

Wednesday, September 26

2F B-1	2F B-2	1F C-1	1F C-2	1F D	1F E
A-3: Novel Functional Devices (Area 7) (9:00-10:15) Chairs: Y. Tanaka (Fujitsu) N. Iizuka (Toshiba)	B-3: PRAM/FcRAM (Area 4) (9:00-10:10) Chairs: T. Endoh (Tohoku Univ.) Y. Sasago (Hitachi)	C-3: Nanowire Devices (Area 13) (9:00-10:15) Chairs: S. Lehmann (Lund Univ.) S. Hara (Hokkaido Univ.)		E-3: III-V/Ge MOSFET (Area 1&3) (9:00-10:10) Chairs: D. Hisamoto (Hitachi) S. Tsujikawa (SONY)	F-3: III-V FETs (Area 6) (9:00-10:15) Chairs: K. Maezawa (Univ. of Toyama) S. hara (HRL)
9:00 A-3-1 (Invited) Quantum information device based on NV center in diamond <i>N. Mizuochi, Osaka Univ. (Japan)</i>	9:00 B-3-1 (Invited) A Process Technology and Characterization for 20nm PRAM <i>B. Kim, Y. Song, H. Jeong, D. Ha, Y. Kang, S. Ahn, J. Lee, K. Lee, D. Ahn, S. Nam, G. Jeong and C. Chung, Samsung Electronics Corp. (Korea)</i>	9:00 C-3-1 (Invited) Metal Oxide Nanowires: Synthesis and Memristive Properties <i>T. Yanagida, Osaka Univ. (Japan)</i>		9:00 E-3-1 (Invited) III-V/Ge Channel MOS Transistor Technologies for Advanced CMOS <i>S. Takagi¹, S. H. Kim¹, R. Zhang¹, M. Yokoyama¹, N. Taoka^{1,2} and M. Takenaka¹, The Univ. of Tokyo (Japan)</i>	9:00 F-3-1 (Invited) InAs High-Electron Mobility Transistors on the Path to THz Operation <i>J. A. del Alamo¹ and D. H. Kim², ¹Microsystems Tech. Laboratories, MIT, Cambridge, and ²Previously with Teledyne Scientific (USA)</i>
9:30 A-3-2 Strongly enhanced four-wave mixing signal from GaAs/AlAs cavity with InAs QDs embedded in strain-relaxed barriers <i>Y. Yasunaga, H. Ueyama, K. Morita, T. Kitada and T. Isu, Univ. of Tokushima (Japan)</i>	9:30 B-3-2 Novel 2-bit Multi-level PCRAM Structure with a Triple-layered Phase Change Material Stack for High-density Storage Applications <i>A. Gyanathan and Y. C. Yeo, National Univ. of Singapore (Singapore)</i>	9:30 C-3-2 ANALYTIC COMPACT MODEL of BALLISTIC and QUASI-BALLISTIC CYLINDRICAL GATE-ALL-AROUND MOSFET INCLUDING TWO SUBBANDS <i>H. Cheng^{1,2}, S. Uno^{2,3}, T. Numata^{1,2} and K. Nakazato¹, ¹Nagoya Univ., ²CREST and ³Ritsumeikan Univ. (Japan)</i>		9:30 E-3-2 AN EXTENDED “Y FUNCTION” METHOD FOR SATURATION REGIME CHARACTERIZATION: APPLICATION TO BULK Si AND Ge TECHNOLOGIES <i>C. Diouf^{1,2}, A. Cros¹, S. Monfray¹, J. Mitard³, J. Rosa¹, D. Gloria¹ and G. Ghibaudo², ¹STMicroelectronics, ²IMEP-LAHC, MINATEC/INPG and ³IMEC (France)</i>	9:30 F-3-2 High Open Circuit Voltage Gain in Vertical InGaAs Channel Metal-Insulator-Semiconductor Field-Effect Transistor using Heavily Doped Drain Region and Narrow Channel Mesa <i>M. Kashiwano, J. Hirai, S. Ikeda, M. Fujimatsu and Y. Miyamoto, Tokyo Tech (Japan)</i>
9:45 A-3-3 Fiber fuse terminator for above 20 W input <i>K. Kurokawa and N. Hanzawa, NTT Corp. (Japan)</i>	9:50 B-3-3 Squarness Control in Polarization-electric filed Curves in Rhombohedral PZT Films <i>H. Funakubo, A. Sumi, H. Morioka, S. Okamoto, S. Yokoyama, T. Okamoto and Y. Ehara, Tokyo Tech. (Japan)</i>	9:45 C-3-3 Fully Encapsulated Gate-All-Around InAs Nanowire FET <i>S. Sasaki, G. Zhang, K. Tateno, H. Suominen, Y. Harada, S. Saito, A. Fujiwara, T. Sogawa and K. Muraki, NTT Basic Research Labs., NTT Corp. (Japan)</i>		9:50 E-3-3 Effects of interfacial layer between high-k gate dielectric and InGaAs surface on its inversion layer electron mobility <i>M. Oda¹, T. Irisawa¹, Y. Kamimuta¹, O. Ichikawa² and T. Tezuka¹, ¹AIST and ²Sumitomo Chemical Co. Ltd. (Japan)</i>	9:45 F-3-3 120-GHz-band InP HEMT Amplifier with Gain-Enhanced Topology <i>M. Sato, S. Shiba, H. Matsumura, Y. Nakasha, T. Suzuki and N. Hara, Fujitsu Ltd. (Japan)</i>
10:00 A-3-4 2f-3f Optical Wavelength Conversion Device with PPLN waveguides <i>K. Hitachi¹, A. Ishizawa¹, T. Nishikawa¹, M. Asobe² and T. Sogawa¹, ¹NTT Basic Res. Lab. and ²NTT Photonics Lab. (Japan)</i>		10:00 C-3-4 Isotope Effect on Phonon Thermal Transport in Silicon Nanowires <i>J. Hattori^{1,2} and S. Uno^{1,2}, ¹Ritsumeikan Univ. and ²JST, CREST (Japan)</i>			10:00 F-3-4 Cross-correlation measurement of current noise in mesoscopic conductors using a homemade cryogenic transimpedance amplifier <i>M. Hashisaka¹, M. Yamagishi¹, K. Muraki² and T. Fujisawa¹, ¹Tokyo Inst. of Tech. and ²NTT Basic Research Laboratories (Japan)</i>

Coffee Break

Short Presentation (10:45-12:00)					
Short Presentation PS-7 (10:45-12:00) Chairs: Y. Tanaka (Fujitsu) H. Isshiki (The Univ. of Electro-Communications)	Short Presentation PS-4 (10:45-12:00) Chairs: T. Eshita (Fujitsu Semiconductor) K. Hamada (Elpida Memory)	Short Presentation PS-13 (10:45-12:00) Chairs: S. Sato (AIST) S. Hara (Hokkaido Univ.)	Short Presentation PS-1 (10:45-12:00) Chairs: H. Morioka (Fujitsu Semiconductor) T. Aoyama (Toshiba)	Short Presentation PS-3 (10:45-12:00) Chairs: M. Goto (Toshiba) D. Hisamoto (Hitachi)	Short Presentation PS-6 (10:45-12:00) Chairs: Y. Miyamoto (Tokyo Institute of Technology) N. Hara (Fujitsu)

1F G	1F H	2F I	2F J	2F K	5F 554	5F 555
G-3: ReRam Devices with Nano Dots (Area 9) (9:00-10:00) Chairs: Y. Uraoka (NAIST) S. Kuroki (Hiroshima Univ.)	H-3: Quantum Dot Solar Cells (Area 15) (9:00-10:15) Chairs: Y. Kurokawa (Tokyo Institute of Technology) K. Nishioka (Univ. of Miyazaki)	I-3: Oxides (Area 8) (9:00-10:00) Chairs: T. Kawae (Kanazawa Univ.) T. Nagata (NIMS)	J-3: Variation & Reliability (Area 5) (9:00-10:15) Chairs: T. Hirose (Kobe Univ.) K. Kagawa (Shizuoka Univ.)	K-3: Future Interconnects (2) (Area 2) (9:00-10:30) Chairs: H. Ishii (Toyohashi Univ. of Technology) G. Beyer (IMEC)	L-3: Diamond Growth and Devices (Area 14) (9:00-10:15) Chairs: Y. Irokawa (NIMS) T. Funaki (Osaka Univ.)	M-3: OLED and Photonic Devices (Area 10) (9:00-10:15) Chairs: H. Kajii (Osaka Univ.) K. Takimoto (Canon)
9:00 G-3-1 Effects of Guided Filament Formation in NiO-ReRAM Using Bio-nanoparticle <i>M. Uenuma^{1,2}, T. Ban^{1,2}, B. Zheng^{1,2}, M. Horita^{1,2}, Y. Ishikawa^{1,2}, I. Yamashita^{1,2} and Y. Uraoka^{1,2}, ¹NAIST and ²CREST (Japan)</i>	9:00 H-3-1 (Invited) Si/SiO₂ Multiple Quantum Wells for All-Silicon Tandem Cells <i>B. Berghoff, N. Wilck, S. Suckow, S. Nordmann, B. Spangenberg and J. Knoch, RWTH Aachen Univ. (Germany)</i>	9:00 I-3-1 (Invited) Development of novel piezoelectric materials for Si-based MEMS application <i>H. Funakubo, S. Yasui, K. Yazawa, J. Nagata, T. Oikawa, H. Morioka, T. Yamada and H. Uchida, ¹Tokyo Tech., ²Nagoya Univ., ³PREST JS and ⁴Sophia Univ. (Japan)</i>	9:00 J-3-1 Sensitivity of SRAM Operation against AC Power Supply Voltage Variation <i>T. Sawada¹, H. Takata², K. Nii² and M. Nagata¹, ¹Kobe Univ. and ²Renesas Electronics Corp. (Japan)</i>	9:00 K-3-1 (Invited) Silicon photonics transceivers with integrated hybrid lasers <i>J. M. Fedeli¹, D. Viorol^{1,2,3}, G.H. Duan⁵, L. Vivien², D. Thomason⁶, J. M. Hartmann¹, C. Jany², P. Grosse¹, A. Le Liepvre², R. Bogaerts⁴, G. Reed⁴, D. Van Thourhout⁴ and F. Lelarge¹, ¹CEA, LETI, Minatec Campus, ²Institut d'Electronique Fondamentale (IEF), Univ., ³STMicroelectronics, Silicon Tech. Development, ⁴Photonic Research Group, Ghent Univ., ⁵III-V Lab, a joint lab of Alcatel-Lucent Bell Labs France, Thales Research and CEA and ⁶ECS/ORC, Univ. of Southampton (France)</i>	9:00 L-3-1 (Invited) Progress in technologies of fabrication of single-crystal diamond wafers with inch-size area <i>H. Yamada, A. Chayahara, Y. Mokuno, N. Tsubouchi and S. Shikata, AIST (Japan)</i>	9:00 M-3-1 (Invited) Dielectric and photoinduced absorption spectroscopies for characterization of organic photovoltaic devices <i>H. Naito⁻², T. Kobayashi¹ and T. Nagase¹, ¹Osaka Prefecture Univ. and ²CREST-JST (Japan)</i>
9:15 G-3-2 Enhanced memory performance using forming free IrOx/GdOx/W crossbar resistive switches <i>D. Jana¹, S. Maikap¹, A. Prakash¹, H. Y. Lee², W. S. Chen², F. T. Chen² and M. J. Tsai², ¹Chang Gung Univ. and ²Indus. Tech. Res. Inst. (Taiwan)</i>	9:30 H-3-2 Improvement of Electrical Properties of Silicon Quantum Dots Superlattice Solar Cells with a Dopant Diffusion Barrier Layer <i>S. Yamada¹, Y. Kurokawa¹, S. Miyajima¹ and M. Konagai^{1,2}, ¹Tokyo Inst. of Tech. and ²Photovoltaic Research Center (PVREC) (Japan)</i>	9:30 I-3-2 Fabrication and Characterization of MFIS Capacitor Structure with Ferroelectric (Bi,Pr)(Fe,Mn)O₃ Thin Films <i>T. Kawae, Y. Seto and A. Morimoto, Grad. School of Natural Sci. and Tech., Kanazawa Univ. (Japan)</i>	9:20 J-3-2 Impact of Body-Biasing Technique on RTN-induced Delay Fluctuation <i>T. Matsumoto¹, K. Kobayashi^{2,3} and H. Onodera^{1,3}, ¹Kyoto Univ., ²Kyoto Inst. Tech. and ³JST CREST (Japan)</i>	9:30 K-3-2 Sub-micron-accuracy Gold to Gold Interconnection Flip-Chip Bonding Approach for Electronics-Optics Heterogeneous Integration <i>T. T. Bui, L. Ma, M. Suzuki, F. Kato, S. Nemoto, N. Watanabe and M. Aoyagi, National Inst. of Advanced Industrial Science and Tech. (Japan)</i>	9:30 L-3-2 Diamond Lateral p-n Diodes and JFETs by Selective Growth of n+Diamond <i>Y. Hoshino¹, T. Iwasaki^{1,2,3}, K. Tsuzuki¹, H. Kato^{2,4}, T. Makino^{2,4}, M. Ogura^{2,4}, D. Takeuchi^{2,4}, T. Matsumoto^{2,4}, S. Yamasaki^{2,4} and M. Hatano^{2,3}, ¹Toyko Tech., ²JST-CREST, ³JST-ALCA and ⁴AIST (Japan)</i>	9:30 M-3-2 White Light Emission from Microcavity Organic Light-Emitting Diodes with Color-Coverting CdSe/ZnS Quantum Dots <i>P. H. Tsai¹, C. Y. Huang², H. C. Yu¹, Y. C. Chen¹, H. C. Yan¹ and Y. K. Su^{1,3}, ¹National Cheng Kung Univ., ²National Taitung Univ. and ³Kun Shan Univ. (Taiwan)</i>
9:30 G-3-3 Nanodome improved resistive switching memory performance using IrOx nano-dots embedded in AlOx film <i>W. Banerjee and S. Maikap, Chang Gung Univ. (Taiwan)</i>	9:45 H-3-3 Enhancement of Electrical Conductivity by Miniband Formation in Silicon Quantum Dot Superlattice Structure <i>M. Igarashi^{1,2}, W. Hu^{1,2}, M. Erman^{1,2} and S. Samukawa^{1,2}, ¹Tohoku Univ. and ²CREST (Japan)</i>	9:45 I-3-3 Direct heteroepitaxial growth of ZnO over GaN crystal in aqueous solution <i>T. Hamada, A. Itoh, N. Nagao, N. Suzuki, E. Fujii and A. Tsujimura, Panasonic Corp. (Japan)</i>	9:40 J-3-3 Variability Analysis of Sense Amplifier for Subthreshold Ultra-Thin-Body SOI SRAM Applications <i>M. L. Fan, V. P. H. Hu, Y. N. Chen, K. C. Lee, P. Su and C. T. Chuang, Univ. of National Chiao Tung (Taiwan)</i>	9:50 K-3-3 Optoelectronic Heterogeneous Integration Technology Using Reductant-assisted Self-Assembly with Cu/Sn Microbump <i>Y. Ito^{1,2}, T. Fukushima², K. W. Lee², K. Choki¹, T. Tanaka² and M. Koyanagi², ¹Sumitomo Bakelite Co., Ltd. and ²Tohoku Univ. (Japan)</i>	9:45 L-3-3 Thermally Stable Operation of Diamond Field-Effect Transistors by NO₂ Adsorption and Al₂O₃ Passivation <i>K. Hirama¹, H. Sato¹, Y. Harada¹, H. Yamamoto¹ and M. Kasu^{1,2}, ¹NTT Basic Res. Labs. and ²Saga Univ. (Japan)</i>	9:45 M-3-3 A Numerical Device Model and Approach to Degradation Mechanisms in Organic Light Emitting Diodes (OLEDs) <i>T. Hirai, K. Weber, J. O'Connell, M. Bown and K. Ueno, CSIRO (Australia)</i>
9:45 G-3-4 Improved resistive switching memory characteristics using higher Ge content in Gex(0.2-0.5)Se1-x solid-electrolytes <i>S. Maikap¹, S. Z. Rahaman¹, Y. Hsuan¹, C. S. Lai¹, H. Y. Lee², W. S. Chen², F. T. Chen², M. J. Kao² and M. J. Tsai², ¹Chang Gung Univ. and ²Indus. Tech. Res. Inst. (Taiwan)</i>	10:00 H-3-4 Photovoltaic Property of Nanocrystalline Silicon Membranes Cells <i>R. Mentek, B. Gelloz, D. Hippo and N. Koshida, Tokyo Univ. of Agr. & Tech. (Japan)</i>		10:00 J-3-4 (Late News) A Novel Sensor Structure and its Fabrication Process for Integrated CMOS-MEMS Accelerometer <i>D. Yamane¹, T. Matsushima², T. Konishi², G. Motohashi¹, H. Ito¹, N. Ishihara¹, H. Toshiyoshi¹, K. Machida^{1,2} and K. Masu¹, ¹Toyko Tech., ²NTT Advanced Tech. Corp. and ³Univ. of Tokyo (Japan)</i>	10:10 K-3-4 Impact of Al and Cu electrodes on GeOx/W for high-performance crossbar resistive switching memories <i>S. Z. Rahaman¹, S. Maikap¹, C. S. Lai¹, H. Y. Lee², W. S. Chen², F. Chen² and M. J. Tsai², ¹Chang Gung Univ. and ²Indus. Techn. Res. Inst. (Taiwan)</i>	10:00 L-3-4 Diamond high-power and high-temperature SBDs <i>H. Umezawa, Y. Kato and S. Shikata, Nat'l Inst. Adv. Indus. Sci. Tech. (AIST) (Japan)</i>	10:00 M-3-4 Efficient solution-processed green phosphorescent organic light emitting diodes by using bipolar host material <i>Y. S. Tsai, A. Chittawanji, C. Y. Ou, L. A. Hong and F. S. Juang, National Formosa Univ. (Taiwan)</i>

