simulations Y. Hwang, K.-H. Yun, H. Choi and Y.-C. Chung, Hanyang Univ., Korea
26P-7-19 Electronic Structure of Graphene adsorbed on HfO_2 Surfaces K. Kamiya 1,2, N. Umezawa 3 and S. Okada 1,2, 1 Univ. of Tsukuba, 2 JST-CREST and 3 NIMS, Japan	**26P-7-20** Effect of SiH_4 Pre-annealing on Graphitization of 3C-SiC/Si H. Fukidome 1, S. Abe 1, H. Handa 1, R.Takahashi 1, K. Imaizumi 1, S. Sanbonsuge 1 and M. Suemitsu1,2, 1 Tohoku Univ. and 2 JST-CREST, Japan	**26P-7-21** Preparation of Pd-decorated Graphene and Investigation of its Electrochemical Properties J.D. Kim and H.C. Choi, Chonnam Natl. Univ., Korea
26P-7-22 Improvement of Optical Graphene Layer Identification for Large-area Characterization S.F.A. Rahman 1,2, A.M. Hashim 1 and S. Kasai 2, 1 Univ. Teknologi Malaysia,Malaysia and 2 Hokkaido Univ., Japan	**26P-7-23** The Observation of Chemical Reactions during Reduction of Graphene Oxide under bi-axial Strain: ReaxFF using Molecular Dynamics Simulations K.-H. Yun, Y. Hwang, H. Choi, D.S. Yoo and Y.-C. Chung, Hanyang Univ., Korea	**26P-7-24** Process Optimization for Synthesis of High-quality Graphene Films by Low Pressure Chemical Vapor Deposition D. Lee, K. Lee, S. Jeong, J. Lee, B. Choi, J. Lee and O. Kim, POSTECH, Korea
26P-7-25 Amorphous Carbon Deposition by a Novel Aerosol-assisted CVD (AACVD) for Photovoltaic Solar Cell A.N. Fadzilah, K. Dayana and M. Rusop, Univ. Teknologi MARA, Malaysia	**26P-7-26** Photophysical Properties of Aqueous Fullerene Nanoparticles prepared by Laser Ablation in Water T. Asahi 1, Y. Ishibashi 1, M. Arinishi 1 and H. Miyasaka 2, 1 Ehime Univ. and 2 Osaka Univ., Japan	**26P-7-27** Multi-constituent co-assembly for Preparation of ZnO/Mesoporous Carbon Nanocomposite U.B. Suryavanshi, T. Iijima, A. Hayashi, Y. Hayashi and M. Tanemura, Nagoya Inst. of Technol., Japan

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26P-7-46 Carrier Transport Mechanisms of the Programming and Retention Characteristics for TANOS Flash Memory Devices D.H. Kim 1, J.H. You 1, D.U. Lee 1, T.W. Kim 1 and K.W. Lee 2, 1 Hanyang Univ. and Hynix Semiconductor, Korea	**26P-7-47** Novel Protruded-shape Unipolar RRAM Structure for improving Switching Uniformity through Excellent Conductive Filament Controllability K.-C. Ryoo 1,2, J.-H. Oh 1,2, S. Jung 1, H. Jeong 2 and B.-G. Park 1, 1 Seoul Natl. Univ. and 2 Samsung Electronics, Korea	**26P-7-48** Memristive Switching in a Single Oxide Nanowire T. Yanagida 1, K. Nagashima 1, K. Oka 1, M. Kanai 1, B.H. Park 2 and T. Kawai 1,2, 1 Osaka Univ., Japan and 2 Konkuk Univ., Korea
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Y.S. Hong, H.W. Choi and H.H. Yoon, Kyungwon Univ., Korea

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Oxygen Vacancy Chain Formation Energy of Rutile TiO_2 under Various Pressure Conditions and Electric Field: ab initio Calculations
D.S. Yoo, K. Ahn, S.B. Cho and Y.-C. Chung, Hanyang Univ., Korea

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First Principles Study on Pr Doped Ceria and Pure Ceria of the Defective Structure considering Pressure Effect
K. Ahn 1,2, D.S. Yoo 1, J.-h. Lee 2 and Y.-C. Chung 1, 1 Hanyang Univ. and 2 KIST, Korea

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~~D. Prasad 1,2, K.K. Choudhary 1, N. Kaurav 3 and I. Mansuri 2,4, 1 Shri Vaishnav Inst. of Technol. & Sci., 2 Venkteshwar Inst. of Technol., 3 Holkar Sci. College and 4 Devi Ahilya Univ., India~~

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K. Nakamura 1,2, 1 Kyoto Univ.,Japan and 2 Egypt-Japan Univ. of Sci. & Technol., Egypt

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Synthesis of TiO_2 Nanowires by Hydrothermal Method
M.N. Asiah, M.F. Achoi, S. Abdullah and M. Rusop, Univ. Teknologi MARA, Malaysia

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L.N. Ismail, N.N. Hafizah, M.S Samsudin, S.H. Herman and M. Rusop, Univ. Teknologi MARA, Malaysia

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Electronic Transport Properties in Singly Crystalline TiO_2 Nanorods
H.Y. Tsai, C.A. Chen, W.C. Wang, R.S. Chen, Y.S. Huang, Natl. Taiwan Univ. of Sci. & Technol., Taiwan

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S. Kodama and T. Kizuka, Univ. of Tsukuba, Japan

26P-7-85
Formation of Silver Nanogaps using Electromigration
H. Masuda and T. Kizuka, Univ. of Tsukuba, Japan

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Preparation of p-CuO/n-ZnO Nanowire Heterojunction Arrays filled with PMMA and their Optoelectronic Characteristics
Y.-C. Tu 1, S.-J. Wang 1, F.-S. Tsai 1, Y.-W. Hsu 1, J.-C. Lin 1 and S.-I Tsai 2, 1 Natl. Cheng Kung Univ. and 2 Natl. Univ. of Kaohsiung, Taiwan

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~~Synthesis and Application of Ag Nanowires in Touch Panel Displays~~
~~J.-W. Kim, Y.-S. Kim, M.-G. Kwak and S.-J. Hong, Korea Electronics Technol. Inst., Korea~~

~~**26P-7-88**~~ **Withdrawn**
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~~B. J. Li 1, C. H Chang 1, Y. K. Su 1, B. Chen 2 and K. J. Gan 3, 1 Natl. Cheng Kung Univ., 2 Delta Electronics and 3 Natl. Chiayi Univ., Taiwan~~

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Influence of RF Magnetron Sputtering Condition on the ZnO Passivating Layer for Dye Sensitized Solar Cells
S.W. Rhee, K.H. Kim and H.W. Choi, Kyungwon Univ., Korea

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Preparation of a Bimetallic Catalyst Layered Anode for Direct Biogas-fueled Solid Oxide Fuel Cells
N.N.T. Quynh, Y.S. Hong and H.H. Yoon, Kyungwon Univ., Korea

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Optimization of Seeded Catalyst Layer for the Growth of Vertically Aligned Al-doped ZnO Nanorods Array for Optoelectronic Applications
M.F. Malek, M.H. Mamat, M.Z. Sahdan, M.Z. Musa, Z.Khusaimi and M. Rusop, Univ. Teknologi MARA, Malaysia

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A New Synthetic Approach for the Prepatation of Au-Ag Composite Nanorods through Proton Beam Irradiation
Y.-J. Kim 1 and J.H. Song 2, 1 Chungnam Natl. Univ. and 2 Sunchon Natl. Univ., Korea

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Carrier Transport Mechanisms of Organic Bistable Devices utilizing Hybrid C_{60}/polymethylmethacrylate Nanocomposites
C.H. Yoo, S.H. Ko and T.W. Kim, Hanyan Univ., Korea

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~~I.M. Davletbaeva, A.M. Gumerov and R.S. Davletbaev, Kazan State Technol. Univ., Russia~~

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H.-L. Su 1, S.-H. Lin 1, J.-C. Wei 2 and J.-J. Lin 2, 1 Natl. Chung Hsing Univ. and 2 Natl. Taiwan Univ., Taiwan

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~~E. Aram and S. Mehdipour-Ataei, Iran Polymer & Petrochemical Inst., Iran~~

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~~Y. Maeyoshi 1, K. Takano 1, A. Asano 1, H. Marui 1, M. Omichi 1, T. Satoh 2, T. Kamiya 2, Y. Ishii 2, T. Ohkubo 2, M. Koka 2, W. Kada 2, M. Sugimoto 2, H. Nishikawa 3, A. Saeki 1 and S. Seki 1, 1 Osaka Univ., 2 JAEA and 3 Shibaura Inst. of Technol., Japan~~

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F.-S. Tsai, S.-J. Wang, Y.-C. Tu and J.-C. Lin, Natl. Cheng Kung Univ., Taiwan

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In Situ High-resolution Transmission Electron Microscopy of Tungsten Nanocontacts and Atomic-sized Wires
H. Masuda and T. Kizuka, Univ. of Tsukuba, Japan