Coffee Break

Short Presentation (10:45-12:00)						
Short Presentation PS-9 (10:45-12:00) Chairs: H. Goto (NTT) Y. Uraoka (NAIST)	Short Presentation PS-15 (10:45-12:00) Chairs: A. Masuda (AIST) H. Katagiri (Nagaoka National College of Technology)	Short Presentation PS-8 (10:45-12:00) Chairs: H. Hibino (NTT) K. Hara (Shizuoka Univ.)	Short Presentation PS-5&11 (10:45-12:00) Chairs: A. Kitagawa (Kanazawa Univ.) L. Hongchin (NCHI)	Short Presentation PS-2 (10:45-12:00) Chairs: M. Ueki (Renesas) T. Fukushima (Tohoku Univ.)	Short Presentation PS-14 (10:45-12:00) Chairs: H. Umezawa (AIST) M. Kato (Nagoya Institute of Technology)	Short Presentation PS-10&12 (10:45-12:00) Chairs: E. Itoh (Shinshu Univ.) H. Usui (Tokyo Institute of Technology)

POSTER SESSION (13:30-15:00, Annex Hall)

Area 1: Advanced LSI Processing and Materials Science

(17 Papers)

PS-1-1
Interface Stabilizing and EOT Scaling of Al₂O₃/Ge Gate Stack with Ozone Post-Oxidation without Additional Interface Layer Formation
J. Sun^{1,2}, Y. Geng², H. Lu², W. Wu¹, X. Ye¹, Z. Yang¹, Y. Zhao¹ and Y. Shi¹, ¹Univ. of Nanjing and ²Univ. of Fudan (China)

PS-1-2
Interfacial Reaction Mechanism in Al₂O₃/Ge Structure by Oxygen Radical
K. Kato^{1,2}, S. Shibayama¹, M. Sakashita¹, W. Takeuchi¹, N. Taoka¹, O. Nakatsuka¹ and S. Zaima¹, ¹Nagoya Univ. and ²Research Fellow of JSPS (Japan)

PS-1-3
Fabrication of ZrSiO₄/Ge Gate Stacks with GeO₂ and ZrGeO Interlayers
S. Kojima, K. Sakamoto, Y. Iwamura, K. Hirayama, K. Yamamoto, D. Wang and H. Nakashima, Kyushu Univ. (Japan)

PS-1-4
Growth of Epitaxial Beryllium Oxide on Ge (111) by Molecular Beam Epitaxy
S. K. Wang¹, B. Xue¹, H. Liang², Z. Mei², Y. Li¹, W. Zhao¹, B. Sun¹, X. Du² and H. G. Liu¹, ¹Inst. of Microelectronics, Chinese Academy of Sci. and ²Inst. of Physics, Chinese Academy of Sci. (China)

PS-1-5
High Quality Germanium Dioxide Formation Using Damage-Free and Low-Temperature Neutral Beam Oxidation Process
A. Wada¹, R. Zhang², S. Takagi² and S. Samukawa¹, ¹Tohoku Univ. and ²The Univ. of Tokyo (Japan)

PS-1-6
Impacts of Interfacial Insulator on Poly-crystalline Germanium Growth in Low Temperature Processing
S. Kabuyanagi^{1,2}, T. Nishimura^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹Univ. of Tokyo and ²JST-CREST (Japan)

PS-1-7
Laterally Graded SiGe-on-Insulator with Universal Si Profile by Cooling-Rate-Controlled Rapid-Melting-Growth
R. Matsumura, Y. Tojo, H. Yokoyama, M. Kurosawa, T. Sadoh and M. Miyao, Kyushu Univ. (Japan)

PS-1-8
Enhanced Carrier Activation by B and Sb/P Doping for Ge CMOSFET
T. Ueno¹, H. Miyoshi¹, Y. Hirota¹, J. Yamanaka², K. Arimoto², K. Nakagawa², Y. Yusuke³, Y. Shiraki³ and T. Kaitsuka¹, ¹Tokyo Electron Ltd., ²Univ. of Yamanashi and ³Tokyo City Univ. (Japan)

PS-1-9
Interface Reaction Control of La₂O₃-gated InGaAs MOS Capacitors by Gate Metal Selection
D. H. Zadeh, Y. Suzuki, H. Omine, K. Kakushima, P. Ahmet, Y. Kataoka, A. Nishiyama, N. Sugii, K. Tsutsui, K. Natori, T. Hattori and H. Iwai, Tokyo Inst. of Tech. (Japan)

PS-1-10
Electrical Characteristics of Anatase-TiO₂ Films by Low Temperature Fabrication
M. Kimura¹, T. Nabatame², H. Yamada¹, A. Ohi¹, T. Chikyow² and T. Ohishi¹, ¹Shibaura Inst. of Tech. and ²National Inst. for Materials Sci. (Japan)

PS-1-11
Dependence of Chemical Structures of Transition Layer at SiO₂/Si(100) Interface on Oxidation Temperature, Annealing in Forming gas, and Oxidizing Species
T. Siwa¹, A. Teramoto¹, T. Muro², Y. Kinoshita², S. Sugawa¹, T. Hattori¹ and T. Ohmi¹, ¹Tohoku Univ. and ²Japan Synchrotron Radiation Res. Inst. (Japan)

PS-1-12
Double-Gated Junctionless Vertical Channel Poly-Si Thin-Film Transistors
Y. H. Chen, J. W. Lin, L. C. Yen, R. H. Kuo, Y. H. Lu, Y. H. Wu, P. Y. Kuo and T. S. Chao, National Chiao Tung Univ. (Taiwan)

PS-1-13
Multi-Step Deposition and Low-Temperature Two-Step (Ultraviolet Ozone cum Rapid Thermal) Annealing as a Promising Means for Gate-Last High-k/Metal Gate Application
K. S. Yew, C. H. Tang and D. S. Ang, Nanyang Technological Univ. (Singapore)

PS-1-14
Rate Determining Process and Loading Effects in Si Etching with HCl Gas
N. Morioka, J. Suda and T. Kimoto, Kyoto Univ. (Japan)

PS-1-15
Ultra-High Resolution Depth Profiling of Carrier Concentration in P-implanted Silicon by HREELS
S. J. Park¹, N. Uchida¹, H. Arimoto^{1,2}, T. Tada¹ and T. Kanayama¹, ¹National Inst. of Advanced Indus. Sci. and Tech. and ²Fujitsu Semiconductor Ltd. (Japan)

PS-1-16
Characterization of As Implanted and Annealed Ge by Photoemission and Electrical Measurements
T. Ono¹, A. Ohta¹, H. Murakami¹, S. Higashi¹ and S. Miyazaki², ¹Hiroshima Univ. and ²Nagoya Univ. (Japan)

PS-1-17 (Late News)
Low-Temperature Formation of High-Quality Oxide for MOSFETs on Flexible Substrates
H. Hasegawa, Y. Iijima, K. Adachi, S. Nozaki and K. Uchida, Univ. of Electro-Communications (Japan)

Area 2: Advanced Interconnect / Interconnect Materials and Characterization

(12 Papers)

PS-2-1
Investigation of Electrical Performances for n-MOSFET Devices Integrating with Bonding and Thinning Technologies in 3D Integration
C. A. Cheng¹, C. H. Lu², C. H. Ho¹ and K. N. Chen⁴, ¹National Chiao Tung Univ., ²National Chiao Tung Univ., ³National Nano Device Lab. and ⁴National Chiao Tung Univ. (Taiwan)

PS-2-2
Improvement of Crystallographic Quality of Electroplated Copper Thin-Film Interconnections for 3D TSVs
N. Murata, K. Suzuki, R. Furiya, O. Asai and H. Miura, Tohoku Univ. (Japan)

PS-2-3
10-μm-Pitch In-Au Microbump Interconnection by Chip Self-Assembly with Excimer Lamp Irradiation for 3D LSI Applications
T. Fukushima, J. Bea, M. Murugesan, K. Lee, T. Tanaka and M. Koyanagi, Tohoku Univ. (Japan)

PS-2-4
Grapho-Assembly Technology for Sub-Micron Accuracy 3D Chip Stacking with High-Density Through-Si Vias and Metal Microbumps
T. Fukushima¹, M. Onishi¹, J. Bea¹, S. Hioki¹, M. Murugesan¹, K. Lee¹, T. Tanaka² and M. Koyanagi¹, ¹New Industry Creation Hatchery Center (NICHe) and ²Dept. of Biomedical Engineering, Tohoku Univ. (Japan)

PS-2-5
The Influence of Cu Diffusion from Cu Through-Silicon Via(TSV) on Device Reliability in the 3-D LSI by Using C-V and C-t Measurements
J. C. Bed¹, K. W. Lee¹, T. Fukushima¹, T. Tanaka² and M. Koyanagi¹, ¹New Industry Creation Hatchery Center (NICHe), Tohoku Univ. and ²Dept. of Biomedical Engineering, Tohoku Univ. (Japan)

PS-2-6
Analysis of Local Bending Stress Effect on CMOS Performance Fabricated in Thinned Si Chip for Chip-to-Wafer 3D Integration
H. Kino, J. C. Bea, M. Murugesan, K. W. Lee, T. Fukushima, T. Tanaka and M. Koyanagi, Tohoku Univ. (Japan)

PS-2-7
The Results of Self Annealing Process for a Copper Interconnection on the 4xnm DRAM Products
H. J. Park¹, I. C. Ryu², S. H. Son², J. S. Im¹, J. H. Kwon¹, Y. P. Song¹, K. S. Jang¹, C. R. Lee¹, J. O. Nam¹, K. I. Yoon¹ and K.S. Yoon¹, ¹DRAM Development Division, ²Research Divisoin and ³Manufacturing Division (Korea)

PS-2-8
Evaluation of Threshold Current Density in Interconnect with Reservoir Structure Using Numerical Modeling of Electromigration Damage
K. Sasagawa and T. Yanagi, Hiroasaki Univ. (Japan)

PS-2-9
Layered Low-k Porous Silica Zeolite Films for Inter-Metal Dielectric with High Elastic Modulus
T. Yamamoto¹, T. Sato¹, Y. Seino², K. Hattori², S.Kuroki¹ and T. Kikkawa¹, ¹Hiroshima Univ. and ²AIST (Japan)

PS-2-10
RF Inductors on Nanocrystalline Silicon Passivated HR-Si Substrates
R. L. Wang¹, Y. R. Lin¹, P. Y. Liu¹, C. J. Chen², Y. K. Su² and T. J. Hsueh³, ¹National Kaohsiung Normal Univ., ²National Cheng Kung Univ. and ³National Nano Device Labs. (Taiwan)

PS-2-11
Reduction of sheet resistances of PtSi alloying with Hf formed by Kr sputtering
Y. Yoshimura and S. Ohmi, Toyko Tech. of Tech. (Japan)

PS-2-12
Fabrication of TiN/Si Contact with Low Electron Barrier Height and Electrical Characterization of Si-On-Insulator Using Back-Gate MOSFET
K. Asakawa, K. Yamamoto, D. Wang and H. Nakashima, Kyushu Univ. (Japan)

Area 3: CMOS Devices / Device Physics

(32 Papers)

PS-3-1
Current Enhancement of Green Transistors as Compare to Conventional Tunnel FETs with Dopant Segregated Process
M. H. Lee¹, J. C. Lin¹, C. Y. Kao¹, C. W. Chen², J. D. Luo¹, Y. J. Lee² and G. L. Luo³, ¹National Taiwan Normal Univ., ²National Cheng Kung Univ. and ³National Nano Device Lab. (Taiwan)

PS-3-2
Influence of Structural Parameters on Performance of Schottky Tunneling FET Electrical Characteristics and its Scalability
Y. Wu^{1,2,3}, C. Dou^{1,2,3}, K. Kakushima², K. ohmori¹, P. Ahmet¹, T. watanabe², K. Tsutsui², A. Nishiyama², N. Sugii², K. Natori¹, K. Yamada¹, Y. Kataoka², T. Hattori¹ and H. Iwai¹, ¹Tokyo Inst. of Tech., ²Tokyo Inst. of Tech., ³Univ. of Tsukuba, ⁴Univ. of Tsukuba and ⁵Waseda Univ. (Japan)

PS-3-3
Enhanced Subthreshold and Output Characteristics in Tunnel Field -Effect Transistors Using Shallow Junction Technologies
H. Y. Chang¹, S. Chopra², B. Adams², J. Li², S. Sharma², Y. Kim², S. Moffatt², P. Y Chien¹, B. C Huang¹ and J. C. S. Woo¹, ¹Univ. of California, Los Angeles and ²Applied Materials Inc (USA)

PS-3-4
Epitaxial Tunnel Layer Structure for Complementary Tunnel FETs Enhancement
P. Y. Wang and B. Y. Tsui, National Chiao Tung Univ. (Taiwan)

PS-3-5
EOT Scaling in Tunnel Field-Effect Transistors: Trade-off between Subthreshold Steepness and Gate Leakage
T. Mori, K. Fukuda, T. Yasuda, A. Tanabe, T. Maeda, S. O'uchi, Y. Liu, W. Mizubayashi, M. Masahara and H. Ota, GNC-AIST (Japan)

PS-3-6
Compound Semiconductor Tunneling Field-Effect Transistor Based on Ge/GaAs Heterojunction with Tunneling-Boost Layer for High-Performance Operation
Y. J. Yoon¹, S. Cho³, J. H. Seo², I. M. Kang^{1,2}, B. G. Park¹ and J. H. Lee^{1,2}, ¹National Univ. Kyungpook, ²National Univ. Kyungpook, ³Univ. of Stanford and ⁴National Univ. of Seoul (Korea)

PS-3-7

Low Leakage Junctionless Vertical Pillar Transistor
Y. C. Yin¹, H. C. Chang¹ and C. W. Liu^{1,2}, ¹National Taiwan Univ. and ²National Nano Device Labs. (Taiwan)

PS-3-8

High-performance Short-channel Germanium nMOSFETs without Phosphorus Diffusion in n+/p Source/Drain Junctions
C. T. Chung¹, G. L. Luo², B. Y. Chen², C. W. Chen¹, W. C. Chen¹ and C. H. Chien^{1,2}, ¹National Chiao-Tung Univ. and ²National Nano Device Laboratories (Taiwan)

PS-3-9

Subband Structure and Effective Mass of Two Dimensional Hole Gas in Strained Ge Channels
Y. Hoshi^{1,2}, R. Moriya², K. Sawano¹, N. Usami², T. Machida² and Y. Shiraki¹, ¹ARL, Tokyo City Univ., ²IIS, Univ. of Tokyo and ³IMR, Tohoku Univ. (Japan)

PS-3-10

Impact of Scattering on the Strained Ge Nanowire pFETs
J. Qin, J. Zhang, G. Du and X. Liu, Peking Univ. (China)

PS-3-11

Wire-Orientation Dependence in Device Performances of Si and InAs Nanowire MOSFETs under Ballistic Transport
K. Shimoida¹, Y. Yamada¹, H. Tsuchiya^{1,2} and M. Ogawa¹, ¹Kobe Univ. and ²JST CREST (Japan)

PS-3-12

A Novel Sub-20V Contact Gate MOSFET with Fully CMOS Compatible Process
T. L. Lee, M. T. Tsai, Y. C. King and C. J. Lin, National Tsing-Hua Univ. (Taiwan)

PS-3-13

Monte Carlo Study on the Role of High Channel Doping in Junctionless Transistors
K. Nagai¹, S. Koba¹, H. Tsuchiya^{1,2} and M. Ogawa¹, ¹Kobe Univ. and ²JST CREST (Japan)

PS-3-14

High-Performance CMOS Inverters Comprising Lateral Large-Grained Low-Temperature Poly-Si TFTs on Transparent Flexible Glass
S. Kamo, K. Kondo and A. Hara, Tohoku Gakuin Univ. (Japan)

PS-3-15

Ion Species Dependence of Relaxation Phenomena of Strained SiGe Layers Formed by Ion Implantation Induced Relaxation Technique
T. Mizuno, J. Takehi, Y. Abe and H. Akamatsu, Kanagawa Univ. (Japan)

PS-3-16

An Improved Compact Model for Doped Double-Gate MOSFETs Using a Rigorous Perturbation Method and Higher-Order Correction
X. Feng, W. Kang, Q. Cheng and Y. Chen, Shenzhen Graduate School, Peking Univ. (China)

PS-3-17

Extraction of Carrier Concentration and Mobility of Heavily Doped Poly-Si Nanowires with Junctionless (JL) Transistor Structures
Z. M. Lin¹, H. C. Lin^{1,2} and T. Y. Huang¹, ¹National Chiao Tung Univ. and ²National Nano Device Labs. (Taiwan)

PS-3-18

Impact of Backgate Bias on the Sensitivity of Threshold Voltage to Process and Temperature Variations for Ultra-Thin-Body GeOI and InGaAs-OI MOSFETs Considering Quantum Confinement
C. H. Yu and P. Su, National Chiao Tung Univ. (Taiwan)

PS-3-19

Off-Current Fluctuations in 10-nm Trigate MOSFETs - Impact of the Channel Geometry
R. Granzner and F. Schwierz, Ilmenau Univ. of Tech. (Germany)

PS-3-20

Analysis and Modeling of Geometry Dependent Thermal Resistances in MOSFETs
X. Zhou^{1,2}, T. Inoue¹, M. Kitamura¹, K. Matsuura¹, M. Miyake¹, T. Itzuka¹, H. Kikuchi-hara¹, M. Naito¹, H. J. Mattausch¹, J. He² and M. MiuraMattausch¹, ¹Hirshima Univ. and ²Peking Univ. (Japan)

PS-3-21

The Investigation on Dislocation Edge Stress Effects for Si N-MOSFETs
M. H. Liao¹, C. H. Chen¹, L. C. Chang¹, C. Yang¹, S. C. Kao¹ and C. F. Hsieh², ¹National Taiwan Univ. and ²Industrial Tech. Research Inst. (Taiwan)

PS-3-22

A Simple Circuit to Investigate Threshold Voltage Variation and Its Application in Monitoring NBTI Degradation
J. Hong, Y. D. He, G. G. Zhang and X. Zhang, Peking Univ. (China)

PS-3-23

Superior Recovery Characteristics of SiGe pMOSFETs under NBTI Stress
D. Y. Choi¹, C. W. Sohn¹, H. C. Sagong¹, E. Y. Jeong¹, J. W. Jang¹, C. K. Baek¹, C. Y. Kang², J. S. Lee¹ and Y. H. Jeong¹, ¹Pohang Univ. of Sci. and Tech. (POSTECH) and ²SEMATECH (Korea)

PS-3-24

Effect of Anneal Process on Trap Properties in Metal/High-k Gate MOSFETs through RTN Characterization
H. F. Chiu¹, S. L. Wu², Y. S. Chang¹, S. J. Chang¹, S. C. Tsai³, P. C. Huang³ and O. Cheng⁴, ¹National Tsing Hua Uni., ²Cheng Shiu Uni., ³National Cheng Kung Uni. and ⁴United Microelectronics Corp. (Taiwan)

PS-3-25

Characterization of Oxide Traps in 28 nm nMOSFETs with Different Uniaxial Tensile Stress by Utilizing Random Telegraph Noise (RTN)
B. C. Wang¹, S. L. Wu¹, C. Y. Wu¹, C. W. Huang¹, T. Y. Lu¹, P. C. Huang² and S. J. Chang², ¹Univ. of NCKU and ²Univ. of NCKU (Taiwan)

PS-3-26

1/f Noise Characteristic in Independent-Double-Gate-FinFET
H. Sakai¹, S. Ouchi², K. Endo², T. Matsukawa², Y. X. Liu², Y. Ishikawa², T. Tsukada², T. Nakagawa², T. Sekigawa², H. Koike², M. Masahara² and H. Ishikuro¹, ¹Keio Univ. and ²National Inst. of Advanced Indus. Sci. and Tech. (AIST) (Japan)

PS-3-27

Narrow Width Effects on High Frequency Performance and RF Noise of Sub-40nm Multi-finger nMOSFETs
K. L. Yeh, C. S. Chang and J. C. Guo, National Chiao-Tung Univ. (Taiwan)

PS-3-28

Impact of ZrO₂ on Electron Trapping Behavior in 28 nm HKMG nMOSFETs by Low-Frequency (1/f) Noise and RTN Analysis
S. C. Tsai¹, S. L. Wu¹, C. Y. Wu¹, C. W. Huang², Y. Y. Lu², B. C. Wang¹, S. J. Chang¹, J. F. Chen¹ and P. C. Huang¹, ¹Univ. of NCKU and ²Univ. of CSU (Taiwan)

PS-3-29

Lifetime Evaluation on AC Stress in High-K / Metal-Gate with Using Dual-Pulsed-Test-System (DPTS)
H. Mori, Y. Ikeda, T. Kato, T. Uemura and H. Matsuyama, FUJITSU SEMICONDUCTOR LTD. (Japan)

PS-3-30

Study of Off-State Breakdown and Hot-Carrier Improvement by Suppression of Kirk Effect in LDMOS with Gradual Junction Structure
C. R. Yan¹, J. F. Chen¹, C. Y. Lin², H. T. Hsu², Y. C. Liao², M. T. Yang², Y. C. Lin² and H. H. Chen², ¹Univ. of Cheng Kung and ²Corp. of Powerchip (Taiwan)

PS-3-31 (Late News)

Investigation of P/NBTI in High-k Gate Dielectric MOSFETs by Id-RTS
D. C. Huang and J. Gong, National Tsing Hua Univ. (Taiwan)

PS-3-32 (Late News)

The Experimental Observation of the Process Induced Random Dopant Effect in Trigate MOSFETs
E. R. Hsieh¹, H. M. Tsai¹, S. S. Chung¹, C. H. Tsai², R. M. Huang², C. T. Tsa² and C. W. Liang², ¹National Chiao Tung Univ. and ²UMC (Taiwan)

Area 4: Advanced Memory Technology

(6 Papers)

PS-4-1

Effects of Rapid-Thermal Annealing on Resistive Switching of ZnO/Ti/ZnO RRAM Deposited on Flexible PEN Substrate
C. L. Lin¹, Y. H. Lai¹, S. R. Yang¹, Y. H. Yang¹, C. M. Wu¹, C. H. Soh¹, T. Y. Lin¹, C. F. Sung² and P. C. Juan¹, ¹Feng Chia Univ., ²Indus. Tech. Res. Inst. (ITRI) and ³Mingchi Univ. of Tech. (Taiwan)

PS-4-2

Low Power and Highly Reliable Gadolinium Oxide Resistive Switching Memory with Remote NH₃ Plasma Treatment
Y. R. Ye¹, J. C. Wnag¹, J. S. Syu¹, P. R. Wu¹, C. S. Lai¹, C. I. Wu^{2,3} and P. S. Wang³, ¹Univ. of Chang Gung and ²Univ. of National Taiwan (Taiwan)

PS-4-3

First-Principles Investigations of the Metal Doping Effects in TiO₂ ReRAM
L. Zhao, S. G. Park, B. Magyari Kope and Y. Nishi, Stanford Univ. (USA)

PS-4-4

Improved Memory Characteristics of a Novel TATHOS-Structured Charge Trapping Memory
Y. Peng, F. Liu, X. Liu, G. Du and J.Kang, Peking Univ. (China)

PS-4-5

The Research for Bulk Erase Operation in Vertical 3D Cell Array Architecture
G. H. Lee, Univ. of Hayang (Korea)

PS-4-6

Study of Charge Retention Mechanism for DNA Memory FET
S. Maeno, N. Matsuo, S. Takagi, A. Heya, T. Takada and K. Yamana, Univ. of Hyogo (Japan)

Area 5: Advanced Circuits and Systems

(16 Papers)

PS-5-1

A Multisensor Readout Circuit with a Multiplexed Pulse-signal Output
R. L. Wang¹, C. C. Fu¹, C. M. Yen¹, C. Yu¹, C. Y. Yu¹, C. F. Lin², H. H. Tsa² and Y. Z. Juang², ¹National Kaohsiung Normal Univ. and ²National Chip Implementation Center (Taiwan)

PS-5-2

Side-Illuminated Color Photo Sensor
T. Ariyoshi, A. Baba and Y. Arima, Kyushu Inst. of Tech. (Japan)

PS-5-3

Resolution Measurement of the CMOS Image Sensor Loading Micro-lens Array for Three-Dimensional Information Acquisition
M. Kobayashi, K. Suzuki, R. Ueno, H. Kwon, H. Honda and H. Funaki, Toshiba Corp. (Japan)

PS-5-4

A Real-Time VLSI Recognition System With an On-Chip Adaptive K-Means Learning Algorithm
Z. Hou^{1,2}, Y. Ma², H. Zhu³ and T. Shibata³, ¹Xi'an Jiaotong Univ., ²Tohoku Univ. and ³Univ. of Tokyo (China)

PS-5-5

A Ramp-wave Generator with Interleaved DACs for Single-slope ADC
D. Uchida, M. Ikebe, J. Motohisa and E. Sano, Univ. of Hokkaido (Japan)

PS-5-6

A 3-mW/Gbps 1.8-V Current-reuse LVDS Driver with 30% Power Reduction using Vertical MOSFETs
S. Tanoi^{1,2} and T. Endoh^{1,2}, ¹Tohoku Univ. and ²JST-CREST (Japan)

PS-5-7

A Dynamic Comparator Using Dynamic Currents of CMOS Logic Gates for Low-Power and High-Efficient Offset Calibration
C. Masuda, T. Hirose, Y. Osaki, N. Kuroki and M. Numa, Kobe Univ. (Japan)

PS-5-8

Dual Data Pulse Width Modulator for RFID Biosensor Signal Modulation
B. Kim and K. Nakazato, Nagoya Univ. (Japan)

PS-5-9

A Low-Power Digital Baseband Processor for Passive UHF RFID Tag with Sensor and Sensor Interface
S. Yu, P. Feng, W. Liu and N. Wu, Inst. of Semiconductors, Chinese Academy of Sciences (China)

PS-5-10

60 GHz Wireless Interconnection Using Electromagnetic Coupling of Open-Ring Resonators
Y. Iwasaki, M. Abe, K. Hayashino, K. Fukui, J. Ao and Y. Ohno, Univ. of Tokushima (Japan)

PS-5-11

A Comparison between Common-source and Cascode Topologies for 60GHz Amplifier Design in 65nm CMOS
Q. Bu, N. Li, K. Okada and A. Matsuzawa, Tokyo Tech. (Japan)

PS-5-12

Inductorless Wideband Low Noise Amplifier with Variable Gain in 65nm CMOS
D. N. S. Dharmiza^{1,2}, H. Ito¹, N. Ishihara¹ and K. Masu¹, ¹Tokyo Tech. and ²Univ. Malaysia Sarawak (Japan)

PS-5-13

ESD Protection Design for V-band Low-Noise Amplifier Using RF Junction Varactors
M. H. Tsai, S. K. Huang and S. Hsu, National Tsing Hua Univ. (Taiwan)

PS-5-14

A Simple and Useful Layout Scheme to Improve the CDM Robustness for the Input Buffer
T. C. Kao¹, J. H. Lee², C. H. Lien³, C. W. Chiu⁴ and H. D. Su¹, ¹Univ. of Tsing Hua, ²Corp. of Richtek Tech., ³Univ. of Tsing Hua, ⁴Corp. of Richtek Tech. and ²Corp. of Richtek Tech. (Taiwan)

PS-5-15

Impact on Delay due to Random Telegraph Noise Under Low Voltage Operation in Logic Circuits
S. Nishimura¹, T. Matsumoto¹, K. Kobayashi^{2,3} and H. Onodera^{1,3}, ¹Kyoto Univ., ²Kyoto Inst. Tech. and ³JST CREST (Japan)

PS-5-16 (Late News)

Wide Dynamic Range Active Pixel Sensor Using a High-Sensitivity Gate/Body-Tied Photodetector with an Overlapping Control Gate
S. H. Jo, M. Bae, M. Lee, J. Y. Kim, P. Choi and J. K. Shin, Univ. of Kyungpook National (Korea)

Area 6: Compound Semiconductor Electron Devices and Related Technologies

(24 Papers)

PS-6-1

Polycrystalline ZnO Mott-Barrier Diodes
Z. J. Liu, H. W. Huang, J. Y. Gan and T. R. Yew, National Tsing-Hua Univ. (Taiwan)

PS-6-2

Effects of in Situ Surface Passivation of AlGaN/GaN MOS-HEMT: A Simulation Study
P. Somasuntharam, X. Liu, Y. C. Yeo and L. S. Tan, National Univ. of Singapore (Singapore)

PS-6-3

Comparison of Noise and Power Characteristics of Single- and Dual-Gate AlGaAs/InGaAs pHEMTs
C. C. Hu^{1,2}, S. H. Lin², D. M. Lin³, C. C. Huang⁴, Y. M. Hsin², C. K. Lin⁵, Y. C. Wang³ and Y. J. Chan⁶, ¹Chung-Shan Inst. of Sci. and Tech., ²National Central Univ., ³Taiwan Semiconductor Manufac. Corp., ⁴Yuan Ze Univ., ⁵Win Semiconductors Corp. and ⁶Indus. Tech. Res. Inst. (Taiwan)

PS-6-4

Microwave Performance of InGaAs MOSFET with InP Interfacial Layer
H. D. Chang¹, B. Sun¹, L. Lu¹, G. M. Liu¹, W. Zhao¹, W. X. Wang² and H. G. Liu¹, ¹Inst. of Microelectronics of Chinese Academy of Sciences and ²Inst. of Physics of Chinese Academy of Sciences (China)

PS-6-5

Optical Absorption Properties of InP Porous Structures Formed by Electrochemical Process
Y. Kumazaki, T. Kudo, Z. Yatabe and T. Sato, Hokkaido Univ. (Japan)

PS-6-6

AlGaN/GaN Schottky Barrier Diodes Employing TaN Schottky Contact
O. Seok¹, W. Ahn¹, Y. Kim¹, M. Ha² and M. Han¹, ¹Seoul Nat'l Univ. and ²Korea Electron. Tech. Inst. (Korea)

PS-6-7

GaN-based Metal-Semiconductor-Metal Photodetectors Fabricated on Patterned Sapphire Substrates
K. T. Liu¹, S. J. Chang², Sean Wu³ and Y. S. Chang⁴, ¹Univ. of Cheng Shiu, ²Univ. of National Cheng Kung, ³Univ. of Tung-Fang Design and ⁴Univ. of National Formosa (Taiwan)

PS-6-8

Temperature Effect on Electrical Properties of HfInZnO Amorphous Oxide Thin Film Transistor
J. S. Chang, J. H. Kim, D. W. Kwon and B. G. Park, Natl. Univ. of Seoul (Korea)

PS-6-9

High Performance Dual-Layer Channel ZnO Thin Film Transistor
Y. F. Geng^{1,2}, D. D. Han¹, J. Cai¹, W. Wang¹, L. L. Wang¹, Y. Tian¹, H. K. Yao¹, L. X. Qian¹, Y. Wang¹ and S. D. Zhang¹, ¹Peking Univ., ²Shenzhen Graduate School of Peking Univ. and ³Beijing Inst. of Tech. (China)

PS-6-10

Investigation of Trapping Properties in AlGaN/GaN HEMT Heterostructures Grown on Silicon with Thick Buffer Layers
J. Freedsmn, T. Kubo and T. Egawa, Nagoya Inst. of Tech., Research center for nano device and system (Japan)

PS-6-11

Effects of Annealing Method on the Electrical Characteristics of Solution-Processed InGaZnO Metal-Point-Contact Transistor
S. W. Lee, Y. H. Hwang and W. J. Cho, Univ. of Kwangwoon (Korea)