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Recent Development in Electron Energy Loss Spectroscopy and its Applications to Nanomaterial Analysis
A. Maigné, Gatan, Japan

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Highly-Sensitive Differential-Mode Detection of Biomolecules Using Dual Extended-Gate MOSFETs
J. Choi, H.-H. Lee, J.-I. Ahn, S.-H. Jo and J.-K. Shin, Kyungpook National Univ., Korea

Nanoimprint, Nanoprint and Rising Lithography

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Approach for Actual Line Width Measurement of 45 nm-hp UV-NIL Patterns by Extremely Shallow Si Etching
K. Suzuki 1,2,3, S.-W. Youn 2,3, Q. Wang 2,3, H. Hiroshima 2,3 and Y. Nishioka 1, 1 Nihon Univ., 2 AIST and 3 JST-CREST, Japan

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Nanoimprint Roller Stamp Fabrication using Projective Step-and-flash Lithography and Electroless Nickel (EN) Deposition
C.-L. Wu, Y.-C. Chu, Y.-C. Tsai and C.-K. Sung, Natl. Tsing Hua Univ., Taiwan

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A. Horiba 1,2, N. Nishikura 1,2, R. Suzuki 1,2, M. Yasuda 1,2, H. Kawata 1,2 and Y. Hirai 1,2, 1 Osaka. Pref. Univ. and 2 JST-CREST, Japan

26P-7-103 Whole-field Real-time Monitoring of Filling Process in UV Nanoimprint Lithography Q. Wang 1,2, H. Hiroshima 1,2, K. Suzuki 1,2 and S.-W. Youn 1,2, 1 AIST and 2 JST-CREST, Japan	**26P-7-104** Throughput of UV Nanoimprint in Pentafluoropropane using Spin Coat Films under Thin Residual Layer Conditions H. Hiroshima 1,2 and K. Suzuki 2,3, 1 AIST, 2 JST-CREST and 3 Nihon Univ., Japan	**26P-7-105** Simulation of the Resist Filling Time in 2-D and 3-D Patterns in UV Nanoimprint under Condensable Gas Ambient R. Suzuki 1,3, Y. Nagaoka 1, H. Hiroshima 2,3, H. Kawata 1,3 and Y. Hirai 1,3, 1 Osaka Pref. Univ., 2 AIST and 3 JST-CREST, Japan
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BioMEMS, Lab on a Chip		
26P-7-112 Detection of DNA Immobilization and Hybridization using Micro-grating Optical Biosensor N. Atthi 1, N. Chathirat 2, T. Osotchan 2, S. Dangtip 2, W. Jeamsaksiri 1, C. Hruanun 1 and A. Poyai 1, 1 Natl. Electronics & Computer Technol. Ctr. and 2 Mahidol Univ., Thailand	**26P-7-113** A Simple Capacitive Sensor Array to measure Meso-scale Humidity Variation H.H. Lee 1, J. Choi 1, J. Ahn 1, C.-S. Kim 2 and J.-K. Shin 1, 1 Kyungpook Natl. Univ., Korea and 2 Missouri Univ. of Sci. & Technol., USA	**26P-7-114** Photochemically Induced Crystallization of Proteins promoted on the Plasmonic Chip K. Tawa 1, S. Haruta 1,2, T. Okutsu 2 and J. Nishii 3, 1 AIST, 2 Gunma Univ. and 3 Hokkaido Univ., Japan
26P-7-115 Fluorescence Microscopic Observation of Neurons on a Plasmonic Chip C. Yasui 1,2, K. Tawa 1, C. Hosokawa 1, J. Nishii 3, H. Aota 2 and A. Matsumoto 2, 1 AIST, 2 Kansai Univ. and 3 Hokkaido Univ., Japan	**26P-7-116** A Microfluidic Chip with Microweir Structure for Continuous Sample Separating and Collecting Applications S.K. Hsiung 1, H.C. Lee 2, S.R. Lin 1 and C.H. Lin 2, 1 Fooyin Univ. and 2 Natl. SunYat-Sen Univ., Taiwan	**26P-7-117** Fabrication of Bioanode for Glucose/Oxygen Biofuel Cells by Glucose Oxidase Immobilization in a CNT Film S.Y. Lee, N. Lee and H.H. Yoon, Kyungwon Univ., Korea
26P-7-118 Electrokinetic Protein Preconcentration using Nanogaps generated by Electric Breakdown at the Junction Gaps C.-C. Kuo and C.-P. Jen, Natl. Chung Cheng Univ., Taiwan	**26P-7-119** Sensitivity Enhancement of Immuno-pillar Chip using Magnetic Beads Stirrer T. Kasama 1,2, M. Tokeshi 1,2 and Y. Baba 1,2,3, 1 Nagoya Univ., 2 "The Knowledge Hub" of Aichi and 3 AIST, Japan	**26P-7-146L** Performance of NWFET-type Biosensor with a Microfluidic Channel S.-I. Kim, Y.H. Kim, C.K. Kim and Y.T. Kim, KIST, Korea
26P-7-147L A Novel Flow Sequencing Method on Centrifugal Microfluidic Device using ‘’Liquid Clock’’ Y. Ukita 1, Y. Takamura 1 and Y. Utsumi 2, 1 JAIST and 2 Univ. of Hyogo, Japan		
Microsystem Technology and MEMS		
26P-7-120 A New Application of EN-based Cantilever for CMOS-MEMS Probe K.-Y. Lee, J.-T. Huang, H.-J. Hsu, G.-T. Jheng, C.-K. Chen and T.- C. Tsai, Natl. Taipei Univ. of Technol., Taiwan	**26P-7-121** Using Electroless Nickel Plating Process to fabricate the CMOS-MEMS RF Probe with Amplitude Detector Circuits J.-T. Huang, G.-T. Jheng, K.-Y. Lee, C.-K. Chen and T.- C. Tsai, Natl. Taipei Univ. of Technol., Taiwan	**26P-7-122** MEMS Contact of Test Socket for BGA IC Packages D. Lee 1,2, O.-h. Kwon 2, P.-H. Hong 2, J. Kim 3, J. Jeon 1,4, C. Cho 1, B. Kim 5 and J. Lee 1, 1 Kyungpook Natl. Univ., 2 M2Lab, 3 AITECH, 4 eFree System and 5 Catholic Univ. of Daegu, Korea
26P-7-123 Magnetic Micro Actuator using Interactive Force between Magnetic Elements K. Hatama, F. Tsumori, Y. Xu, H. Kang and H. Miura, Kyushu Univ., Japan	**26P-7-124** Micromachined Inductor integrated with the Patterned Ferromagnetic Film Y.-C. Huang 1, B.-W. Jang 2, C.-L. Wu 2 and W. Fang 1, 1 Natl. Tsing Hua Univ. and 2 ITRI, Taiwan	**26P-7-125** Square-patterned TiN Narrow-band Infrared Emitter J.T. Song 1, J.H. Park 1, J.C. Choi 1, H.T. Miyazaki 2 and S.H. Kong 1, 1 Kyungpook Natl. Univ. and 2 NIMS, Japan
26P-7-126 Fabrication of Electrostatically-driven Fused Quartz Double-ended Tuning Fork (DETF) Resonator using Quartz-on-quartz Bunding Technique E.-S. Song 1, S.-M. Kang 2, K.-J. Park 2, H. Kim 2, Y.-K. Kim 1, J.-E. Ahn 3 and C.-W. Baek 2, 1 Seoul Natl. Univ., 2 Chung-Ang Univ. and 3 Agency for Defense Develop., Korea	**26P-7-127** High Sensitivity Fiber-optic Fabry-perot Interferometer Temperature Sensor X. Li, S. Lin, J. Liang, H. Oigawa and T. Ueda, Waseda Univ., Japan	**26P-7-128** Electrowetting Lens employing Hemispherical Cavity formed by HNA Etching J.K. Lee 1, H.-R. Kim 1, E. Jeong 2, W.I. Jang 2 and S.H. Kong 1, 1 Kyungpook Natl. Univ. and 2 Electronics & Telecommunications Res. Inst., Korea
26P-7-129 The Distributed Bragg Reflectors Waveguide infiltrated by Liquid-crystal D.-P. Cai, H.-Y. Pan and C.-C. Chen, Natl. Ctrl. Univ., Taiwan	**26P-7-130** Development of a New Exposure Tool for Laser-scan Delineation of Precise Helical Patterns onto Sub-50-micron Wires T. Horiuchi and R. Sasaki, Tokyo Denki Univ., Japan	**26P-7-131** Atmospheric Non-thermal Pressure Plasma-jet System for PDMS Bonding Process K. Kim 1, G. Kim 1, Y. Oh 2, T.-G. Park 3, D.C. Han 3 and S.S. Yang 1, 1 Ajou Univ., 2 AMED and 3 Seoul Natl. Univ., Korea