PS-6-12

Fabrication of AlGaN/GaN HEMTs with Slant Field Plates by Using Deep-UV Lithography
H. C. Wang, Y. C. Lin, C. C. Chang, H. T. Hsu, T. E. Shie, L. C. Huang, C. C. Chung and E. Y. Chang, National Chiao-Tung Univ. (Taiwan)

PS-6-13

Enhancement of RF Characteristics of AlGaN/GaN HEMTs with Shield Source Field Plate using BCB
M. Lee¹, Y. M. Ryoo¹, N. Lee¹, H. Y. Cha² and K. Seo¹, ¹Univ. of Seoul National and ²Univ. of Hongik (Korea)

PS-6-14

Normally-Off Recessed AlGaN/GaN MOSHFETs Using ICPCVD SiO₂
B. R. Park¹, J. G. Lee¹, I. H. Min², K. S. Seo² and H. Y. Cha¹, ¹Hongik Univ. and ²Seoul National Univ. (Korea)

PS-6-15

Power Schottky Barrier Diodes with Improved Schottky Contacts on AlGaN/GaN Heterostructures
N. Jeon¹, W. Choi¹, I. Min¹, H. Cha² and K. Seo¹, ¹Seoul National Univ. and ²Hongik Univ. (Korea)

PS-6-16

AlGaN MSM Photo Sensors with AlN/SiN Nucleation Layers
C. H. Chen, M. H. Yang, W. C. Lin and C. M. Tsai, Cheng Shiu Univ. (Taiwan)

PS-6-17

Electric- Field-Driven Degradation in Off-State Step-Stressed HfO₂/AlGaN/GaN Metal-Oxide-Semiconductor HFETs
J. Park¹, J. H. Shin¹, H. J. Kim², K. C. Kim¹ and T. Jang¹, ¹LG Electronics Corp. and ²Hanyang Univ. (Korea)

PS-6-18

Interface Analysis of AlN/InAs(001) and AlN/Ge/InAs(001) by Angle-Resolved X-ray Photoelectron Spectroscopy
M. Kudo, H. A. Shih and T. Suzuki, JAIST (Japan)

PS-6-19

Low Frequency Noise Analysis of ZnO TFTs under the Positive Gate Bias Stress
K. S. Jeong¹, Y. M. Kim¹, H. J. Yun¹, S. D. Yang¹, S. Y. Lee¹, Y. S. Kim², H. D. Lee¹ and G. W. Lee¹, ¹Univ. of Chung-nam National and ²National Nanofab Center (Korea)

PS-6-20

Influence of in Situ N₂ Plasma Pretreatment on the SiN Prepassivation of AlGaN/GaN HEMT
S. G. Han, Y. H Oh, M. Lee, D. Kim and K. Seo, Seoul National Univ. (Korea)

PS-6-21

Analysis on Trade-Off between Electric Field and Gate-Drain Capacitance for GaN HEMT by T-CAD Simulation
Y. Yamaguchi¹, K. Hayashi¹, T. Oishi¹, H. Otsuka¹, K. Yamanaka¹, M. Nakayama¹ and Y. Miyamoto², ¹Mitsubishi Electric Corp. and ²Tokyo Tech. (Japan)

PS-6-22 (Late News)

Nitrogen Passivation and Chemical Trends of Defects at Al₂O₃/GaAs/InAs/InP/GaSb Interfaces
J. Robertson, Y. Guo and L. Lin, Cambridge Univ. (UK)

PS-6-23 (Late News)

High Breakdown Voltage and Low Thermal Effect Micromachined SOI AlGaN/GaN HEMTs
H. C. Chiu and C. W. Yang, Chang Gung Univ. (Taiwan)

PS-6-24 (Late News)

Depth-Resolved Electronic Structure Analysis of IGZO/SiO₂ Interface by Two-Dimensional Photoelectron Spectroscopy
Y. Ueoka, F. Matsui, N. Maejima, H. Matsui, H. Yamazaki, S. Urakawa, M. Horita, Y. Ishikawa, H. Daimon and Y. Uraoka, Nara Inst. of Sci. and Tech. (Japan)

Area 7: Photonic Devices and Optoelectronic Integration

(26 Papers)

PS-7-1

Low-Loss Polycrystalline Silicon Waveguides for High-Efficiency Optical Modulator
T. Horikawa^{1,2}, M. Takahashi^{1,2}, J. Fujikata^{1,3}, S. Takahashi^{1,3}, T. Akagawa^{1,3}, M. Noguchi^{1,3} and N. Yamamoto^{1,2}, ¹PECST, ²AIST and ³PETRA (Japan)

PS-7-2

Single Photon Generation from an Impurity Center with Well-Defined Emission Energy in GaAs
L. Zhang¹, M. Ikezawa¹, T. Mori¹, S. Umehara¹, Y. Sakuma², K. Sakoda² and Y. Masumoto¹, ¹Univ. of Tsukuba and ²National Inst. for Materials Science (Japan)

PS-7-3

Fabrication of Backside-Illuminated CMOS Compatible Photodiode for Optoelectronic Integrated Circuits
S. B. Shin, H. Okada, H. Sekiguchi and A. Wakahara, Toyohashi Univ. of Tech. (Japan)

PS-7-4

Epitaxial Re-growth for Advanced GaAs Based Laser Devices
B. J. Stevens, K. M. Groom, D. T. D. Childs, J. S. Roberts, R. J. Taylor, D. M. Williams and R. A. Hogg, Univ. Sheffield (UK)

PS-7-5

Proposal of Electro-Optic Tunable 1x2 Multimode Interference Splitter Based on Multiple Quantum Well
K. Kashima and T. Arakawa, Yokohama National Univ. (Japan)

PS-7-6

A 256-configuration-context MEMS Optically Reconfigurable Gate Array
Y. Yamaji and M. Watanabe, Shizuoka Univ. (Japan)

PS-7-7

Proposal of All-Optical Active Microring Logic Gate
H. Yajima, M. Nishimura, T. Arakawa and Y. Kokubun, Yokohama National Univ. (Japan)

PS-7-8

Gain Measurement of Highly Stacked InGaAs Quantum Dot Laser with Hakki-Paoli Method
F. Tanoue^{1,2}, H. Sugawara¹, K. Akahane² and N. Yamamoto², ¹Tokyo Metropolitan Univ. and ²National Inst. of Info. and Communications Tech. (Japan)

PS-7-9

Superluminescent Emission of a Novel Semiconductor Diode with Double Ring Cavities and a Y-junction Coupler
M. C. Shih, Y. C. Sun, Y. Y. Lin and W. H. Lan, National Univ. of Kaoshiung (Taiwan)

PS-7-10

SiGe Quantum Well Metal-Insulator-Semiconductor Light-Emitting Diodes
M. H. Liao¹, C. H. Chen¹, L. C. Chang¹, C. Yang¹, S. C. Kao¹ and C. F. Hsieh², ¹National Taiwan Univ. and ²Industrial Tech. Research Inst. (Taiwan)

PS-7-11

Visible-Blind Solid-Liquid Heterojunction Ultraviolet Photodetector Based on An Aactive Layer of TiO2 Nanorod Array Grown by Hydrothermal Process
W. J. Lee¹, M. H. Lee¹, J. C. Tsai¹ and J. H. Lee², ¹National Cheng Kung Univ. and ²Indus. Tech. Res. Inst. (Taiwan)

PS-7-12

Room Temperature Excitonic Electroabsorption Effect for High-Speed and Low-Driving Voltage Spatial Light Modulators
M. S. Kayastha, D.P. Sapkota, M. Takahashi and K. Wakita, Chubu Univ. (Japan)

PS-7-13

Sensitization Effect of 1.53 um Er3+-related Emission in ErxYbyY2-x-ySiO5 Crystal-line Thin Film Fabricated by Directed Self-assembly Using Layer-by-layer Deposition
F. Jing¹, T. Shinagawa¹, T. Nakajima¹, T. Sugawara¹, Y. Jiang², T. Kimura¹ and H. Isshiki¹, ¹Univ. of Electro-Communications and ²Shincron Co. Ltd. (Japan)

PS-7-14

Thermal Conductive Properties of a Semiconductor Laser on a Polymer Interposer
T. Amano^{1,2}, S. Ukita^{1,2}, L. Ma^{1,2}, M. Aoyogi^{1,2} and K. Komori^{1,2}, ¹Photonics Electronics Tech. Research Association (PETRA) and ²National Inst. of Advanced Industrial Science and Tech. (AIST) (Japan)

PS-7-15

Highly Light-Collection Efficiency Based on Multi-Beam Diffractions from GaN-Based Micro-Cavity Light-Emitting Diodes with Photonic Crystals
Y. C. Chu^{1,3}, Y. K. Su^{1,2}, C. H. Chao³, M. H. Wu³ and W. Y. Yeh¹, ¹National Cheng Kung Univ., ²Kun-Shan Univ. and ³Industrial Tech. Research Inst. (Taiwan)

PS-7-16

Luminescence Properties of Rare Earth-Doped Thiosilicate Phosphors on Silicon Substrate
Y. Nanai, Y. Sakamoto and T. Okuno, The Univ. of Electro-Communications (Japan)

PS-7-17

Investigation of the Thermal Characteristics with the Conformal and Remote Phosphor Structures in White Light-emitting Diodes
K. J. Chen¹, H. C. Chen¹, M. H. Shih², C. H. Wang¹, H. T. Kuo¹, H. H. Tsai¹, M. Y. Kuo², S. H. Chien¹, C. C. Lin¹, C. J. Pan¹ and H. C. Kuo¹, ¹Univ. of National Chiao-Tung, ²Academia Sinica, ³Univ. of National Chiao-Tung and ⁴HELIO Optoelectronics Corp. (Taiwan)

PS-7-18

Guided Mode Emission Characteristics of GaN-based Ultrathin-film Micro-light-emitting Diodes with Photonic Crystals
C. F. Lai, Feng Chia Univ. (Taiwan)

PS-7-19

A GaAs/Air Multilayer Cavity for a Planar-type Non-linear Optical Device
H. Komatsu¹, Z. Zhang¹, Y. Nakagawa^{1,2}, K. Morita¹, T. Kitada¹ and T. Isu¹, ¹Univ. of Tokushima. and ²NICHIA Corp. (Japan)

PS-7-20

Analysis of Coherent Coupling in High-Mesa Directional Coupler
H. Kamiya, T. Nagata, Y. Ueyama, T. Makino, T. Arakawa and Y. Kokubun, Yokohama National Univ. (Japan)

PS-7-21

Effect of Absorption Region in 850-nm Si Avalanche Photodiodes by Standard CMOS Technology
Z. Y. Li, F.P. Chou, Y. C. Hsieh and Y. M. Hsin, National Central Univ. (Taiwan)

PS-7-22

Light Extraction Improvement of Flip Chip Light Emitting Diodes Using Diffused Nanorod Rectifier
C. T. Lee¹, C. Y. Chuang¹ and C. H. Chao², ¹National Cheng Kung Univ. and ²Indus. Tech. Res. Inst. (Taiwan)

PS-7-23

Over 1.5 μm Deep Dry Etching of Al-rich AlGaAs for Photonic Crystal Fabrication
Y. Kitabayashi, M. Mochizuki, F. Ishikawa and M. Kondow, Osaka Univ. (Japan)

PS-7-24

Light Extraction Enhancement of GaN-based Light Emitting Diodes Using Crown Shaped Patterned Sapphire Substrates
C. Y. Liu¹, C. H. Chiu¹, C. C. Lin¹, C. Y. Lee¹, B. W. Lin², W. C. Hsu², G. C. Chi¹, H. C. Kuo¹ and C. Y. Chang¹, ¹National Chiao-Tung Univ. and ²Sino-American Silicon Products Inc. (Taiwan)

PS-7-25

PZT Optical Waveguide on Silicon Substrate
T. Maruyama, S. Ebuchi, M. Matsumoto and K. Iiyama, Univ. of Kanazawa (Japan)

PS-7-26 (Late News)

Extraordinary Incident Angle Dependence of External Quantum Efficiency in SOI Photodiode with Silver Line-and-Space Grating
H. Satoh, K. Kawakubo, A. Ono and H. Inokawa, Shizuoka Univ. (Japan)

Area 8: Advanced Material Synthesis and Crystal Growth Technology

(14 Papers)

PS-8-1

N-H Defect Formation Mechanism in GaAsN Grown by Chemical Beam Epitaxy
K. Ikeda, S. Wada, M. Inagaki, N. Kojima, Y. Ohshita and M. Yamaguchi, Toyota Technological Inst. (Japan)

PS-8-2

Direct Growth of Epitaxial In-rich InxAl1-xN Ternary Alloys on Si(111) Substrate by RF-MOMBE
W. C. Chen, Y. H. Wu, J. S. Tian, T. C. Yen, P. Y. Lin, J. Y. Chen and L. Chang, National Chiao Tung Univ. (Taiwan)

PS-8-3

Near infrared ZnCdO:(Mg, In, N) films by RPE-MOCVD
M. Suzuki, S. K. Mohanta, A. Nakamura and J. Temmyo, Research Inst. of Electronics, Shizuoka Univ. (Japan)

PS-8-4

Chemical Synthesis of ZnS Nanoflowers Using Biomolecule and Optical Properties
A. Silambarasan¹, H. P. Kavitha¹, S. Ponnusamy¹, M. Navaneethan² and Y. Hayakawa², ¹SRM Univ. and ²Shizuoka Univ. (India)

PS-8-5

Hydrothermal Growth of 3 Dimensional Porous ZnO Nanoflowers and Functional Properties
M. Navaneethan, J. Archana, M. Arivanandhan, T. Koyama and Y. Hayakawa, Shizuoka Univ. (Japan)

PS-8-6

Optical and Electrical Properties of ReSe2: Au and ReSe2: Ag
Y. C. Jian¹, D. Y. Lin¹ and Y. S. Huang², ¹Changhua Univ. of Edu. and ²Taiwan Univ. of Sci. and Tech. (Taiwan)

PS-8-7

A Comprehensive Study on the Optical Properties of Thin ReS2: Au Layered Single Crystals
D. Y. Lin¹, C. C. Huang² and Y. S. Huang², ¹Changhua Univ. of Edu. and ²Taiwan Univ. of Sci. and Tech. (Taiwan)

PS-8-8

Packaging Organic Light Emitting Diode with Surface Self-cleaning Using a Highly Active Amorphous Titanium Oxide Photocatalytic Thin Film
Y. S. Lu¹, Y. C. Lin¹, L. W. Lai², S. C. Hong² and D. S. Liu¹, ¹National Formosa Univ. and ²Indus. Tech. Res. Inst. (Taiwan)

PS-8-9

Photoluminescence Enhancement from β-FeSi2 on Ag-coated Si
K. Akiyama¹, M. Itakura² and H. Funakubo³, ¹Kanagawa Indus. Tech. Center, ²Kyusyu Univ. and ³Toyko Tech. of Tech. (Japan)

PS-8-10

Fast Crystallization of Ge Nanodot Array on Si Substrate by Local Pressure Method
T. W. Liao, H. M. Chen and C. H. Kuan, National Taiwan Univ. (Taiwan)

PS-8-11

Inhibition Effect of SiOx Formation and Modulation of Charge State at SrO/Si(100) Interface Synthesized by Pulsed Laser Deposition
Y. Hotta and S. Satoh, Univ. of Hyogo (Japan)

PS-8-12

Sputtered Pb(Zr,Ti)O3 Piezoelectric Films for MEMS Application
H. Kobayashi, M. Hirose, I. Kimura and K. Suu, ULVAC Inc. (Japan)

PS-8-13

High-performance High-k SnTiO3 Gate Dielectrics for Amorphous InGaZnO Thin-film Transistor Applications
F. H. Chen¹, M. N. Hung¹, H. Y. Chen¹, J. H. Liu¹, J. L. Her¹, Y. H. Matsuda² and T. M. Pan¹, ¹Chang Gung Univ. and ²Univ. of Tokyo (Taiwan)

PS-8-14

Carbon Atom Reactions in CVD Graphene Growth on Nickel: A Theoretical Study
N. Tajima and T. Ohno, National Inst. for Materials Science (Japan)

Area 9: Physics and Applications of Novel Functional Devices and Materials

(13 Papers)

PS-9-2

Effect of Coulomb Interaction in Electron Wave Packet Dynamics in Nanoscale Devices
T. Shiokawa¹, Y. Takada¹, S. Konabe¹, M. Muraguchi¹, T. Endoh¹, Y. Hatsugai¹ and K. Shiraishi¹, ¹Univ. of Tsukuba, ²Tokyo Univ. of Sci. and ³Tohoku Univ. (Japan)

PS-9-3

Non-linear and Non-planar Free Thermal Vibration of SWNT in Molecular Dynamic Simulation
H. Y. Koh, J. Cannon, S. Chiashi, J. Shiomi and S. Maruyama, Univ. of Tokyo (Japan)

PS-9-4

Electron Focusing Effect in Ballistic Graphene Cross Junction
M. Onuki¹, S. Masubuchi¹, T. Yamaguchi¹, K. Watanabe², T. Taniguchi² and T. Machida^{1,3}, ¹Univ. of Tokyo, ²National Inst. of Material Science and ³Japan Sci. and Tech. Agency (Japan)

PS-9-5

Magnetic Commensurability Effect in Ballistic Graphene
S. Morikawa¹, S. Masubuchi¹, K. Iguchi¹, M. Onuki¹, T. Yamaguchi¹, M. Arai¹, K. Watanabe², T. Taniguchi² and T. Machida^{1,3}, ¹Univ. of Tokyo, ²National Inst. of Material Science and ³Japan Sci. and Tech. Agency (Japan)

PS-9-6

Resistance Switching Memory Characteristics of Si/CaF2/CaF2 Quantum-well Structures Grown on Metal (CoSi2) Layer
J. Denda, K. Uryu and M. Watanabe, Toyko Tech. of Tech. (Japan)

PS-9-7

Nanogap ReRAM Based on Natural Aluminum Oxide
T. Miyabe and T. Nakaoka, Sophia Univ. of Tokyo (Japan)

PS-9-8

Quantum Size Effects on Phonon Transport in Ge Quantum Dot/SiO2 System
C. C. Wang, J. Y. Chiou, J. C. Hsu, M. T. Hung, H. T. Chang, S. W. Lee and P. W. Li, National Central Univ. (Taiwan)

PS-9-9

Electron Spin Lifetime in Pnpn-Structured GaAs
T. Ito¹, H. Sugata², S. Tanigaki², M. Ichida² and H. Ando², ¹Shizuoka Univ. and ²Konan Univ. (Japan)

PS-9-10

Spin-Canting Mediated Metallic State in Lightly Electron-Doped CaMnO3
H. Ohnishi^{1,3}, S. Ishibashi^{1,3} and K. Terakura^{1,2,3}, ¹AIST, ²JAIST and ³JST-CREST (Japan)

PS-9-11

Theoretical Examination on Significantly Low Off-State Current of a Transistor Using Crystal-line In-Ga-Zn Oxide
M. Murakami, K. Kato, K. Inada, T. Matsuzaki, Y. Takahashi and S. Yamazaki, Semiconductor Energy Laboratory Co., Ltd. (Japan)

PS-9-12
Silicon-based Floating-body Synaptic Transistor
H. Kim¹, J. H. Lee¹, G. Kim¹, M. C. Sun^{1,2} and B. G. Park¹, ¹Seoul National Univ. and ²Samsung Electronics Corp. Ltd. (Korea)

PS-9-13
Electric-field control of Mott transition in electrolyte-gated (Nd,Sm)NiO₃ thin film
S. Asanuma^{1,2}, P. H. Xiang^{1,2}, H. Yamada¹, H. Sato^{1,2}, I. H. Inoue^{1,2}, H. Akoh^{1,2}, A. Sawa^{1,2}, K. Ueno^{3,4}, M. Kawasaki^{3,5} and Y. Iwasa^{3,5}, ¹AIST, ²JST-CREST, ³Univ. of Tokyo, ⁴JST-PRESTO and ⁵CERG Riken (Japan)

PS-9-14 (Late News)
Transport Spectroscopy of Field-induced Quantum Confinement in Graphene
S. Moriyama¹, Y. Morita¹, E. Watanabe¹ and D. Tsuya¹, ¹NIMS and ²Gunma Univ. (Japan)

Area 10: Organic Materials Science, Device Physics, and Applications
(16 Papers)

PS-10-1
Preparation of a Functionally Graded Fluoropolymer Thin Film and its Application to Antireflective Coating
S. Kazuo^{1,2}, T. Matsuda¹, T. Kawanishi¹, K. Tanaka¹ and H. Usui¹, ¹Tokyo Univ. Agricul. & Technol. and ²Micro Engineering Inc. (Japan)

PS-10-2
Impact of Illumination on the Charge Injection and Accumulation in Organic Transistors
K. Lee¹, M. Weis², X. Chen¹, D. Taguchi¹, T. Manaka¹ and M. Iwamoto¹, ¹Tokyo Inst. of Tech. and ²Slovak Univ. of Tech. (Japan)

PS-10-3
Fabrication and Characteristics of Field-Effect Transistors having Pentacene/Vanadium Pentoxide Co-evaporated Layer
M. Minagawa¹, S. Usuba¹, A. Baba¹, K. Shinbo², K. Kato² and F. Kaneko², ¹Nagaoka National College of Tech. and ²Niigata Univ. (Japan)

PS-10-4
Effects of the Polymer Molecular Weight in Organic Resistive Memory Using Au Nanoparticles / Polystyrene Composite Film
A. Fukushima¹ and K. Fujita^{1,2}, ¹Kyushu Univ. and ²IMCE (Japan)

PS-10-5
Performance Enhancement of Transparent Organic Thin Film Transistors with Oxide/Metal/Oxide Source/Drain Electrodes
C. M. Wu, S. H. Su, H. L. Tsai and M. Yokoyama, Univ. of I-Shou (Taiwan)

PS-10-6
Synthesis and Physical Vapor Deposition of Low-Molecular-Weight PEDOT
T. Eguchi, A. Hasegawa, K. Tanaka and H. Usui, Tokyo Univ. Agricul. & Technol. (Japan)

PS-10-7
Evaluation of Phthalocyanine Layer-by-layer Film Deposition Using Surface Plasmon Resonance and Optical Waveguide Spectroscopies
H. Oshikane, K. Shinbo, Y. Ohdaira, A. Baba, K. Kato and F. Kaneko, Niigata Univ. (Japan)

PS-10-8
Trap-controlled Transient Carrier Transport in Organic Field Effect Transistors Studied by Time-resolved Optical Second Harmonic Generation
T. Manaka, Y. Tanaka, J. Takeo and M. Iwamoto, Tokyo Tech. (Japan)

PS-10-9
Ultrathin PVP Formation Utilizing Evaporation Method to Improve Pentacene/HfO₂ Interface Characteristics
S. Ohmi¹, K. Kamino¹ and H. Ishiwarai^{1,2}, ¹Tokyo Tech and ²Konkuk Univ. (Japan)

PS-10-10
Interface Control between ITO and Hole-Transport Polymer by a Photoreactive Self-Assembled Monolayer
S. H. Kim¹, H. Ohtsuka¹, R. C. Advincula² and H. Usui¹, ¹Tokyo Univ. Agricul. & Technol. and ²Case Western Univ. (Japan)

PS-10-11
Localized Surface Plasmon Resonance Sensor Based on Silver Nanoprisms Coated with Alkylthiol Monolayers
K. Sugawa, T. Ichikawa and D. Tanaka, Nihon Univ. (Japan)

PS-10-12
White polarized Electroluminescence Devices Based on α -Sexithiophene Deposited on Oriented β -phase Polyfluorene
C. Heck¹, T. Matsumoto^{1,2}, T. Mizokuro¹, H. Aota² and N. Tanigaki¹, ¹National Inst. of Advanced Indus. Sci. and Tech. (AIST) and ²Kansai Univ. (Japan)

PS-10-13
Effects of Perfluoroalkyl Chain Lengths Introduced to Buckminsterfullerene Derivatives on Their Field-Effect Transistor Performances
M. Karakawa¹, T. Nagai², K. Adachi¹, Y. Ie¹ and Y. Aso¹, ¹ISIR, Osaka Univ. and ²Chemical R&D Center, Daikin (Japan)

PS-10-14
Surface Plasmon Resonance Enhanced Photocurrent Properties of Ag-loaded Titanium Dioxide Composite/Dye on Metallic Grating Surface
W. Chomkitichai^{1,2}, H. Ninsonti^{1,2}, A. Baba¹, S. Phanichphant², K. Shinbo¹, K. Kato¹ and F. Kaneko¹, ¹Niigata Univ. and ²Chiang Mai Univ. (Japan)

PS-10-15
Photocurrent Enhancement in Porphyrin-Silver Nanoparticle Composite Films Using Nanostructures of Silver Nanoparticles
R. Matsumoto, S. Yamada and H. Yonemura, Kyushu Univ. (Japan)

PS-10-16 (Late News)
Crystal Growth of Doped Organic Semiconductors
T. Shimada, Y. Ikuta, T. Yanase and T. Nagahama, Hokkaido Univ. (Japan)

Area 11: Devices and Materials for Biology and Medicine
(16 Papers)

PS-11-1
Influence of Breast Organisms and UWB Antenna Array Configuration on the Resolution of Breast Cancer Detection
T. Sugitani¹, S. Kubota¹, A. Toya¹, X. Xiao² and T. Kikkawa¹, ¹Hiroshima Univ. and ²Tianjin Univ. (Japan)

PS-11-2
High Sensitive Biosensors with Slot and Stack-Type Structure using Silicon Nitride Waveguides
Y. Amemiya, A. Hirowatari, T. Taniguchi, T. Ikeda, M. Fukuyama, A. Kuroda and S. Yokoyama, Hiroshima Univ. (Japan)

PS-11-3
Development of Novel Near-field Optical Fiber Probe Using Photonic Crystal Fiber for Highly Sensitive Fluorescence Lifetime Measurement
D. Seto, Y. Taguchi, T. Saiki and Y. Nagasaka, Keio Univ. (Japan)

PS-11-4
Temperature Sensitivity of CW-PA-based Sensor Dedicated to Noninvasive Monitoring of Physiological Parameters
S. Camou, Y. Ueno and E. Tamechika, NTT MI Labs, NTT Corp. (Japan)

PS-11-5
High-resolution and High-speed Chemical Imaging Sensor Based on Optical Fiber Array
K. Miyamoto, N. Kosaka, T. Wagner and T. Yoshinobu, Tohoku Univ. (Japan)

PS-11-6
Infra-Red Absorption Spectrum Measurement Combining Si Microfluidic Trench and Supercontinuum Light from Fiber
S. Ohba, S. Kumagai, H. Kawashima, Y. Ohishi and M. Sasaki, Toyota Tech. Inst. (Japan)

PS-11-7
High Performance Amorphous InGaZnO Based Dual-Gate Ion-Sensitive Field-Effect Transistors
J. G. Gu, H. J. Jang, S. W. Lee and W. J. Cho, Kwangwoon Univ. of Seoul (Korea)

PS-11-8
Realization of Drosophila Gustatory Receptor Based Ion-Sensitive Field-Effect Transistors
T. E. Bae¹, H. J. Jang¹, H. C. Lau¹, J. Y. Kwon², J. O. Lim³ and W. J. Cho¹, ¹Univ. of Kwangwoon, ²Univ. of Sungkyunkwan and ³Univ. of Kyungpook National (Korea)

PS-11-9
Signal Enhancement of Human IL5 Immunoassay by Enzyme Catalyzed Ag Reduction Beyond Limit of Debye Screening Length on Ion-Sensitive Field Effect Transistors
H. J. Jang¹, J. Y. Ahn^{2,3}, T. E. Bae¹, Y. B. Shin^{2,3}, M. G. Kim⁴ and W. J. Cho¹, ¹Univ. of Kwangwoon, ²Univ. of Science and Tech., ³Korea Research Inst. of Bioscience and BioTech. and ⁴Gwangju Inst. of Science and Tech. (Korea)

PS-11-10
Three-dimensional Simulation of DNA Sensing by Ion-Sensitive Field-Effect Transistor: Optimization of DNA Position and Orientation
Y. Nishio¹, S. Uno² and K. Nakazato¹, ¹Nagoya Univ. and ²Ritsumeikan Univ. (Japan)

PS-11-11
Hydrogen Ion Sensing Properties of Niobium Oxide by RTA and Thickness Effect
T. W. Chiang¹, Y. T. Lin¹, M. Y. Shin¹, T. W. Juan¹, T. C. Chen¹, C. H. Lue¹, C. S. Lai^{1,2,3} and C. M. Yang^{1,2,4}, ¹Department of Electronic Engineering, Chang Gung Univ., ²Healthy Aging Research Center, Chang Gung Univ., ³Center for Biomedical Engineering, Chang Gung Univ. and ⁴Department of Device Engineering, Inotera Memories Inc. (Taiwan)

PS-11-12
Real-time Multifunctional Optical Analyzer Based on Polarization-analyzing CMOS Image Sensor for Microchemical Systems
N. Wakama, N. Tachikawa, K. Terao, M. Shibata, T. Noda, K. Sasagawa, T. Tokuda, K. Kakiuchi and J. Ohta, Nara Inst. of Science and Tech. (Japan)

PS-11-13
A CMOS on-chip Image Sensor with Integrated LED Array for Optogenetics
T. Tokuda^{1,2}, T. Miyatani¹, Y. Sawadsaringkarn¹, T. Kobayashi¹, T. Noda¹, K. Sasagawa¹ and J. Ohta¹, ¹Nara Inst. Sci. & Tech. and ²JST-PRESTO (Japan)

PS-11-14 (Late News)
Wearable Capacitive Breathing Sensor
S. K. Kundu, S. Kumagai and M. Sasaki, Toyota Tech. Inst. (Japan)

PS-11-15 (Late News)
Novel IrOx Nanodots Based Capacitive pH Sensor
P. Kumar, A. Prakash, W. Banerjee and S. Maikap, Chang Gung Univ. (Taiwan)

PS-11-16 (Late News)
Gate Controlled Ionic Transport Nanofluidic Channel Fabricated by Silicon Planer Process
K. Takahashi, J. Nishimoto, Y. Uemura, K. Atsumi, T. Hattori, M. Futagawa, K. Okumura, M. Ishida and K. Sawada, Toyohashi Univ. Tech. (Japan)

Area 12: Spintronics Materials and Devices
(12 Papers)

PS-12-1
Design of Compact Nonvolatile Lookup-Table Circuit Using Three-Terminal Magnetic-Tunnel-Junction-Based Single-Ended Structure
D. Suzuki, Y. H. Lin, M. Natsui and T. Hanyu, Tohoku Univ. (Japan)

PS-12-2
Electrical Control of Magnetic Properties in Pt/Co/AIOx films
T. Yang¹, T. Ohashi¹, J. Shiogai¹, M. Kohda^{1,2}, T. Seki¹, K. Takanashi³ and J. Nitta¹, ¹Tohoku Univ., ²PRESTO, Japan Sci. and Tech. Agency and ³Inst. for Materials Res., Tohoku Univ. (Japan)

PS-12-3
Room-temperature Spin Polarization of Epitaxial Fe₃Si Films with D0₃-ordered Structures Estimated by Tunneling Magnetoresistance Measurements
Y. Fujita, S. Yamada, S. Oki, Y. Maeda, M. Miyao and K. Hamaya, Kyushu Univ. (Japan)

PS-12-4
210-ns-long Spin Relaxation of Heavily Si-doped GaInP lattice-matched to Ge Substrates
T. Ishizuka¹, T. Ushimi¹, H. Nakata¹, S. L. Lu², J. R. Dong² and A. Tackeuchi¹, ¹Waseda Univ. and ²SINANO-CAS (Japan)

PS-12-5

Molecular Beam Epitaxy Growth of Co₂MnSi Films on Group-IV Semiconductors
M. Kawano, S. Yamada, S. Oki, K. Tanikawa, M. Miyao and K. Hamaya, Kyushu Univ. (Japan)

PS-12-6

High Thermal Stability and Low Switching Energy Barrier in Spin-transfer Torque RAM with Composite Free Layer
A. Makarov, V. Sverdlov and S. Selberherr, Inst. for Microelectronics, TU Wien (Austria)

PS-12-7

Spatial Distribution of Impurity States of Cr Atoms in (Zn,Cr)Te Studied by STM
K. Kanazawa, S. Yoshida, H. Shigekawa and S. Kuroda, Graduate School of Pure and Applied Sci., Univ. of Tsukuba (Japan)

PS-12-8

Charge-induced Magnetism in Si with Bi-carbon Clusters
T. H. Shieh¹, K. Y. Wu², H. C. Chang², K. M. Hung², Y. H. Hsu¹, H. T. Fan³ and Y. H. Wang¹, ¹Kun Shan Univ., ²National Taiwan Univ. and ³National Kaohsiung Univ. of Applied Sciences (Taiwan)

PS-12-9

Structural and Magnetic Properties of Binary Compound CrTe Grown by MBE
N. Sekita¹, K. Yamawaki¹, K. Kanazawa¹, S. Kuroda¹, M. Mitome² and Y. Bando³, ¹Univ. of Tsukuba and ²National Inst. for Material Science (Japan)