26P-7-132 Inkjet Printed Polymer Micro Rivet S.-A. Kuo, G.-H. Lu and C.-Y. Lo, Natl. Tsing Hua Univ., Taiwan	**26P-7-133** Metalized Movable Microstructures produced by the Combination of Two-photon Microfabrication and Electroless Plating T. Ikegami 1, M.P. Stocker 2, K. Monaco 2, J.T. Fourkas 2 and S. Maruo 1, 1 Yokohama Natl. Univ., Japan and 2 Univ. of Maryland, USA	**26P-7-134** High-resolution Wet Etching Technology of Electroless Nickel Alloy Film on High Topography Surface for MEMS Application Y. Zhang 1, A. Toda 2, T. Kobayashi 1, T. Itoh 1 and R. Maeda 1, 1 AIST and 2 Meltex, Japan
26P-7-135 Fabrication of pn Junction at the Wall of Deep Trench for Near-infrared Sensor A. Baba, N. Uryu and S. Sumi, Kyushu Inst. of Technol., Japan	**26P-7-136** Direct Photo-etching of Fluorocarbon Polymers induced by High Energy Synchrotron Radiation H. Kido 1, M. Ishizawa 1, T. Azeta 1, Y. Ukita 2 and Y. Utsumi 2, 1 Univ. of Hyogo and 2 JAIST, Japan	**26P-7-137** Catalytic Etching for fabricating Micro-scale Silicon Structure M.J. Huang 1, N.N. Chu 1, C.R. Yang 2, Y.H. Tang 1, C.M. Chang 1 and M.H. Shiao 1, 1 Natl. Applied Res. Labs and 2 Natl. Taiwan Normal Univ., Taiwan
26P-7-148 Fabrication of BeCu Probe Array using Heating and Fusing Current D. Lee 1, S. Kim 1, D. Kong 1, C. Cho 1, B. Kim 2, J. Lee 1 and O.-H. Kwon 1, 1 Kyungpook Natl. Univ. and 2 Catholic Univ. of Daegu, Korea	**26P-7-149** Vertical Direction MEMS Probe Card B. Kim 1, B. Lee 2, H.C. Kim 3 and K. Chun 4, 1 Catholic Univ. of Daegu, 2 Korea Univ. of Technol. & Edu. 3 Univ. of Ulsan and 4 Seoul Natl. Univ., Korea	

Room A and P (2F)

Banquet

18:30-20:30

Prof. Namba Award Ceremony

Performance by Maiko/Geiko and Samurai Workshop

Thursday, October 27

Room A (2F)	Room B (2F)	Room C (2F)
27A-8: Nanoimprint, Nanoprint and Rising Lithography I Chairpersons: H. Hiroshima (AIST) I. Bergmair (PROFAXTOR)	**27B-8: Nanomaterials III** Chairpersons: T. Chikyo (NIMS)	**27C-8: Nanofabrication I** Chairpersons: S. Shingubara (Kansai Univ.) K. Kita (Univ. of Tokyo)
27A-8-1 **9:00** Multilayer Nanoimprint Lithography Technology and its Applications (Invited) J. LEE, Korea Inst. of Machinery & Materials, Korea	**27B-8-1** **9:00** Optical Studies of Dislocation-free GaAs Nano-wires grown on Trenched Si (001) Substrate by Cathode-luminescence L. Lee 1, K.-F. Chien 1, W.-C. Chou 1, C.-H. Ko 2, C.-H. Wu 2, Y.-R. Lin 2, C.-T. Wan 2, C.H. Wann 2, C.-W. Hsu 3, Y.-F. Chen 3 and Y.-K. Su 3, 1 Natl. Chiao Tung Univ., 2 Taiwan Semiconductor Manufacturing and 3 Natl. Cheng Kung Univ., Taiwan	**27C-8-1** **9:00** Fabrication and Characterization of Floating-gate Type MOS Capacitors with Nanoscale Triangular Cross-section Tunnel Areas Y.X. Liu 1, R.F. Guo 1, T. Kamei 2, T. Matsukawa 1, K. Endo 1, S. O'uchi 1, J. Tsukada 1, H. Yamauchi 1, Y. Ishikawa 1, T. Hayashida 2, K. Sakamoto 1, A. Ogura 2 and M. Masahara 1, 1 AIST and 2 Meiji Univ., Japan
27A-8-2 **9:30** Three-dimensional Imprint Molds fabricated using Femtosecond Laser Nonlinear Lithography H. Nishiyama 1, Y. Hirata 2 and J. Nishii 1, 1 Hokkaido Univ. and 2 Osaka Univ., Japan	**27B-8-2** **9:20** Fabrication of New Planar Magnetoelectronic Devices based on Regularly Arranged MnAs Nanoclusters M.T. Elm 1, P.J. Klar 2 and S. Hara 1,3, 1 Hokkaido Univ., Japan, 2 Justus-Liebig Univ., Germany and 3 JST -PRESTO, Japan	**27C-8-2** **9:20** Electrical Characterization of Flash Memory Structure with Vanadium Silicide Nano-particles D. Kim 1, D.U. Lee 1, H.J. Lee 1, S.G. Cho 1, E.K. Kim 1 and W.-J. Cho 2, 1 Hanyang Univ. and 2 Kwangwoon Univ., Korea
27A-8-3 **9:50** Optical and Electrical Characterization of Insertion Structures for Transparent Metal Electrode prepared by Nanoimprint Lithography and CMP Process C.-M. Chen, C.-F. Ho, C.-W. Hsieh and C.-K. Sung, Natl. Tsing Hua Univ., Taiwan	**27B-8-3** **9:40** Fabrication and Optical Property of GaAs Nanowire Array for Solar Cell Applications E. Nakai 1, M. Yoshimura 1, K. Tomioka 1,2 and T. Fukui 1, 1 Hokkaido Univ. and 2 JST-PREST, Japan	**27C-8-3** **9:40** Stability of Metal Filaments in Solid Electrolyte BasedResistive Switching Devices I. Sapezanskaia 1, A. Nayak 2, I. Valov 1,3, T. Hasegawa 2, R. Waser 1,3 and M. Aono 2, 1 RWTH-Aachen Univ., Germany, 2 AIST, Japan and 3 Inst. for Solid State Res., Germany
27A-8-4 **10:10** Impact of Polymer Resins on High Aspect Nano Pattern Replication by Thermal Nano-imprint Lithography H. Noma 1, J. Sakamoto 1,2, N. Nishikura 1,2, H. Kawata 1,2, M. Yasuda 1,2 and Y. Hirai 1,2, 1 Osaka Pref. Univ. and 2 JST-CREST, Japan	**27B-8-4** **10:00** Microscopic Study of the Germanium Nanowires grown at Low-temperatures by Au-catalysed Chemical Vapour Deposition M. Simanullang, K. Usami, T. Kodera, K. Uchida and S. Oda, Tokyo Inst. of Technol., Japan **27B-8-5** **10:20** Memristor using a Single Oxide Nanowire -Performance in Ultra Small Memory and Intrinsic Mechanism- K. Nagashima 1, T. Yanagida 1,2, K. Oka 1, M. Kanai 1, J.-S. Kim 3, B.H. Park 3 and T. Kawai 1,3, 1 Osaka Univ., 2 JST-PRESTO, Japan and 3 Konkuk Univ., Korea	**27C-8-4** **10:00** Additional Electrochemical Treatment Effects on the Switching Characteristics of Anodic Aluminum Oxide ReRAM S. Otsuka 1, R. Takeda 1, S. Furuya 1, H. Miyake 2, T. Shimizu 2, S. Shingubara 2, N. Iwata 1, T. Watanabe 1, Y. Takano 1 and K. Takase 1, 1 Nihon Univ. and 2 Kansai Univ., Japan
Room P (2F)		
Coffee Break		
Room A (2F)	**Room B (2F)**	**Room C (2F)**
27A-9: Nanoimprint, Nanoprint and Rising Lithography II Chairpersons: A. Yokoo (NTT) J.J. Lee (Korea Inst. of Machinery & Materials)	**27B-9: Nanomaterials IV** Chairpersons: T. Tanii (Waseda Univ.) T. Chikyo (NIMS)	**27C-9: Nanofabrication I** Chairpersons: T. Hasegawa (NIMS) M. Masahara (AIST)
27A-9-1 **10:45** Single and Multilayer Negative Index Materials fabricated by Nanoimprint Lithography (Invited) I. Bergmair 1, B. Dastmalchi 2, M. Bergmair 2, G. Hesser 2, M. Losurdo 3, G. Bruno 3, C. Helgert 4, E. Pshenay-Severin 4, T. Pertsch 4, E.-B. Kley 4, U. Hübner 5, R. Penciu 6, N.-H. Shen 6, M. Kafesaki 6, C.M. Soukoulis 6, K. Hingerl 2 and M. Muehlberger 1, 1 Profactor GmbH, 2 Johannes Kepler Univ. Linz, Austria, 3 Friedrich-Schiller-Universität Jena, 4 Inst. of Photonic Technol., Germany and 5 Foundation for Res. & Technol., Greece	**27B-9-1** **10:55** In Situ Observation of Atomistic Electromigration Processes in Platinum Nanocontacts S. Kodama and T. Kizuka, Univ. of Tsukuba, Japan	**27C-9-1** **10:35** Si/Ge Photonics for Communication and Sensing Applications (Invited) Y. Ishikawa, Univ. of Tokyo, Japan