PS-12-10

Observation of Magnetic Domain Structure in Room Temperature Ferromagnetic Semiconductor (Ti_{1-x}Co_x)O₂
S. Inoue¹, T. Fukumura¹ and T. Hasegawa^{1,2}, ¹Univ. of Tokyo and ²Kanagawa Academy of Sci. and Tech. (Japan)

PS-12-11 (Late News)

Picoseconds Carrier Spin Relaxation in In_{0.8}Ga_{0.2}As/AlAs/AlAs_{0.56}Sb_{0.44} Coupled Double Quantum Wells
R. Yamaguchi¹, S. Gozu¹, T. Mozume², Y. Oyanagi¹, M. Uemura¹ and A. Tackeuchi¹, ¹Waseda Univ. and ²AIST (Japan)

PS-12-12 (Late News)

Three-Terminal Electrical Spin Injection into GaAs from Perpendicularly Magnetized L1₀-FePt
R. Ohnogi¹, J. Shiogai¹, M. Kohda^{1,2}, T. Seki³, Y. Sakuraba³, M. Mizuguchi³, K. Takanashi³ and J. Nitta⁴, ¹Univ. of Tohoku, ²Japan Sci. and Tech. Agency and ³Inst. for Materials Res. of Tohoku Univ. (Japan)

Area 13: Application of Nanotubes, Nanowires, and Graphene
(17 Papers)

PS-13-1

An Analytic Circuit Model of Ballistic Nanowire MOSFET for Transient Analysis
T. Numata^{1,2}, S. Uno^{2,4}, Y. Kamakura^{1,4}, N. Mori^{3,4} and K. Nakazato¹, ¹Nagoya Univ., ²Ritsumeikan Univ., ³Osaka Univ. and ⁴JST, CREST (Japan)

PS-13-2

Fabrication of Micro Hydrogen Gas Sensors by Local Anodization of Titanium Wires
Y. Kimura, S. Kimura, R. Kojima and M. Niwano, Tohoku Univ. (Japan)

PS-13-3

Multiple Exciton Generation in Single-walled Carbon Nanobutes
S. Konabe^{1,2} and S. Okada^{1,2}, ¹Univ. of Tsukuba and ²CREST (Japan)

PS-13-4

Electronic Properties of Carbon Nanotubes under the Electric Field
A. Yamanaka and S. Okada, Univ. of Tsukuba (Japan)

PS-13-5

Molecular Dynamics Simulations for Release of Sticking Carbon Nanotube Cantilever Beam Toward Nanorelay Application
A. Nagataki^{1,2}, T. Kagota¹, T. Arie¹ and S. Akita¹, ¹Osaka Pref. Univ. and ²KRI Inc. (Japan)

PS-13-6

Energetics and Electronic Structures of Alkanes Adsorbed on Carbon Nanotubes
K. Kamiya and S. Okada, Univ. of Tsukuba (Japan)

PS-13-7

Conduction-Type Control of Carbon Nanotube Field-Effect Transistors by Pd and Ti Overlayer Doping
S. Ishii^{1,2}, M. Tamaoki¹, S. Kishimoto^{1,2} and T. Mizutani¹, ¹Nagoya Univ. and ²Venture Business Lab., Nagoya Univ. (Japan)

PS-13-8

First Principles Calculations for Diffusion Barriers of Lithium Intercalation into Graphite with Various Edge Terminations
T. Kawai^{1,2}, ¹Smart Energy Res. Labs., NEC Corp. and ²Univ. of Tsukuba (Japan)

PS-13-9

Twin-formation Suppression in FCC Epitaxial Metal Films for Graphene Growth by Spinel (MgAl₂O₄) Substrates
K. Nozawa, N. Matsukawa and S. Yoshii, Panasonic Corp. (Japan)

PS-13-10

Influence of Polymer Coating on Device Properties of Carbon Nanotube Field-Effect Transistors
S. Aikawa¹, T. Inoue¹, E. Einarsson^{1,2}, S. Chiashi¹ and S. Maruyama¹, ¹The Univ. of Tokyo and ²GMSI, The Univ. of Tokyo (Japan)

PS-13-11

Comparison of Electro-Optic Effect based Graphene Transistors
G. Gupta, G. Liang and M. Bin Abdul Jalil, National Univ. of Singapore (Singapore)

PS-13-12

Bias Dependent G-band Shift of Graphene in Direct Contacting with Ni
T. Moriyama, K. Nagashio, T. Nishimura and A. Toriumi, Univ. of Tokyo (Japan)

PS-13-13

Edge Termination on Electrical Properties of Vertically-grown Graphene Sheets Employing N₂/H₂ Mixture Plasma
H. J. Cho¹, H. Kondo¹, K. Ishikawa¹, M. Sekine¹, M. Hiramatsu² and M. Hori¹, ¹Nagoya Univ. and ²Meijo Univ. (Japan)

PS-13-14

Highly Sensitive Stretchable Free-standing Power Generators with Modified Graphene Electrodes
J. H. Lee, K. Y. Lee, B. Kumar and S. W. Kim, Sungkyunkwan Univ. (Korea)

PS-13-15

Correlation Between Electronic Properties and Structural Characteristics of Patterned Nanographene
G. Rius¹, M. Sansa², X. Borrise³, F. PerezMurano², M. Yoshimura⁴, O. Eryu² and N. Mestres⁵, ¹Nagoya Inst. Tech., ²Inst. Microelectronica de Barcelona, ³Inst. Catala de Nanotecnologia, ⁴Toyota Tech. Inst. and ⁵Inst. Ciencia Materials de Barcelona (Japan)

PS-13-16 (Late News)

Estimation of Metal-graphene Interaction Strength Through Quantum Capacitance Extraction of Graphene in Contact with Metal
R. Ifuku, K. Nagashio, T. Nishimura and A. Toriumi, Univ. of Tokyo (Japan)

PS-13-17 (Late News)

Electric-field Dependence of G-band Spectra in Bilayer Graphene
Y. Yamashiro, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, ISIR, Osaka Univ. (Japan)

Area 14: Power Devices and Materials

(14 Papers)

PS-14-1

Characterization of Temperature Dependence of Parasitic Diodes of SiC JFETs for Transient Thermal Resistance Measurement
T. Kim and T. Funaki, Univ. of Osaka (Japan)

PS-14-2

Parasitic Bipolar Effect of a Thin-film SOI Power MOSFET in High Temperature
A. Uchida, Y. Morisawa and S. Matsumoto, Kyusyu Inst. of Tech. (Japan)

PS-14-3

Investigation of BTI Degradation in LDMOS Transistors
Y. Ikeda, H. Mori, T. Kato, T. Uemura, M. Yoshida, M. Onoda and H. Matsuyama, Fujitsu Semiconductor Ltd. (Japan)

PS-14-4

Photoluminescence of Dislocations in 4H-SiC Epitaxial Layers
M. Nagano, I. Kamata and H. Tsuchida, Central Research Inst. of Electric Power Industry (Japan)

PS-14-5

Conductivity Degradation of 4H-SiC PiN Diode with In-grown Stacking Faults
A. Tanaka¹, K. Nakayama¹, K. Asano¹, T. Miyazawa² and H. Tsuchida², ¹Kansai Electric Power Co., Inc. and ²Central Res. Inst. of Electric Power Industry (Japan)

PS-14-6

Influence of Stacking Faults and Surface Morphology in Triangular Defects on 4H-SiC Junction Barrier Schottky Diodes
K. Konishi¹, S. Nakata¹, Y. Nakaki¹, Y. Nakao¹, A. Nagae¹, T. Tanaka¹, Y. Toyoda¹, H. Sumitani² and T. Oomori², ¹Advanced Tech. R&D Center, Mitsubishi Electric Corporation and ²Power Device Works, Mitsubishi Electric Corporation (Japan)

PS-14-7

High Temperature Operation of Diamond Schottky Diodes Above 750 Degrees
K. Ueda¹, K. Kawamoto¹, T. Soumiya¹, E. Bustarret² and H. Asano¹, ¹Nagoya Univ. and ²Inst. Neel, CNRS (Japan)

PS-14-8

A 0.25um High Voltage LDMOSFET for RF Applications and High-frequency Parameter Extraction
C. Y. Hung¹, K. H. Lo¹, C. M. Hu², C. H. Chu², D. C. Chang³, J. Gong⁴ and C. F. Huang¹, ¹National Tsing Hua Univ., ²TPK Touch solutions Inc., ³National Chip Implementation Center and ⁴Tung Hai Univ. (Taiwan)

PS-14-9

LACBED Analysis of Threading Dislocation with c+a Burgers Vector in 4H-SiC
Y. Sugawara¹, M. Nakamori¹, Y. Yao¹, Y. Ishikawa¹, K. Danno¹, H. Suzuki¹, T. Bessho², S. Yamaguchi³, K. Nishikawa⁴ and Y. Ikuhara^{1,4}, ¹Japan Fine Ceramics Center, ²Toyota Motor Corp., ³Toyota Central Res. and Development Labs. Inc. and ⁴Univ. of Tokyo (Japan)

PS-14-10

3kV-class DIMOSFET on 4H-SiC (000-1)
H. Kono^{1,2}, M. Furukawa^{1,2}, K. Ariyoshi^{1,2}, T. Suzuki^{1,2}, Y. Tanaka^{1,3} and T. Shinohe^{1,2}, ¹R&D Partnership for Future Power Electronics Tech., ²Corporate R&D Center, Toshiba Corp. and ³National Inst. of Advanced Industrial Science and Tech. (Japan)

PS-14-11

Carrier Transport Property of Heavily-Boron-Doped Degenerate Diamond Single-crystalline Thin Layers Etched with Hydrogen Plasma
T. Kuki, O. Maida and T. Ito, Univ. of Osaka (Japan)

PS-14-12

First Principles Study of N Incorporation Effect during SiC Oxidation
S. Kato, K. Chokawa, K. Kamiya and K. Shiraiishi, Univ. of Tsukuba (Japan)

PS-14-13

Modeling of the Impurity-Gradient Effect in High-Voltage Laterally-Diffused MOSFETs
T. Iizuka, K. Fukushima, A. Tanaka, T. Sakuda, H. Kikuchi-hara, M. Miyake, H. J. Mattausch and M. Miura Mattausch, Hiroshima Univ. (Japan)

PS-14-14 (Late News)

Stability in Multi-parallel Operation of 3.3kV SiC-SBDs
A. Koyama^{1,2}, H. Watanabe^{1,2}, S. Nakata^{1,2}, Y. Nakaki^{1,2}, Y. Fujii^{1,2}, K. Otsuka², T. Kawakami², M. Imai-zumi¹, Y. Toyoda^{1,2}, H. Sumitani², T. Miki^{1,2}, Y. Nakayama² and T. Oomori^{1,2}, ¹FUPET and ²Mitsubishi Electric Corp. (Japan)

Area 15: Photovoltaic Materials and Devices

(19 Papers)

PS-15-1

Optimal Si-SiGe Hetero-structure Thin-film Solar Cell with Theoretical Calculation and Quantitative Analysis

M. H. Liao¹, C. H. Chen¹, L. C. Chang¹, C. Yang¹, S. C. Kao¹ and C. F. Hsieh², ¹National Taiwan Univ. and ²Industrial Tech. Research Inst. (Taiwan)

PS-15-2

FT-IR and TPD Analysis of Ozone-Based Atomic Layer Deposited AlOx Passivation Films for Crystalline Silicon Solar Cells

K. Arafune^{1,4}, S. Yamamoto^{1,4}, K. Urushibata^{1,4}, S. Miki^{1,4}, H. Yoshida^{1,4}, A. Ogura^{2,4}, Y. Ohshita^{3,4} and S. Satoh^{1,4}, ¹Univ. of Hyogo, ²Meiji Univ., ³Toyota Tech. Inst. and ⁴JST-CREST (Japan)

PS-15-3

Fabrication of Cu₂ZnSnSe₄ Film Solar Cell by Sputtering-selenization

S. Y. Kuo¹, J. F. Yang^{1,2}, F. I. Lai² and C. J. Lin¹, ¹Univ. of Chang Gung, ²Univ. of Yuan-Ze and ³Corp. of Solar Applied Materials Tech. (Taiwan)

PS-15-4

The Effects of Various Curvatures on Stainless-Steel Substates using Back Correct Layer and for CIS Films after RTP Selenization Process

R. F. Shih¹, W. T. Li¹, W. S. Peng¹, T. T. Li¹, S.H. Chen¹, C. C. Kuo¹, S.C. Hu², Y. T. Lu², S. N. Hsu² and H. C. Cheng², ¹National Central Univ. of Taoyuan County and ²Chung-Shan Inst. of Sci. & Tech. of Taoyuan County (Taiwan)

PS-15-5

Influence of Density of State with Defect in Cu(In,Ga)Se₂ Investigated by Photo-luminescence

W. T. Lin¹, F. I. Lai¹, Y. K. Liao², D. H. Hsieh¹, H. C. Kuo² and S. Y. Kuo¹, ¹Univ. of Yuan-Ze, ²Univ. of National Chiao Tung and ³Univ. of Chang Gung (Taiwan)

PS-15-6

The Effect of Electrode Grid Pattern on Concentrated GaAs Solar Cells Efficiency

C. C. Chung, C. H. Chang, H. W. Yu, H. C. Wang and E. Y. Chang, National Chiao Tung Univ. (Taiwan)

PS-15-7

Built-in Electric Field Study and Optical Properties of GaInP p-i-n Solar Cells

D. Y. Lin¹, Y. C. He¹, R. H. Horng² and F. L. Wu¹, ¹National Changhua Univ. of Edu and ²National Chung Hsing Univ. (Taiwan)

PS-15-8

A Study of Critical Built-in Electric Field in InGaN p-i-n Solar Cell

D. Y. Lin, Changuha Univ. of Edu. (Taiwan)

PS-15-9

Characterization of Pulsed Laser Deposited Bismuth Oxide Ultrathin-film Enhanced Photovoltaic Properties of InGaN Solar Cells

C. F. Lai¹, D. Y. Lin², M. H. Wen², C. K. Lin³ and M. K. Wu⁴, ¹Feng Chia Univ., ²Academia Sinica, ³Taipei Medical Univ. and ⁴Academia Sinica (Taiwan)

PS-15-10

Nano-textured Photonic Crystal Light-emitting Diodes and Solar Cells

M. H. Liao¹, C. H. Chen¹, L. C. Chang¹, C. Yang¹, S. C. Kao¹ and C. F. Hsieh², ¹National Taiwan Univ. and ²Industrial Tech. Research Inst. (Taiwan)

PS-15-11

Impact of Atomic Disorder on Intermediate-Band Structures in Vertically Stacked InAs Quantum Dots

H. Takahashi¹ and N. Mori^{1,2}, ¹Osaka Univ. and ²CREST (Japan)

PS-15-12

Solution-Processed Flexible Organic Solar Cells with a Low Temperature Annealing Active Layer

W. K. Lin, S. H. Su, C. L. Huang and M. Yokoyama, Univ. of I-Shou (Taiwan)

PS-15-13

Effect of Silver Nanoparticles on Photoelectric Conversion Efficiencies of P3HT/PCBM Organic Solar Cells

T. Matsumoto, T. Akiyama and T. Oku, Univ. of Shiga Pref. (Japan)

PS-15-14

Mixed Solvents for Active-Layer Morphological Modifications of Polymer Bulk Heterojunction Solar Cells

T. J. Ho, Y. W. Jang, F. C. Wu and H. L. Cheng, Univ. of National Cheng Kung (Taiwan)

PS-15-15

Fabrication and Characterization of Polysilane Thin Film Solar Cells

J. Nakagawa, Univ. of Shiga Prefecture (Japan)

PS-15-16

Influence of Absorption Property by Doping/inserting C545T in Polymer Solar Cell

C. S. Ho¹, W. C. Hsu¹, Y. N. Lai¹, E. L. Huang¹, E. P. Yao¹, W. M. Chen¹, C. S. Lee² and C. W. Wang², ¹National Cheng Kung Univ., ²Feng Chia Univ. and ³National Chung Cheng Univ. (Taiwan)

PS-15-17

Morphologies of Polymer-Inorganic Solar Cells Investigated by Multiscale Simulations

C. K. Lee and C. W. Pao, Academia Sinica (Taiwan)

PS-15-18 (Late News)

Preparation of Narrow Band-gap Cu₂SnS₃ and Cu₂Sn(S,Se)₃ and Fabrication of Their Films by Printing/High-pressure Sintering Process

T. Nomura, T. Maeda and T. Wada, Ryukoku Univ. (Japan)

PS-15-19 (Late News)

Characteristics of Flexible Organic Solar Cells Tested with Various Bending Radii