27A-9-2 **11:15** Large-area Nanotemplate Process and its Application to Roll Imprint J.-H. Choi, S.-W. Lee, J.-H. Lee, D.-G. Choi, J.-H. Jeong and E.-S. Lee, Korea Inst. of Machinery & Materials, Korea	**27B-9-2** **11:15** Tuning of the Plasmon Band of Metal Nanoparticle Thin Films Y. Tanoue and K. Sugawa, Nihon Univ., Japan	**27C-9-2** **11:05** Size Control of Tapered Cones for High Density Quantum Dots as 1.55 μm Emitters J.-H. Huh 1, C. Hermannstädter 1, K. Akahane 2, N.A. Jahan 1, H. Sasakura 1, M. Sasaki 2 and I. Suemune 1, 1 Hokkaido Univ. and 2 Natl. Inst. of Inform. & Communication Technol., Japan
27A-9-3 **11:35** A Study on Fabrication Process of Capacity-equalized Mold by Electron Beam Lithography and Grayscale Laser Beam Lithography S.-W. Youn 1,2, S.-C. Park 1, K. Suzuki 1,2, Q. Wang 1,2 and H. Hiroshima 1,2, 1 AIST and 2 JST-CREST, Japan	**27B-9-3** **11:35** Electrochemical Characterization of Modified Gold Electrode based on Nano Porous Silicon for Amperometric Urea Biosensor D.H. Yun, S.W. Hwang and S.I. Hong, Korea Univ., Korea	**27C-9-3** **11:25** The 3-D Nanostructure Fabrication by controlling Downward Growth on Focused-ion-beam Chemical Vapor Deposition D.J. Guo, R. Kometani, S. Warisawa and S. Ishihara, Univ. of Tokyo, Japan
27A-9-4 **11:55** Step and Repeat UV Nanoimprinting under Pentafluoropropane Gas Ambient S. Iyoshi 1,5, M. Okada 1,5,6, K. Kobayashi 3,5, S. Kaneko 3,5, T. Katase 2, K. Tone 2, Y. Haruyama 1,5, M. Nakagawa 3,5, H. Hiroshima 4,5 and S. Matsui 1,5, 1 Univ. of Hyogo, 2 MEISHO KIKO, 3 Tohoku Univ., 4 AIST, 5 JST-CREST and 6 JSPS, Japan	**27B-9-4** **11:55** Ultrafast and Efficient Photoresponse up to Room Temperature by Coherent Coupling between Excitons and Radiation Wave M. Ichimiya 1,2, H. Yasuda 3, M. Ashida 2, K. Mochizuki 2, H. Ishihara 3 and T. Itoh 2, 1 Osaka Dent. Univ., 2 Osaka Univ. and 3 Osaka Pref. Univ., Japan	**27C-9-4** **11:45** Strained Carbon Nanomechanical Resonator Fabrication from SU-8 by FIB/EB Dual-beam Lithography and Annealing Treatment R. Kometani, K. Kuroda, S. Warisawa and S. Ishihara, Univ. of Tokyo, Japan
27A-8, 9 Author's Interview: 12:15-12:25		**27C-9-5** **12:05** Mask-free Patterning and Modifications on Polysilicon Nanobelt Devices H.H. Liu, Y.S. Lin and J.T. Sheu, Natl. Chiao Tung Univ., Taiwan
	27B-8, 9 Author's Interview: 12:15-12:25	27C-8, 9 Author's Interview: 12:25-12:35
LUNCH		
Room A (2F)	**Room B (2F)**	**Room C (2F)**
27A-10: Resists Materials and Processing Chairpersons: K. Nozaki (Fujitsu) K. Okamoto (Hokkaido Univ.)	**27B-10: Nano-Tool** Chairpersons: S. Akita (Osaka Pref. Univ.) T. Ono (Tohoku Univ.)	**27C-10: Nanofabrication I** Chairpersons: K. Takase (Nihon Univ.) A. Kohno (Fukuoka Univ.)
27A-10-1 **13:50** Directly Patternable Metal Oxides as High Selectivity Resists for Nanofabrication (Invited) A. Grenville, Inpria, USA	**27B-10-1** **13:50** Optically-driven Nano Robotic for Advanced Micro Biomedicine (Invited) K. Ikuta, Univ. of Tokyo, Japan	**27C-10-1** **14:00** Integration of Photo-assisted Atomic Switches T. Hino 1, T. Hasegawa 1, H. Tanaka 2, T. Tsuruoka 1, Y. Okawa 1, J.P. Hill 1, Y. Wakayama 1, K. Ariga 1, T. Ogawa 2 and M. Aono 1, 1 NIMS and 2 Osaka Univ., Japan
27A-10-2 **14:20** In Situ Dissolution Analysis of Ultrathin EUV Resists J.J. Santillan and T. Itani, EIDEC, Japan	**27B-10-2** **14:20** Cantilevered Multilayer Graphene Mechanical Oscillator Y. Yuasa 1, A. Yoshinaka 1, T. Arie 1,2 and S. Akita 1,2, 1 Osaka Pref. Univ. and 2 JST-CREST, Japan	**27C-10-2** **14:20** Oxide Thickness Dependence of a Large Magnetoresistance Switching Phenomenon in a Ferromagnetic Nano-conduction Path K. Shimomura, T. Kato, T. Iwakura, T. Shimizu and S. Shingubara, Kansai Univ., Japan
27A-10-3 **14:40** Limit of Line Edge Roughness at High Exposure Dose in Chemically Amplified Resists T. Kozawa, Osaka Univ., Japan	**27B-10-3** **14:40** Vacuum-packaged Resonant Thermal Sensor for Biological Cell in Liquid N. Inomata, M. Toda and T. Ono, Tohoku Univ., Japan	**27C-10-3** **14:40** Transformation from InAs Quantum Dots to Disks for Reduced Excition-state Splitting S. Sakurai, S. Odashima, H. Iijima and I. Suemune, Hokkaido Univ., Japan
27A-10-4 **15:00** Characterization of Fogging and Develop Loading Effects in Electron-beam Direct-writing Technology J. Kon 1, Y. Kojima 2, Y. Takahashi 2, T. Maruyama 2 and S. Sugatani 2, 1 Fujitsu Labs and 2 e-Shuttle, Japan	**27B-10-4** **15:00** Contactless Determination of Local Sheet Resistivity using Magnetic Force Microscopy F. Wakaya, M. Kajiwara, S. Abo and M. Takai, Osaka Univ., Japan	**27C-10-4** **15:00** Epitaxial-template Structures utilizing GOI Stripe-arrays and Hexagonal-meshes with Nano-spacing for Advanced Heterogeneous Integration on Silicon Platform A.M. Hashim 1,2, M. Anisuzzaman 1, S. Muta 1, T. Sadoh 1 and M. Miyao 1, 1 Kyushu Univ., Japan and 2 Univ. Teknologi Malaysia, Malaysia
27A-10 Author's Interview: 15:20-15:30	27B-10 Author's Interview: 15:20-15:30	27C-10 Author's Interview: 15:20-15:30