D. Yeo¹, M. Park¹, B. Won¹, J. Lee¹, D. Jung¹, H. Chae², H. Kim³ and J. Yi¹, ¹Sungkyunkwan Univ., physics, ²Sungkyunkwan Univ., chemical Eng., ³Sungkyunkwan Univ., school of Advanced Materials Sci. and Eng. and ⁴Sungkyunkwan Univ., school of Info. and Communication Eng. (Korea)

Wednesday, September 26

Wednesday, September 26

2F B-1	2F B-2	1F C-1	1F C-2	1F D	1F E
A-4: Plasmonics and Photonic Crystal Lasers (Area 7) (15:25-16:25) Chairs: J. Fujikata (PETRA) D. V. Thourhout (Ghent Univ.)	B-4: ReRAM (1) (Area 4) (15:25-16:35) Chairs: Y. C. Chen (Macronix International) M. Tada (LEAP)	C-4: Graphene Devices (Area 8&9&13) (15:25-16:55) Chairs: K. Nagashio (Univ. of Tokyo) S. Akita (Osaka Pref. Univ.)	D-4: Post-Si Technology(1) (Area 1) (15:25-16:45) Chairs: K. Kita (Univ. of Tokyo) P. Ye (Purdue Univ.)	E-4: Novel Devices (Area 3) (15:25-16:45) Chairs: M. Goto (Toshiba) F. L. Yang (NDL)	F-4: GaN Power Devices (1) (Area 6&14) (15:25-16:40) Chairs: T. Hashizume (Hokkaido Univ.) H. Y. Cha (Hongik Univ.)
15:25 A-4-1 (Invited) Plasmonic EM absorbers and photothermal effects <i>M. Qiu^{1,2}, X. Chen², Y. Chen² and M. Yan², ¹Zhejiang Univ. (China) and ²Royal Inst. of Tech. (KTH) (Sweden)</i>	15:25 B-4-1 (Invited) Ultra-Low Power Devices by Taking Advantages of Atom Switches with Polymer Solid-electrolyte <i>H. Hada, T. Sakamoto, M. Tada, N. Banno, M. Miyamura, K. Okamoto, N. Iguchi and T. Nohisa, Low-power Electronics Association & Project (Japan)</i>	15:25 C-4-1 (Invited) Progress and challenges in large-scale graphene technology for RF applications <i>S. J. Han, IBM T. J. Watson Research Center (USA)</i>	15:25 D-4-1 (Invited) Basic issues on alternative channel materials for Post-Si logic devices: from high mobility semiconductors to two dimensional atomic layers <i>A. Molle, CNR-IMM (Italy)</i>	15:25 E-4-1 A Physics-Based Compact Model of Tunnel-FETs Considering Nonlocal Effects <i>K. Fukuda, T. Mori, W. Mizubayashi, Y. Morita, A. Tanabe, M. Masahara, T. Yasuda, S. Migita and H. Ota, GNC, AIST (Japan)</i>	15:25 F-4-1 (Invited) Polarization Junction based Super HFETs and derivatives in GaN <i>M. S. E. Narayanan¹, A. Nakajima^{1,2}, H. Kawai³, Y. Sumida², V. Unni¹ and M. Dhyani¹, ¹Univ. of Sheffield (UK), ²National Inst. of Advanced Industrial Science and Tech. (Japan) and ³Powdec, KK. (UK)</i>
15:55 A-4-2 Room temperature lasing in metal-coated GaN by grating structure <i>W. H. Hsu¹, M. H. Shih² and H. C. Kuo¹, ¹Univ. of National Chiao-Tung and ²Academia Sinica (Taiwan)</i>	15:55 B-4-2 Effect of the active layer thickness and temperature on the switching kinetics of GeS2-based Conductive Bridge Memories <i>G. Palma², E. Vianello¹, G. Molas¹, C. Caglit¹, F. Longnos², J. Guy¹, M. Reyboz², C. Carabasse¹, M. Bernard¹, F. Dahmani², D. Bretegnier², J. Liebaulf² and B. De Salvo¹, ¹CEA, LETI, MINATEC Campus and ²Altis Semiconductor (France)</i>	15:55 C-4-2 Room Temperature On-Off Operation of Current in He Ion Irradiated Graphene Sheet <i>S. Nakaharai¹, T. Iijima², S. Ogawa², S. Suzuki¹, S. Li¹, H. Miyazaki¹, K. Tsukagoshi¹, S. Sato¹ and N. Yokoyama¹, ¹GNC-AIST, ²ICAN-AIST, ³NRI-AIST and ⁴MANA-NIMS (Japan)</i>	15:55 D-4-2 High Hole-Mobility Ge p-MOSFET with HfGe Schottky Source/Drain <i>T. Sada, K. Yamamoto, H. Yang, D. Wang and H. Nakashima, Kyushu Univ. (Japan)</i>	15:45 E-4-2 Tunnel Field Effect Transistor with Epitaxially Grown Steep Tunnel Junction Fabricated by Source/Drain-first and Tunnel-junction-last Processes <i>Y. Morita, T. Mori, S. Migita, W. Mizubayashi, A. Tanabe, K. Fukuda, M. Masahara and H. Ota, GNC-AIST (Japan)</i>	15:55 F-4-2 Low Leakage Current for 1.6kV Breakdown GaN HFET with 6um-thick Semi-insulating GaN on 6-inch Si <i>S. M. Cho, E. J. Hwang, J. M. Kim, J. H. Kim, J. H. Shin, J. Park, Y. J. Jo, W. S. Kim, H. J. Lee, K. Kim and T. Jang, LG Electronics (Korea)</i>
16:10 A-4-3 Wavelength Fine-tuning of Photonic Crystal Rods Laser on a Flexible Substrate <i>K. T. Lai^{1,2}, M. Y. Kuo¹, K. S. Hsu^{1,2}, C. T. Lin² and M. H. Shih^{1,2}, ¹Academia Sinica and ²National Chiao Tung Univ. (Taiwan)</i>	16:15 B-4-3 Optimization of Conductive Filament of Oxide-based RRAM for Low Operation Current by Stochastic Simulation <i>P. Huang, Y. X. Deng, B. Gao, B. Chen, F. F. Zhang, D. Y. L. F. Liu, G. Du, J. F. Kang and X. Y. Liu, Peking Univ. (China)</i>	16:10 C-4-3 Top-gated graphene FET with Y 2 O 3 for quantum capacitance estimation <i>K. Nagashio, T. Nishimura and A. Toriumi, Univ. of Tokyo (Japan)</i>	16:15 D-4-3 High Mobility Poly-GeSn Layer Formed by Low Temperature Solid Phase Crystallization <i>W. Takeuchi¹, N. Taoka¹, M. Kurosawa^{1,2}, M. Fukutome¹, M. Sakashita¹, O. Nakatsuka¹ and S. Zaima¹, ¹Nagoya Univ. and ²JSPS (Japan)</i>	16:05 E-4-3 First Demonstration of Tunnel Field-Effect Transistor Using InGaAs/Si Junction <i>K. Tomioka^{1,2}, M. Yoshimura¹ and T. Fukui¹, ¹Hokkaido Univ. and ²JST-PRESTO (Japan)</i>	16:10 F-4-3 AlGaIn/GaN-on-Sapphire MOS-HEMTs with Breakdown Voltage of 1400 V and On-State Resistance of 22 mΩ.cm2 using a CMOS-Compatible Gold-Free Process <i>X. Liu¹, C. Zhan¹, K. W. Chan², W. Liu³, D. Z. Chi⁴, L. S. Tan¹, K. J. Chen² and Y. C. Yeo¹, ¹National Univ. of Singapore, ²Hong Kong Univ. of Sci. and Tech., ³Nanyang Technological Univ. and ⁴Inst. of Materials Res. and Engineering, Agency for Sci. Tech. and Res. (Singapore)</i>
		16:25 C-4-4 Efficient Reduction and Restoration of Graphene oxide films as a Channel in Field Effect Transistor: Toward Sensor applications <i>R. Negishi¹, K. Kuramoto¹, Y. Ohno¹, T. Nishino^{2,3}, T. Yamaguchi², K. Maehashi¹, K. Matsumoto¹, K. Ishibashi² and Y. Kobayashi¹, ¹Univ. of Osaka, ²RIKEN and ³Sanwa Corp. (Japan)</i>	16:35 D-4-4 Aluminum Nitride for Ge-MIS Gate Stacks with Scalable EOT <i>T. Tabata^{1,2}, C. H. Lee^{1,2}, T. Nishimura^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹Univ. of Tokyo and ²JST-CREST (Japan)</i>	16:25 E-4-4 Sub-10-nm nano-sheet channel of Junctionless Poly-Si TFT with oxidation thinning method <i>Y. C. Cheng¹, H. B. Chen¹, J. J. Wu¹, M. H. Han², Y. C. Wu¹ and C. Y. Chang², ¹Univ. of National Tsing Hua and ²Univ. of National Chiao Tung (Taiwan)</i>	16:25 F-4-4 Effects of Deep Trapping States at High Temperatures on Transient Performances of AlGaIn/GaN HFETs <i>K. Tanaka, M. Ishida, T. Ueda and T. Tanaka, Panasonic Corp. (Japan)</i>
Coffee Break					
A-5: Photonic Crystals (Area 7) (17:05-18:05) Chairs: A. Wakahara (Toyoashi Univ. of Technology) J. Liu (Thayer School of Engineering Dartmouth College)	B-5: ReRAM (2) (Area 4) (17:05-18:20) Chairs: K. Ishihara (Sharp) T. Endoh (Tohoku Univ.)	C-5: Graphene Growth (1) (Area 8&9&13) (17:05-18:20) Chairs: K. Maehashi (Osaka Univ.) S. Sato (AIST)	D-5: Post-Si Technology(2) (Area 1) (17:20-18:20) Chairs: T. Nabatame (NIMS) S. Tsujikawa (SONY)	E-5: Mobility Enhancement (Area 3) (17:05-18:25) Chairs: S. Yamaguchi (SONY) F. Boeuf (STMicroelectronics)	F-5: GaN Power Devices (2) (Area 6&14) (17:05-18:20) Chairs: T. Tanaka (Panasonic) C. F. Huang (Tsing Hua Univ.)
17:05 A-5-1 (Invited) Ultrafast directly modulated single-mode photonic crystal nanocavity light-emitting diode <i>G. Shambat¹, B. Ellis¹, A. Majumdar¹, J. Petykiewicz¹, M. Mayer², T. Sarmiento¹, J. Harris¹, E. Haller¹ and J. Vuckovic¹, ¹Electrical engineering department, Stanford Univ. and ²Department of Materials Science, Univ. of California (USA)</i>	17:05 B-5-1 Switching Model of TaOx-based Non-polar Resistive Random Access Memory <i>X. Tong¹, W. Wu¹, Z. Liu¹, X. A. Tran², H. Y. Yu³ and Y. C. Yeo¹, ¹National Univ. of Singapore, ²Nanyang Tech. Univ. and ³South Univ. of Sci. and Tech. (Singapore)</i>	17:05 C-5-1 Dependence of field effect mobility of CVD graphene on its grain size <i>K. Yagi¹, A. Yamada¹, K. Hayashi¹, N. Harada¹, M. Tsukahara², S. Ogawa³, S. Sato¹ and N. Yokoyama¹, ¹GNC-AIST, ²ICAN-AIST and ³NRI-AIST (Japan)</i>	17:20 D-5-1 Dry Oxidation of Germanium (100) and (111) Surfaces - Impact of Oxidation Temperature on Ge Oxide Growth - <i>A. Ohta¹, S. K. Sahari¹, M. Ikeda¹, H. Murakami¹, S. Higashi¹ and S. Miyazaki², ¹Hiroshima Univ. and ²Nagoya Univ. (Japan)</i>	17:05 E-5-1 Experimental Observation of Record-high Electron Mobility of Greater than 1100 cm2V-1s-1 in Unstressed Si MOSFETs and Its Physical Mechanisms <i>T. Ohashi¹, T. Takahashi¹, T. Koderai², S. Oda² and K. Uchida³, ¹Dept. of Phys. Elec., Toyo Tech. of Tech., ²QNERC, Tokyo Inst. of Tech. and ³Dept. of Elect. Eng., Keio Univ. (Japan)</i>	17:05 F-5-1 Improvement of current collapse by surface treatment and passivation layer in p-GaN gate GaN HEMT <i>T. Katsumo, M. Kanechika, K. Itoh, K. Nishikawa, T. Uesugi and T. Kachi, Toyota Central R&D Labs. Inc. (Japan)</i>