Room P (2F)		
Coffee Break		
27P-11: 15:30-17:30 POSTER SESSION II		
Resist Materials and Processing		
27P-11-1 Theoretical Study of Ionization of Polymers for EUV Resist M. Endo 1,2 and S. Tagawa 1,2, 1 Osaka Univ. and 2 JST-CREST, Japan	**27P-11-2** Improvements in Pattern Collapse Margin and LWR in Thin-films for both E-beam and ArF Resists for sub-22nm Patterning I. Servin 1, B. Icard 1, H. Kandraschow 2, J. Cameron 3, M. Hellion 4, C. Sourd 1, J. Pradelles 1 and L. Pain 1, 1 CEA-Leti, France, 2 Dainippon Screen, Germany, 3 Dow Electronic Materials, USA and 4 Dow Electronic Materials, France	**27P-11-3** Alternative Developers for ZEP-520 as a High-resolution Positive and Negative Tone Electron Beam Resist M.A. Mohammad 1, K. Koshelev 1,2, T. Fito 1,2, M. Stepanova 1,2 and S.K. Dew 1, 1 Univ. of Alberta and 2 Natl. Inst. for Nanotechnol. Canada
27P-11-4 Acid Generation Efficiency in Resist Films after Exposure to the 61 nm Free-electron Laser Light K. Okikawa 1, K. Okamoto 1,2, T. Kozawa 2,3, T. Hatsui 2, M. Nagasono 2, T. Kameshima 2, T. Togashi 2,4, K. Tono 2, M. Yabashi 2, H. Kimura 2,4, Y. Senba 4, H. Ohashi 2, R. Fujiyoshi 1 and T. Sumiyoshi 1, 1 Hokkaido Univ., 2 RIKEN, 3 Osaka Univ. and 4 JASRI, Japan	**27P-11-5** Fabrication of Submicron Structures by Thermal Lithography J.K. Chen 1, J.W. Lin 1, J.P. Chen 2 and K.C. Chiu 2, 1 Natl. Taipei Univ. of Technol. and 2 ITRI, Taiwan	**27P-11-6** Sensitivity of Process Parameters on Pattern Formation of Litho-cure-litho-etch Process S.-K. Kim, Hanyang Univ., Korea
27P-11-140L Study on Dissolution Behavior of Polymer bound PAG and blended PAG Resists by using Quartz Crystal Microbalance Method H. Yamamoto 1,2, T. Kozawa 1,2, S. Tagawa 1,2, 1 Osaka Univ. and 2 JST-CREST, Japan	**27P-11-141L** Solvated Electron Reaction with Some Polymer Bound Acid Generators or New Acid Generators R. Joshi 1,2, H. Yamamoto 1,2, K. Enomoto 1,2 and S. Tagawa 1,2, 1 Osaka Univ. and 2 JST-CREST, Japan	**27P-11-142L** Study on Resist Performance of Polymer Bounded Photo-acid Generators (PAG) and blended PAG D.N. Tuan 1,2, H. Yamamoto 1,2 and S. Tagawa 1,2, 1 Osaka Univ. and 2 JST-CREST, Japan
Nanocarbons		
~~**27P-11-7**~~ **to 26P-7-17** ~~Atomic Layer Deposition of Amorphous Carbon and Multilayer Graphene using Carbon Tetrabromide as Carbon Solid Source~~ ~~T. Choi, H. Kang, J. Yoon, H. Jung and H. Kim, Yonsei Univ., Korea~~	**27P-11-8** Microscopic Raman Mapping of Epitaxial Graphene on 4H-SiC(0001) R. O 1, A. Iwamoto 1, Y. Nishi 1, Y. Funase 1, T. Yuasa 1, T. Tomita 1, M. Nagase 1, H. Hibino 2 and H. Yamaguchi 2, 1 Univ. of Tokushima and 2 NTT, Japan	**27P-11-9** A Structural Investigation of Carbon Nanofilaments in the Marimo Carbon Formation by the Methane Decomposition with Oxidized Diamond-supported Nickel Catalysts K. Komatsu 1, K. Nakagawa 2, H. Gamo 3, M. Eguchi 4, T. Ando 5 and M. N-Gamo 1, 1 Toyo Univ., 2 Kansai Univ., 3 Toppan Printing, 4 Ibaraki Univ. and 5 NIMS, Japan
27P-11-10 Fabrication of Flexible Thin Film Transistors using Singlewalled Carbon Nanotubes and Graphene S.J. Kim, S. Aikawa, B. Hou, E. Einarsson, S. Chiashi and S. Maruyama, Univ. of Tokyo, Japan	**27P-11-11** Synthesis and Device Application of Nitrogen-doped Single-walled Carbon Nanotubes by Plasma CVD M. Akutsu, T. Kato, S. Kuroda, T. Kaneko and R. Hatakeyama, Tohoku Univ., Japan	**27P-11-12** Formation of Fin-like Ridge-structures of Graphene on Graphene/SiC(0001) by Molecular Beam Epitaxy F. Maeda and H. Hibino, NTT, Japan
27P-11-13 Tailoring Magnetism of Fe on Graphen with Uniaxial Strains: an Ab initio Study H. Choi and Y.-C. Chung, Hanyang Univ., Korea	**27P-11-14** Band-gap Engineering of Hydrogen-potassium Ternary Graphite Intercalation Compound Thin Films Y. Takagi 1,2 and S. Okada 1,2, 1 Univ. of Tsukuba and 2 JST-CREST, Japan	**27P-11-15** Growth and in-situ Observations of Ferromagnetic Metal Encapsulated Multi-walled Carbon Nanotubes synthesized by Microwave Plasmaenhanced Chemical Vapor Deposition Y. Hayashi 1, T. Tokunaga 2, Y. Horita 2, T. Iijima 1, T. Yanagimoto 3, K. Kaneko 3, U. Suryavanshi 1, M. Tanemura 1 and K. Kuroda 2, 1 Nagoya Inst. of Technol., 2 Nagoya Univ. and 3 Kyushu Univ., Japan
27P-11-16 Temperature Dependent Resistance of Multi-wall Carbon Nanotube E. Kawabe, S. Itaya, K. Hirahara and Y. Nakayama, Osaka Univ., Japan	**27P-11-17** Graphene Growth from Spin-coated Polystyrene without a Flammable Gas S. Suzuki 1, Y. Takei 1,2, K. Furukawa 1 and H. Hibino 1, 1 NTT and 2 Tokyo Univ. of Sci., Japan	**27P-11-18** Controlling the Graphene Layer in Thermal Chemical Vapor Deposition by Substrate Bias H.-C. Chang, C.-C. Li, Y.-T. Shih, J.-R. Huang, W.-J. Su and K.-Y. Lee, Natl. Taiwan Univ. of Sci. & Technol., Taiwan
27P-11-19 Hole Doping leads to Magnetism in Nanographene S. Dutta and K. Wakabayashi, NIMS, Japan	~~**27P-11-20**~~ **Withdrawn** ~~Carbon Nanotubes and Carbon Nanocoils grown by Chemical Vapor Deposition on Graphene Sheets Supported Pd Nanoparticles~~ ~~K.J. Chung 1, C.A. Wang 1, N.W. Pu 1, Y. Sung 2, Y.M. Liu 1 and M.D. Ger 1, 1 Natl. Defense Univ. and 2 Chung Shan Inst. of Sci. & Technol., Taiwan~~	**27P-11-21** Synthesis of Iron-encapsulated Carbon Nanocapsules and Carbon Nanotubes using Iron-doped Fullerene Nanowhiskers D. Matsuura 1, K. Miyazawa 2 and T. Kizuka 1, 1 Univ. of Tsukuba and 2 NIMS, Japan

~~27P-11-22~~ Withdrawn ~~Growth of Graphene Thin films by Polymer Carbon Source based Chemical Vapor Deposition~~ ~~G.N. Shi 1, N.W. Pu 1, Y.M. Liu 1, N.T. Wen 2, Y. Sung 2 and M.D. Ger 1, 1 Natl. Defense Univ. and 2 Chung Shan Inst. of Sci. & Technol., Taiwan~~	~~27P-11-23~~ Withdrawn ~~Enhancing Electron Field Emission Properties of Ultra nanocrystalline Diamond by growing on Textured Si Substrate~~ ~~P. C. Huang 1, W. C. Shih 1, K. Y. Teng 2 and I N. Lin 2, 1 Tatung Univ. and 2 Tamkang Univ., Taiwan~~	**27P-11-24** An Investigation on Current Saturation Mechanism of Carbon Nanotube FETs B.P. Algul and K. Uchida, Tokyo Inst. of Technol., Japan
27P-11-25 Fabrication and Characterization of Carbon Nanotube Sheet drawn from Vertically Aligned Carbon Nanotube Forest T. Iijima 1, H. Oshima 2, T. Ito 1, Y. Inagaki 1, Y. Hayashi 1, U.B. Suryavanshi 1 and M. Tanemura 1, 1 Nagoya Inst. of Technol. and 2 Denso, Japan	**27P-11-26** Effect of H_2O_2 Aqueous Solution on Preferential Inactivation of Metallic Single Walled Carbon Nanotubes using UV Irradiation H. Tabata, K. Imakoga and M. Katayama, Osaka Univ., Japan	**27P-11-27** Growth of Graphene from SU-8-2002 Photoresist Material on Nickel Substrate H. Lee, J. Hong, S.G. Lee, J.-H. Lee, T. Choi, H. Kang, J. Yoon, H. Jung, H. Kim and T. Lee, Yonsei Univ., Korea
27P-11-28 Thermal Durability of FIB-DLC Films containing W A. Fujimoto 1, M. Okada 1, Y. Kang 1, M. Niibe 1, S. Matsui 1, T. Suzuki 2 and K. Kanda 1, 1 Univ. of Hyogo and 2 Nagaoka Univ. of Technol., Japan	**27P-11-29** Multiple Exciton Generation by a Single Photon in Single-walled Carbon Nanotubes S. Konabe 1,2 and S. Okada 1,2, 1 Univ. of Tsukuba and 2 JST-CREST, Japan	**27P-11-30** Broadband Patch Absorber using Multi-walled Carbon Nanotubes J.-K. Chuang, C.-J. Hsiao, R.-Y. Fang, C.-L. Wang and K.-Y. Lee, Natl. Taiwan Univ. of Sci. & Technol., Taiwan
27P-11-31 Growth and Characterization of Carbon Nanotube on ZnO Films by Microwave Plasma Jet Chemical Vapor Deposition C.H. Su and C.M. Huang, Natl. Taipei Univ. of Technol., Taiwan	**27P-11-143L** Direct Synthesis of Graphene on SiO_2 Substrates Using Transfer-Free Processes K. Gumi, Y. Ohno, K. Maehashi, K. Inoue, and K. Matsumoto, Osaka Univ., Japan	**27P-11-144L** Impacts of the Access Resistance on the Channel Conduction Characteristics in Graphene FETs M.-H. Jung 1, C. Quan 1, H. Fukidome 1, T. Suemitsu 1,2, T. Otsuji 1,2 and M. Suemitsu 1,2, 1 Tohoku Univ. and 2 JST-CREST, Japan
27P-11-145L Low Temperature Synthesis of Single-Walled Carbon Nanotubes in a High Vacuum using Pt Catalyst in Alcohol Gas Source Method N. Fukuoka 1, Y. Mizutani 1, T. Maruyama 1, S. Naritsuka 1 and S. Iijima 1,2, 1 Meijo Univ. and 2 AIST, Japan	**27P-11-146L** Local Strain Distribution of Free-standing Graphene on Polymethylmethacrylate T. Kadowaki 1,2, T. Nishijima 1,2, R. Ueki 1,2, and J. Fujita 1,2, 1 Tsukuba Res. Center for Interdisciplinary Materials Sci. and 2 Univ. of Tsukuba, Japan	
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27P-11-35 Enhanced Photo-conductivity of Silicon Nanowires conjugated with 3-aminopropyltriethoxysilane (APTES)-adsorbed Zn(OEP) Molecules M.S. Choi 1, D.J. Lee 1, Y.S. Kim 1, H.J. Kim 3, J.H. Lee 1,2, D.H. Yun 1, H.J. Shim 1, S.I. Hong 1, D. Whang 1,2 and S.W. Hwang 1, 1 Korea Univ., 2 Sungkyunkwan Univ. and 3 Kumoh Natl. Inst. of Technol., Korea	**27P-11-36** Effects of Aluminum Doping and Electrode Distance on the Performance of Aligned Zinc Oxide Nanorod Array-based Ultraviolet Photoconductive Sensor M.H. Mamat, Z. Khusaimi, M.Z. Musa and M. Rusop, Univ. Teknologi MARA, Malaysia	**27P-11-37** Designing and Characterization of Plasmonic Terahertz (THZ) Detectors based on Silicon MOSFET using Technology-cad H.C. Hwang 1, K. Park 1, W.-K. Park 2, S.-T. Han 2 and K.R. Kim 1, 1 Ulsan Natl. Inst. of Sci. & Technol. and 2 Korea Electrotechnol. Res. Inst., Korea
~~27P-11-38~~ Withdrawn ~~On nanowire Band graded Si:Ge Photodetectors~~ ~~C. J. Kim, H. S. Lee, Y. J. Cho, J. E. Yang, R.R. Lee, J.K. Lee and M. H. Jo, POSTECH, Korea~~	~~27P-11-39~~ Withdrawn ~~Synthesis of Coral-liked Nanobranch TiO_2 Structure and its Application to Dye-sensitized Solar Cells~~ ~~P. H. Wang 1, S. J. Wang 1, P. Chen 1, K. M. Uang 2, T. M. Chen 3 and T. C. Wang 1, 1 Natl. Cheng Kung Univ. and 2 WuFeng Univ., Taiwan~~	**27P-11-40** Control Theory of Near-field Optical Energy Transfer in One-dimensional Waveguide consisting of Metallic Nanoparticles by vibrating External Field S. Tanaka 1, H. Hattori 1, S. Hidaka 1 and T. Iida 1,2, 1 Osaka Pref. Univ. and 2 JST-PRESTO, Japan
27P-11-41 Fabrication of Organic Electroluminescence Devices by Means of Electrospray Deposition H. Anzai, Y. Watanabe and T. Sakamoto, Kogakuin Univ., Japan	**27P-11-42** Formation of Nanometer-scale Patterns on the n-GaN Surface and its Application to GaN-based Vertical Light-emitting Diodes K.S. Shin 1, H.-M. An 1, J.I. Sim 1, S.J. Kim 1, S. Oh 2, M. Yoo 2 and T.G. Kim 1, 1 Korea Univ. and 2 Verticle, Korea	**27P-11-43** Light Extraction Enhancement of GaN-based Light Emitting Diodes using Laser Lithography Technique J.-T. Chen, W.-C. Lai, Y.-J. Kao, Y.-Y. Yang and J.-K. Sheu, Natl. Cheng Kung Univ., Taiwan
27P-11-44 n-ZnO / InAs QDs / p-GaAs Pillar Structure prepared as a Single Quantum Dot Emitter H. Iijima, S. Odashima and I. Suemune, Hokkaido Univ., Japan	**27P-11-45** Photocurrent Measurements on a Quantum Cascade Laser Device by Fourier Transform Infrared Microscope E.C. Enobio, K. Ohtani, Y. Ohno and H. Ohno, Tohoku Univ., Japan	**27P-11-46** Electrical Control of the Exciton Fine Structure splitting in GaAs Island Quantum Dots for the Generation of Polarization-entangled Photons M. Ghali, K. Ohtani, Y. Ohno and H. Ohno, Tohoku Univ., Japan

27P-11-47 Self-assembled Growth of Ferromagnetic Semiconductor-ferroelectric Insulator Nanocomposite Structures using a Pulsed Laser Deposition Method T. Sakamoto, A.N. Hattori, T. Kanki and H. Tanaka, Osaka Univ., Japan	**27P-11-48** Collision Based Computing using Single-electron Circuits S. Hayashi and T. Oya, Yokohama Natl. Univ., Japan	**27P-11-49** Analysis on Dynamic Behavior of Thermally Driven Single-electron Stochastic Resonance S. Kasai, Y. Shiratori and K. Miura, Hokkaido Univ., Japan
27P-11-50 Performance Characteristics of Electric Double Layer Capacitor containing Graphene as an Electrode Combining Vertically Aligned Carbon Nanotube and RuO_2 Nanostructures Y.-T. Shih, C.-C. Li, H.-C. Chang, K.-Y. Lee, P.-H. Chen, S.-J. Liou, Y.-M. Chen and Y.-S. Huang, Natl. Taiwan Univ. of Sci. & Technol., Taiwan		
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27P-11-54 Fabrication of an Ordered Anodic Aluminum Oxide Pore Arrays with an Interpore Distance smaller than the Nano-indentation Pitch formed by Ion Beam Etching C. Wang 1, Y. Ishida 1, Q. Wang 1, T. Yamaguchi 1, S. Tanaka 2, K. Saitoh 1, T. Shimizu 1 and S. Shingubara 1, 1 Kansai Univ. and 2 Natl. Inst. of Info. & Communications Technol., Japan	**27P-11-55** Fabrication of 6-nm-sized Nanodots using Self-assemble of Polystyrene-poly (Dimethyl Siloxane) M. Huda, J. Liu, Y. Yin and S. Hosaka, Gunma Univ., Japan	**27P-11-56** Fabrication of Dense n-type Phthalocyanine Nano-rod Array H. Saeki, M. Nishimoto, Y. Koshiba, M. Misaki, S. Horie, K. Ishida and Y. Ueda, Kobe Univ., Japan
27P-11-57 Stiffened Ribs Design for Micro Products fabricated by Two-photon Polymerization T.-T. Chung, C.-L. Tseng, C.-P. Hung and C. Huang, Natl. Taiwan Univ., Taiwan	~~**27P-11-58**~~ **Withdrawn** ~~Thermal Stability of Cu/WN/Si Nano via Contact Structures~~ ~~Y. H. Hwang 1,2, W. J. Cho 1, Y.H. Kim 2 and Y.T. Kim 2, 1 Kwangwoon Univ. and 2 KIST, Korea~~	**27P-11-59** Nano Order Size ZnO Particles fabricated by Electro Spray Pyrolysis Y. Ishikawa 1,2, T. Doe 1,2, M. Horita 1,2, T. Nishida 1,2 and Y. Uraoka 1,2, 1 Nara Inst. of Sci. & Technol. and 2 JST-CREST, Japan
27P-11-60 Patterning and Carbonization of Block Copolymer Self-assembled Structures by Focused-ion-beam S. Warisawa, R. Mitsuhashi, R. Kometani and S. Ishihara, Univ. of Tokyo, Japan	**27P-11-61** Influence of Rapid High Temperature postannealing in Thermal Formation of Self-organized Nanogroove Array on the Epitaxial Oxide Thin Film Surface R. Yamauchi 1, K. Kobayashi 2, T. Suzuki 2, G. Tan 1, D. Shiojiri 1, S. Kaneko 1,3 and M. Yoshimoto 1, 1 Tokyo Inst. of Technol., 2 Taiyo Yuden and 3 Kanagawa Industrial Technol. Ctr., Japan	**27P-11-62** Observation of Collective Molecular Motion on a Gold Surface M. Han and M. Kaneta, Tokyo Inst. of Technol., Japan
~~**27P-11-63**~~ **Withdrawn** ~~Microstructrue and Optical Characteristics of Ga doped ZnO Nanowalls by Hydrothermal Method~~ ~~C. S. Huang 1, J. Y. Wu 1, S. J. Young 2, C. W. Liu 3 and C. H. Hsiao 3, 1 Natl. Yunlin Univ., 2 Formosa Univ. and 3 Natl. Cheng Kung Univ., Taiwan~~	**27P-11-64** Large-scale SiGe/Si Superlattice Quantum Dot Arrays fabricated by Nanosphere Lithography S.W. Lee, B.L. Wu and S.L. Cheng, Natl. Ctrl. Univ., Taiwan	**27P-11-65** High Resolution and High Density Nano-patterning in HSQ using Proximity Correction D.K. Brown 1, E. Kim 1, C. Chapin 1, G. Lopez 2, N. Unal 2 and U. Hofmann 2, 1 Georgia Inst. of Technol., USA and 2 GenISys, Germany
27P-11-66 The Modeling and Correction of Lateral Resist Development Effects in 3D Electron-beam Lithography V.A. Guzenko 1, N. Belic 2, N. Unal 2, A. Schleunitz 1 and C. David 1, 1 Paul Scherrer Inst., Switzerland and 2 GenISys, Germany	**27P-11-67** Use of Self-assembled Peptide Nanostructures for the Fabrication of Silicon Nanowires K. Andersen, J. Castillo-León, T. Bakmand and W.E. Svendsen, Technical Univ. of Denmark, Denmark	**27P-11-147L** Impact of Oxide Thinning on Resistance Switching Behavior of RF Sputtered SiOx Dielectric Sandwiching with Pt Electrodes A. Ohta 1, Y. Goto 1, S. Nishigaki 1, H. Murakami 1, S. Higashi 1 and S. Miyazaki 2, 1 Hiroshima Univ. and 2 Nagoya Univ., Japan
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27P-11-68 Preparation of Fower-shaped Silver Nanomaterials via Pulsed Proton Beam Irradiation Y.-J. Kim 1 and J.H. Song 2, 1 Chungnam Natl. Univ. and 2 Sunchon Natl. Univ., Korea	~~**27P-11-69**~~ **Withdrawn** ~~Surface, Structural, and Optical Property Variation of ZnO Nanoparticles formed on Si Substrates due to Thermal Treatment~~ ~~B.G. Park, Y.S. No, S.Y. Kim and T.W. Kim, Hanyang Univ., Korea~~	**27P-11-70** Silica-encapsulated ZnSe Nanocrystals prepared by AOT Microemulsions A. Lee, J.H. Kim, H.H. Yoon and S.J. Park, Kyungwon Univ., Korea

27P-11-71 Room Temperature Ferromagnetism in Nanocrystalline ZnO (core)/Crystalline Carbon (shell) systhensied by Thermal Decomposition Method M. Subramanian , M. Tanemura , T. Hihara and Y. Hayashi , Nagoya Inst. , of Technol., Japan	**27P-11-72** Preparation and Characterization of Magnetic Chitosan Nanoparticles and its Encapsulation Efficiency for Fluorouracil H.-C. Yang 1 and M.-H. Hon 2, 1 Kun Shan Univ. and 2 Natl. Cheng Kung Univ., Taiwan	**27P-11-73** Quantitative Analysis of Enrofloxacin using Dye Doped Silica Nanoparticle J.-A. Ko, S.-J. Kim, J.-W. Ahn and H.-B. Lim, Dankook Univ., Korea
27P-11-74 Morphological Observations of Size-controlled Squid Ink Particles on Electrodes and Insulated Substrates T. Matsuura 1, T. Kato 1, S. Todo 1, M. Horii 1, K. Minato 2 and T. Ueno 2, 1 Hokkaido Univ.of Edu. and 2 Hakodate Natl. College of Technol., Japan	**27P-11-75** Photocatalyst ZnO Nanocrystalline Thin Films formed on Si Substrates R. Kasahara 1, S. Harako 1, S. Komuro 2 and X. Zhao 1, 1 Tokyo Univ. of Sci. and 2 Toyo Univ., Japan	**27P-11-76** Stability of a Nano-sized Formulation by using Gamma-irradiation Technique under Stress Test for Development of Agro-formulation H.-J. Park, J.-S. Choi, H.-J. Kim and D.H. Kim, Korea Atomic Energy Res. Inst., Korea
27P-11-77 The Study of Topotactic Transformation from Te Nanowires into Ag_2Te with Single Crystalline D. Jeong 1, Y.-I. Lee 1, J.-H. Lim 2, N.V. Myung 3 and Y.-H. Choa 1, 1 Hanyang Univ., 2 Korea Inst. of Materials Sci., Korea and 3 Univ. of California-Riverside, USA	**27P-11-78** Transition of Nanoparticle Structures by Evaporation of Solvent Mixture M.S. Kim , S. Lee and T. Lee , Yonsei Univ., Korea	**27P-11-79** Characterization of ZnO Tetrapods prepared by a Simple Oxidation of Zn Plate in Air Atmosphere D.-h. Bae and G.-H. Lee, Dong-eui Univ., Korea
27P-11-80 Growth and Characterization of Nano-structured Zinc Tungstate ($ZnWO_4$) prepared by Microwave-assisted Synthesis M.K. Tsai 1, Y.C. Lee 1, C.C. Huang 1, S.Y. Hu 2, J.W. Lee 3, B.Y. Hong 4, B.J. Chen 1 and K.K. Tiong 4, 1 Tungnan Univ., 2 Tung Fang Design Univ., 3 Ming Chi Univ. of Technol. and 4 Natl. Taiwan Ocean Univ., Taiwan	**27P-11-81** Hydrothermal Synthesis of Silicon-based Hollow Nanostructures S. Sonae, M. Ara and H. Tada, Osaka Univ., Japan	**27P-11-82** Effect of Potassium Chloride Concentration on the Structural and Optical Properties of ZnO Nanorods grown on Indium-tin-oxide Film Coated Glass Substrates H.Y. Yang, Y.S. No and T.W. Kim, Hanyang Univ., Korea
27P-11-83 Preparation of Naturally-textured Al-doped ZnO Films on Flexible Substrate with Radio Frequency Magnetron Sputtering M.K. Prosad, Y.B. Kim, J.H. Lee and B.H. Choi, Korea Inst. of Industrial Technol., Korea	**27P-11-84** Influence of Annealing Temperature on the Properties of TiO_2/ZnO Nanocomposite Film prepared by Simultaneous RF-magnetron Sputtering M.H. Abdullah, M.Z. Musa, L.N. Ismail, M.H. Mamat and M. Rusop, Univ. Teknologi MARA, Malaysia	**27P-11-85** Effect of Inhomogeneous Strain Distribution on the Thickness Modulation in GaAs/GaAsP Strained Superlattice X.G. Jin 1, H. Nakahara 1, K. Saitoh 1, T. Saka 2, T. Ujihara 1, N. Tanaka 1 and Y. Takeda 1, Nagoya Univ. and 2 Daido Univ., Japan
27P-11-86 Photoluminescence and X-ray Absorption Fine Structure Analysis of Sm-doped TiO_2 Thin Films J. Sakurai 1, R. Kasahara 1, T. Ohtsuki 1, S. Harako 1, S. Komuro 2, N. Hirao 3 and X. Zhao 1, 1 Tokyo Univ. of Sci., 2 Toyo Univ. and 3 JAEA, Japan	**27P-11-87** Structural Characteristics of Zinc Oxide Films treated in Ar/O_2 Atmosphere using Microwave Plasma Jet Sintering System C.H. Su and C.M. Huang, Natl. Taipei Univ. of Technol., Taiwan	**27P-11-88** Optical Properties of ZnO/MgO Multilayer Films with Different Pairs grown by Sputtering Technique Y.C. Lee 1, F.J. Cheng 1, M.K. Tsai 1, S.Y. Hu 2, J.W. Lee 3, Z.K. Wun 4 and K.K. Tiong 4, 1 Tungnan Univ., 2 Tung Fang Design Univ., 3 Ming Chi Univ. of Technol. and 4 Natl. Taiwan Ocean Univ., Taiwan
27P-11-89 Effect of Oxygen Gas Flow Rate on the Properties ZnO:Ga Films deposited by Facing Target Sputtering System K.-H. Lee, H.-W. Choi and K.H. Kim, Kyungwon Univ., Korea	**27P-11-90** Fabrication of Al_2O_3/SiC Nanocomposite using SiC Nanopowder synthesized by Mechanical Alloying Method S. Kangwantrakool, Suranaree Univ. of Technol., Thailand	
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27P-11-91 Nano-scale Force Studies of PSL Spheres on a Si Subtract using Atomic Force Microscopy S.P. Pan, W.E. Fu, H.C. Liou, T.C. Yu and C.L. Wu, ITRI, Taiwan	**27P-11-92** Picosecond Snapshot of Surface Morphology by using Coherent Soft X-ray Pulses T. Tomita 1, N. Hasegawa 2, K. Terakawa 3, M. Yamamoto 1, Y. Minami 3, Y. Ochi 2, T. Kaihori 2, M. Nishikino 2, M. Yamagiwa 2, T. Kawachi 2 and T. Suemoto 3, 1 Univ. of Tokushima, 2 JAEA and 3 Univ. of Tokyo, Japan	**27P-11-93** Highly Sensitive Detection of Target Biomolecules on a Cell Surface using Metal Nano-particles conjugated with Aptamer Probes H. Kim 1, H. Terazono 1, M. Hayashi 1, H. Takei 1,2 and K. Yasuda 1,3, 1 Kanagawa Academy of Sci. & Technol., 2 Toyo Univ. and 3 Tokyo Medical and Dental Univ., Japan
27P-11-94 Three Dimensional Nano-micro Processing for Polymer Films by MeV Ion Beam Lithography K. Takano 1, A. Asano 1, Y. Maeyoshi 1, H. Marui 1, M. Omichi 1, A. Saeki 1, S. Seki 1, T. Satoh 2, T. Kamiya 2, Y. Ishii 2, T. Ohkubo 2, M. Koka 2, W. Kada 2, M. Sugimoto 2 and H. Nishikawa 3, 1 Osaka Univ., 2 JAEA and 3 Shibaura Inst. of Technol., Japan	**27P-11-95** Microchanneled Resonant Heat Sensor for a Living Cell M. Toda, T. Otake, N. Inomata and T. Ono, Tohoku Univ., Japan	**27P-11-96** The Application of Advanced TEM Tomography for 3-dimensional Microstructure Analysis in Nanomaterials and Nanodevices S.-C. Lo and M.-W. Lai, ITRI, Taiwan

27P-11-97 Theoretical Study for Mechanical Control of Micro- and Nano-mechanical Systems by Cavity-induced Radiation Force N.D. Vy 1, R. Ooka 1 and T. Iida 1,2, 1 Osaka Pref. Univ. and 2 JST-PRESTO, Japan	**27P-11-98** Coupled Mechanical Si Resonators and its Entrainment Condition K. Tanno and T. Ono, Tohoku Univ., Japan	**27P-11-99** Oscillation of Cantilevered Multiwall Carbon Nanotubes by Thermal Actuation A. Yoshinaka 1, T. Arie 1,2 and S. Akita 1,2, 1 Osaka Pref. Univ. and 2 JST-CREST, Japan
27P-11-100 The Application of Tomography and Electrical Measurement in DB-FIB System for Cathode Materials of Li-battery S.-C. Lo, M.-W. Lai and L.-J. Lin, ITRI, Taiwan	**27P-11-101** Planar-waveguide Based Optical Transducer M.-W. Lai, C.-S. Chu, S.-C. Lo, Y.-T. Li and Y.-C. Pu, ITRI,Taiwan	**27P-11-148L** Recognition of embedded Defects in suspended Nanowires using a Carbon-nanotube Cantilever Gat Y.-W. Lan 1,2, L.-N. Nguyen 2,3, S.-J. Lai 2, M.-C. Lin 2, C.-H. Kuan 1 and C.-D. Chen 2,4, 1 Natl. Taiwan Univ. 2 Academia Sinica, 3 Natl. Tsing Hua Univ. and 4 Natl. Chen-Kung Univ., Taiwan
~~27P-11-149L~~ Withdrawn ~~Controlling Phase Formation of $Co@Fe_2O_3$ Heteroparticles and $CoFe_2O_4$ Nanoparticles~~ ~~B. Nakhjavan, M.N. Tahir, U. Kolb and W. Tremel, Johannes Gutenberg Universität, Germany~~		
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27P-11-102 Silica/UV-cured Resin Nanocomposites for Replica Molds in UV Nanoimprinting S. Kudo 1, C.M. Yun 1,2, K. Nagase 1, S. Kubo 1,2 and M. Nakagawa 1,2, 1 Tohoku Univ. and 2 JST-CREST, Japan	**27P-11-103** Changes in Weight and Viscosity of UV-curable Resins and Monomers by absorbing a Condensable Pentafluoropropane Gas Effective in UV Nanoimprint S. Kaneko 1, K. Kobayashi 1, Y. Tsukidate 1,2, H. Hiroshima 2,3, S. Matsui 2,4 and M. Nakagawa 1,2, 1 Tohoku Univ., 2 JST-CREST, 3 AIST and 4 Univ. of Hyogo, Japan	**27P-11-104** Evaluation of Polymerization Degrees of Patterns fabricated by UV-nanoimprint in PFP Gas Ambient Y. Sawada 1,6, M. Okada 1,6,7, H. Miyake 2, T. Ohsaki 3, Y. Haruyama 1,6, Y. Hirai 4,6, H. Hiroshima 5,6 and S. Matsui 1,6, 1 Univ. of Hyogo, 2 Daicel Chemical Industries, 3 Toyo Gosei, 4 Osaka Pref. Univ., 5 AIST, 6 JST-CREST and 7 JSPS, Japan
27P-11-105 Evaluation of Fluorinated Self-assembled Monolayers under Pentafluoropropane Gas Ambient by Scanning Probe Microscopy M. Okada 1,4,5, M. Iwasa 2, Y. Haruyama 1,4, H. Hiroshima 3,4 and S. Matsui 1,4, 1 Univ. of Hyogo, 2 SII Nanotechnol., 3 AIST, 4 JST-CREST and 5 JSPS, Japan	**27P-11-106** Evaluation of Interaction Force between UV-nanoimprint Resin and Antisticking Layer by Dynamic Contact Angle Measurement M. Chinen 1,2, M. Okada 1,2,3, Y. Haruyama 1,2 and S. Matsui 1,2, 1 Univ. of Hyogo, 2 JST-CREST and 3 JSPS, Japan	**27P-11-107** Micro Thermal Imprinting on Powder-polymer Multilayer Substrate Y. Xu, F. Tsumori, K. Hatama, H. Kang and H. Miura, Kyushu Univ., Japan
27P-11-108 The Development of Electroformed Ni-W Mold to Thermal Imprinting for Borosilicate Glass M. Yasui 1, S. Kaneko 1, M. Takahashi 2, Y. Hirabayashi 1, T. Ozawa 1 and R. Maeda 2, 1 Kanagawa Industrial Technol. Ctr. and 2 AIST, Japan	**27P-11-109** Change in Young's Modulus of Imprinted Nanopillar after Residual Layer Removal by Reactive Ion Etching Y. Kang 1,2,3, Y. Nakai 1,2, M. Okada 1,2,3, Y. Haruyama 1,2 and S. Matsui 1,2, 1 Univ. of Hyogo, 2 JST-CREST and 3 JSPS, Japan	**27P-11-110** Comparison of Surface Characterization of Antisticking Layer formed by CVD and Dip-coat Methods for Nanoimprint Lithography D. Yamashita 1,2, M. Okada 1,2,3, Y. Nakai 1,2, Y. Haruyama 1,2 and S. Matsui 1,2, 1 Univ. of Hyogo, 2 JST-CREST and 3 JSPS, Japan
27P-11-111 Fabrications of Various Al Doped ZnO Nano-patterns delived by Sol-gel Method and Direct Nano-imprint Lithography J.S. Kim, K.-J. Byeon, J.-Y. Cho, S.-C. Oh and H. Lee, Korea Univ., Korea	**27P-11-112** Transfer Printing Method to obtain Polarized Light Emission in OLED H.Y. Noh 1, C.-S. Park 1, J.-S. Park 1, M.-K. Park 1, J.-W. Kim 2, T.-H. Yoon 2, S.-W. Kang 1 and H.-R. Kim 1, 1 Kyungpook Natl. Univ. and 2 Pusan Natl. Univ., Korea	**27P-11-113** Biomimetic Nanostructured Broadband Antireflection Coating and its Application on Crystalline Solar Cells J.Y. Chen and K.W. Sun, Natl. Chiao Tung Univ., Taiwan
27P-11-114 Imprinted Pattern Profile-dependent Plasmonic and Optical Properties J.-H. Choi, S.-J. Park, C.-H. Kim, J.-H. Lee, D.-G. Choi, E.-S. Lee and J.-H. Jeong, Korea Inst. of Machinery & Materials, Korea		
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