1F G	1F H	2F I	2F J	2F K	5F 554	5F 555
G-4: Quantum Transport in Nanostructures (1) (Area 9) (15:25-16:40) Chairs: T. Machida (Univ. of Tokyo) T. Nakaoka (Sophia Univ.)	H-4: Thin Film Silicon Solar Cells (Area 15) (15:25-16:40) Chairs: M. Isomura (Tokai Univ.) A. Masuda (AIST)	I-4: Nanostructure Growth (Area 8) (15:25-16:40) Chairs: H. Hibino (NTT) T. Iwai (Fujitsu)	J-4: Sensing & Recognition Systems (Area 5) (15:25-16:35) Chairs: H. Morimura (NTT) T. Yoshida (Hiroshima Univ.)	K-4: 3D/TSV Interconnect (1) (Area 2) (15:25-16:35) Chairs: T. Fukushima (Tohoku Univ.) P. Leduc (CEA-leti)		M-4: Device Physics : Novel Materials and Functions (Area 10) (15:25-16:40) Chairs: M. Sakai (Chiba Univ.) H. Matsui (AIST)
15:25 G-4-1 (Invited) Electrical control of the spin-orbit interaction in a single InAs self-assembled Quantum dot <i>R. Deacon^{1,2}, Y. Kanai¹, S. Takahashi¹, A. Oiwa^{1,3}, K. Shibata^{3,4}, K. Hirakawa^{3,4}, Y. Tokura⁵ and S. Trauch¹, ¹RIKEN Advanced Science Inst., ²The Univ. of Tokyo, ³CREST, ⁴The Univ. of Tokyo and ⁵Univ. of Tsukuba (Japan)</i>	15:25 H-4-1 (Invited) Thin-film solar cells by liquid silicon <i>T. Shimoda^{1,2} and T. Masuda^{1,2}, ¹Japan Advanced Inst. of Science and Tech. and ²Japan Science and Tech. Agency (Japan)</i>	15:25 I-4-1 (Invited) Droplet etching: Application to Quantum Dots and Nanopillars for Thermoelectrics <i>C. Heyn, D. Sonnenberg, A. Graf, J. Kerbst, T. Bartsch and W. Hansen, Univ. of Hamburg (Germany)</i>	15:25 J-4-1 (Invited) Advanced Sensing Technology for Automobile <i>Y. Nonomura, Toyota Central R&D Labs., Inc. (Japan)</i>	15:25 K-4-1 (Invited) Development and Process integration for Interposer Application <i>W. C. Lo, C. T. Ko and K. N. Chen, ¹Electronics and Optoelectronics Research Laboratories, Industrial Tech. Research Inst. (ITRI) and ²Department of Electronics Engineering, National Chiao Tung Univ. (Taiwan)</i>		15:25 M-4-1 (Invited) Magnetoresistance in Organic Materials <i>H. Tada, Osaka Univ. (Japan)</i>
15:55 G-4-2 Transient Current in the Spin Blockade Region of a Double Quantum Dot <i>S. Sharmin¹, K. Muraki² and T. Fujisawa¹, ¹Toyo Tech. and ²NTT Basic Res. Labs. (Japan)</i>	15:55 H-4-2 Spectroscopic detection of medium range order in device-grade a-Si:H: dangling bond defects, and the Staebler-Wronski Effect <i>G. Lucovsky, G. N. Parsons, D. Zeller and J. Kim, NC State Univ. (USA)</i>	15:55 I-4-2 Selective Growth of Gallium Arsenide on Germanium Fins with Different Orientations formed on 10 degrees Offcut Germanium-on-Insulator Substrate <i>K. H. Goh¹, Y. Cheng², K. L. Low¹, E. Y. J. Kong¹, C. K. Chia², E. H. Toh³ and Y. C. Yeo¹, ¹National Univ. of Singapore, ²Inst. of Material Research and Engineering (IMRE) Inst and ³GLOBALFOUNDRIES (Singapore)</i>	15:55 J-4-2 Application of Composite Haar-like Features to Vehicle Detection with Massive-Parallel Memory-Embedded SIMD Matrix Processor <i>M. Omori, H. Hiramoto, T. Koide and H. J. Mattausch, Hiroshima Univ. (Japan)</i>	15:55 K-4-2 Room-Temperature Cu Microjoining Using Ultrasonic Bonding of Cone Shaped Bump <i>L. J. Qiu¹, T. Asano¹, K. Noda² and S. Nakai², ¹Kyushu Univ. and ²Advelds Co.,Ltd (Japan)</i>		15:55 M-4-2 Potential of Organic Materials for the Application to Thermoelectric Generators <i>M. Nakamura¹, Y. Tomatsu¹, R. Matsubara¹, A. Hoshi¹ and M. Sakai², ¹Nara Inst. of Sci. and Tech. and ²Chiba Univ. (Japan)</i>
16:10 G-4-3 The observation of rectangle shape geometric current blockade in vertical double quantum dots <i>Y. C. Sun¹, S. M. Huang², J. J. Lin^{1,3}, K. Kono⁴ and K. Ono¹, ¹National Chiao-Tung Univ., ²National Sun Yat-Sen Univ., ³National Chiao-Tung Univ. and ⁴Low Temperature Lab., RIKEN (Taiwan)</i>	16:10 H-4-3 Defect Termination of Flash-Lamp-Crystallized Large-Grain Polycrystalline Silicon Films by High-Pressure Water Vapor Annealing <i>K. Ohdaira, Jpn. Adv. Inst. Sci. & Tech. and PRESTO, JST (Japan)</i>	16:10 I-4-3 InGaP Nanowires grown by Selective-Area MOVPE <i>F. Ishizaka¹, K. Ikejiri¹, K. Tomioka^{1,2} and T. Fukui¹, ¹Hokkaido Univ. and ²PRESTO-JST (Japan)</i>	16:15 J-4-3 Ferroelectric synapse device with brain-like learning function: Analog conductance control in a ferroelectric-gate field-effect transistor based on the timing difference between two pulses <i>Y. Nishitani, Y. Kaneko, M. Ueda, E. Fujii and A. Tsujimura, Panasonic Corp. (Japan)</i>	16:15 K-4-3 Electrostatic Temporary Bonding Technology and TSV Formation for Reconfigurable Wafer-to-Wafer 3D Integration <i>H. Hashiguchi¹, J. C. Bea², Y. Ohara¹, T. Fukushima², K. W. Lee², T. Tanaka^{1,3} and M. Koyanagi², ¹Dept. of Bioengineering and Robotics, Tohoku Univ., ²New Industry Creation Hatchery Center, Tohoku Univ. and ³Dept. of Biomedical Engineering, Tohoku Univ. (Japan)</i>		16:10 M-4-3 A Novel Microscope for Visualizing Electric Field in Organic Thin Film Devices Using Electric-Field-Induced Second-Harmonic Generation <i>D. Taguchi¹, T. Manaka¹, M. Iwamoto¹, T. Karasuda² and M. Kyomatsu¹, ¹Toyo Tech and ²Precise Gauges (Japan)</i>
16:25 G-4-4 Fabrication and Characterization of p-Channel Si Double-Quantum-Dot Structures <i>K. Yamada¹, T. Kodera^{1,2,3}, T. Kambara¹, Y. Kavano¹ and S. Oda¹, ¹Quantum Nano-electronics Research Center, Tokyo Inst. of Tech., ²Inst. for Nano Quantum Information Electronics, The Univ. of Tokyo and ³PRESTO, Japan Science and Tech. Agency (JST) (Japan)</i>	16:25 H-4-4 Effect of Geometrical Profile of Nano-structured Arrays on the Enhanced Optical Absorption of Silicon Thin-film Solar Cells <i>Y. C. Yao, P. W. Lu and Y. J. Lee, National Taiwan Normal Univ. (Taiwan)</i>	16:25 I-4-4 Growth of β-FeSi nanocrystals by phase transition and enhancement of light emission property <i>K. Nishimura¹, T. Nakajima¹, Y. Nagasawa¹, K. Narumi² and Y. Maeda^{1,2}, ¹Kyoto Univ. and ²ASRC, JAEA (Japan)</i>				16:25 M-4-4 Chemical Trend of Atomic Impurity States in Organic Semiconductor Films; Theoretical Investigation <i>Y. Tomita^{1,2} and T. Nakayama¹, ¹Univ. of Tsukuba, ²JST-CREST and ³Chiba Univ. (Japan)</i>
Coffee Break						
G-5: Quantum Transport in Nanostructures (2) (Area 9) (17:05-18:20) Chairs: T. Nakaoka (Sophia Univ.) T. Machida (Univ. of Tokyo)	H-5: New Concept (Area 15) (17:05-17:50) Chairs: M. Isomura (Tokai Univ.) A. Masuda (AIST)		J-5: Advanced Circuits (Area 5) (17:05-18:25) Chairs: M. Horiguchi (Renesas) T. Koide (Hiroshima Univ.)	K-5: 3D/TSV Interconnect (2) (Area 2) (17:05-18:15) Chairs: M. Ueki (Renesas) K. N. Chen (National Chiao Tung Univ.)		M-5: Organic Optoelectronics Devices (Area 10) (17:05-18:20) Chairs: K. Shinbo (Niigata Univ.) T. Lee (Seoul National Univ.)
17:05 G-5-1 (Invited) Detection of nuclear spin signals from a quantum dot under Kondo effect regime <i>M. Kawamura, RIKEN Advanced Science Inst. (Japan)</i>	17:05 H-5-1 (Late News) Low-Resistance TCO n-p Tunnel Recombination Junction for Multi-Cell Interface Layers in Thin-Film Solar Cells <i>K. Kanamoto, H. Tokioka, H. Konishi, M. Yamamuka, H. Fuchigami, Y. Tsuda and M. Inoue, Mitsubishi Electric Corp. (Japan)</i>		17:05 J-5-1 102.4 GS/s Impulse Sampling Circuit with Low Power and Low Timing Error Clock Generation <i>A. Toya^{1,2}, K. Sogo¹, N. Sasaki^{1,3} and T. Kikawa¹, ¹Hiroshima Univ., ²Kure National College of Tech. and ³Gunma National College of Tech. (Japan)</i>	17:05 K-5-1 (Invited) Thermal and Mechanical Stress in High-Density 3D-LSIs <i>M. Murugesan¹, H. Kobayashi², T. Fukushima¹, T. Tanaka³ and M. Koyanagi¹, ¹NiChe, Tohoku Univ. and ²ASET (Japan)</i>		17:05 M-5-1 (Invited) Carbon Materials Nanoengineering for High Performance Optoelectronics <i>S. O. Kim¹, J. S. Park² and J. O. Hwang¹, ¹Materials Science & Engineering and ²KAIST (Korea)</i>

2F B-1	2F B-2	1F C-1	1F C-2	1F D	1F E
A-5: Photonic Crystals (Area 7)	B-5: ReRAM (2) (Area 4)	C-5: Graphene Growth (1) (Area 8&9&13)	D-5: Post-Si Technology(2) (Area 1)	E-5: Mobility Enhancement (Area 3)	F-5: GaN Power Devices (2) (Area 6&14)
17:35 A-5-2 Room temperature 1.55 μm electroluminescence from Ge quantum dots embedded in H1-type photonic crystal nanocavities using lateral current injection <i>X. Xu, T. Tsuboi, T. Chiba, T. Maruizumi and Y. Shiraki, Tokyo City Univ. (Japan)</i> 17:50 A-5-3 Electro-Mechanical Control of Q factor in Photonic Crystal Nanobeam Cavity <i>R. Ohta, Y. Ota, H. Takagi, N. Kumagai, K. Tanabe, S. Ishida, S. Iwamoto and Y. Arakawa, Univ. of Tokyo (Japan)</i>	17:25 B-5-2 Low power and improved switching properties of selector-less Ta_2O_5 based ReRAM using Ti-rich TiN electrode <i>B. Kim, W. Kim, H. Kim, K. Jung, W. Park, B. Seo, M. Joo, K. Lee, K. Hong and S. Park, SK Hynix Inc. (Korea)</i> 17:45 B-5-3 Formation free and high-performance cross-point resistive switching memory using Ir/TaOx/W structure <i>A. Prakash¹, S. Maikap¹, C. S. Lai¹, W. S. chen², H. Y. Lee², F. T. Chen² and M. J. Tsai², ¹Chang Gung Univ. and ²Indus. Tech. Res. Inst. (Taiwan)</i> 18:05 B-5-4 (Late News) Investigation of Resistive Switching Mechanism and Improved Memory Characteristics Using IrOx/high-kx/W Structure <i>S. Maikap¹, W. Banerjee¹, B. L. You¹, D. Jana¹, H. Y. Lee², W. S. Chen², F. T. Chen², M. J. Kao² and M. J. Tsai², ¹Thin Film Nano. Tech. Lab., Department of Electronic Engineering, Chang Gung Univ. and ²Electronics and Opto-Electronics Res. Laboratories, Indus. Tech. Res. Inst. (Taiwan)</i>	17:20 C-5-2 CVD Growth of Mono- and Bi-layer Graphene from Ethanol <i>X. Chen, P. Zhao, B. Hou, E. Einarsson, S. Chiashi and S. Maruyama, Univ. of Tokyo (Japan)</i> 17:35 C-5-3 Efficient CVD Graphene Transfer Techniques by using Oxide Passivations <i>J. Yamaguchi, K. Hayashi, S. Sato and N. Yokoyama, AIST (Japan)</i> 17:50 C-5-4 Growth of High-Quality h-BN Nanosheets for Graphene Electronics <i>J. Lee¹, K. H. Lee¹, H. J. Shin², I. Y. Lee¹, G. H. Kim¹, J. Y. Choi² and S. W. Kim¹, ¹Sungkyunkwan Univ. and ²Samsung Advanced Inst. of Tech. (Korea)</i> 18:05 C-5-5 (Late News) Graphene ReRAM towards All Graphene LSIs: Experimental Demonstration of Two-terminal ReRAM Operation in Electrically Broken Mono- and Multi-layer Graphene <i>A. Shindome^{1,2}, Y. Doioka^{1,2}, S. Oda¹ and K. Uchida^{1,2}, ¹Toyko Tech. and ²Keio Univ. (Japan)</i>	17:40 D-5-2 Oxidation Kinetics of Ge by Oxygen Radicals at Low Temperatures and Electrical Properties of GeO_2/Ge Gate Stacks <i>W. Song^{1,2}, C. H. Lee^{1,2}, T. Nishimura^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹Univ. Tokyo and ²JST-CREST (Japan)</i> 18:00 D-5-3 Atomically controlled heteroepitaxy of a single-crystalline germanium film on a metallic silicide <i>S. Yamada, M. Kawano, K. Tanikawa, M. Miyao and K. Hamaya, Kyushu Univ. (Japan)</i>	17:25 E-5-2 On the understanding of mobility degradation mechanisms in advanced CMOS devices: FDSOI versus bulk technology <i>I. Ben Akkez^{1,3}, C. Diouf^{1,3}, A. Cros¹, C. Fenouillet Beranger^{1,2}, P. Perreau^{1,2}, F. Balestra¹, G. Ghibaudo¹ and F. Boeuf¹, ¹STmicroelectronics, ²CEA-LETI and ³IMEP/LAHC (France)</i> 17:45 E-5-3 Si_xGe_y or $\text{Ge}_{1-x}\text{Sn}_x$ Source/Drain Stressors on Strained $\text{Si}1\text{-xGe-x}$ Channel PFETs: A TCAD Study <i>G. Eneman, A. De Keersgieter, L. Witters, J. Miltard, B. Vincent, A. Hikavy, R. Loo, N. Horiguchi, N. Collaert and A. Thean, IMEC (Belgium)</i> 18:05 E-5-4 Impacts of Surface Roughness Reduction in (110) Si Substrates by High Temperature Annealing on Electron Mobility in n-MOSFETs on (110) Si <i>S. H. Jeon¹, N. Taoka^{1,2}, H. Matsumoto³, K. Nakano¹, S. Koyama³, H. Kakibayashi³, K. Araki⁴, M. Miyashita⁴, K. Izunome⁴, M. Takenaka⁴ and S. Takagi¹, ¹Univ. of Tokyo, ²Nagoya Univ., ³Hitachi High-technologies Corp. and ⁴Covalent Silicon Corp. (Japan)</i>	17:20 F-5-2 Improved Electrical Characteristics of AlGaIn/GaN HEMT with In-situ Deposited Silicon Carbon Nitride Cap Layer <i>N. Jeon¹, W. Choi¹, J. H. Lee², K. S. Kim², H. Y. Cha³ and K. S. Seo¹, ¹Seoul National Univ., ²Samsung Electronics Company Ltd. and ³Hongik Univ. (Korea)</i> 17:35 F-5-3 Enhancement mode AlGaIn/GaN MIS-HEMTs using optimized Si_3N_4 gate insulator <i>W. Choi¹, H. Ahn¹, N. Jeon¹, I. Min¹, H. Cha² and K. Seo¹, ¹Seoul National Univ. and ²Hongik Univ. (Korea)</i> 17:50 F-5-4 GaN Power Electronics and Applications <i>Yuvaraj Dora, Yifeng Wu, Likun Shen, Primit Parikh and Umesh Mishra, Transphorm Inc. (USA)</i>
Rump Sessions (RS-A;Room D & RS-B;Room E)					

1F G	1F H	2F I	2F J	2F K	5F 554	5F 555
G-5: Quantum Transport in Nanostructures (2) (Area 9)	H-5: New Concept (Area 15)		J-5: Advanced Circuits (Area 5)	K-5: 3D/TSV Interconnect (2) (Area 2)		M-5: Organic Optoelectronics Devices (Area 10)
17:35 G-5-2 Detection of a charge qubit by the Kondo and the Fano-Kondo effects in quantum dots <i>T. Tanamoto¹, Y. X. Liu², X. Hu³ and F. Nori⁴, ¹Toshiba Corp., ²Tsinghua Univ. ³Univ. at Buffalo, SUNY and ⁴Riken (Japan)</i>	17:20 H-5-2 A Novel Surface Nano-Structure Design for SiGe/Si Type-II Hetero-Junction Solar Cell <i>M. H. Liao¹, C. H. Chen¹, L. C. Chang¹, C. Yang¹, S. C. Kao¹ and C. F. Hsieh², ¹National Taiwan Univ. and ²Industrial Tech. Research Inst. (Taiwan)</i>		17:25 J-5-2 Eight-bit CPU with Nonvolatile Registers Capable of Holding Data for 40 Days at 85°C Using Crystalline In-Ga-Zn Oxide Thin Film Transistors <i>T. Ohmaru, S. Yoneda, T. Nishijima, E. Masami, H. Dembo, M. Fujita, H. Kobayashi, K. Ohshima, T. Atsumi, Y. Shionoiri, K. Kato, Y. Maehashi, J. Koyama and S. Yamazaki, Semiconductor Energy Lab. Corp. Ltd. (Japan)</i>	17:35 K-5-2 Dominant Structural Factors of Residual Stress Distribution in Stacked Silicon Chips Mounted in 3D Packages and Modules <i>K. Suzuki, H. Tago, F. Endo, N. Murata and H. Miura, Tohoku Univ. (Japan)</i>		17:35 M-5-2 Influence of Source/Drain Electrodes on the Properties of Top-gate-type Polymer Light-emitting Transistors <i>I. Ikezoe, Y. Kusumoto, H. Kajii and Y. Ohmori, Osaka Univ. (Japan)</i>
17:50 G-5-3 Electron Spin Depolarization in Nonequilibrium Quantum Wires Accompanied with Dynamic Nuclear Polarization Detected by the Noise Measurement <i>K. Chida¹, M. Hashisaka^{1,2}, Y. Yamauchi¹, S. Nakamura^{1,3}, T. Arakawa⁴, T. Machida⁴, K. Kobayashi¹ and T. Ono¹, ¹ICR, Kyoto Univ., ²Tokyo Inst. of Tech., ³AIST and ⁴IIS and INQIE, Univ. of Tokyo (Japan)</i>	17:35 H-5-3 Imaging of transient photoexcited current in solar cell using femtosecond laser pulses <i>H. Nakanishi¹, K. Salek², A. Ito¹, K. Takayama², I. Kawayama², H. Murakami² and M. Tonouchi², ¹Dainippon Screen Manufac. and ²Osaka Univ. (Japan)</i>		17:45 J-5-3 A Power-Efficient High-Voltage CMOS Gate Driver for Power MOS Transistors <i>K. Ko and H. Lin, National Chung Hsing Univ. (Taiwan)</i>	17:55 K-5-3 TSV Scaling with Constant Liner Thickness and the Related Implications on Thermo-mechanical Stress, Capacitance, and Leakage Current <i>C. S. Tan¹, J. Zhang¹, K. Ghosh¹, L. Zhang¹, Y. Dong², H. Yu², C. M. Tan¹ and G. Xia¹, ¹Nanyang Technological Univ., ²Inst. of Microelectronics and ³Univ. of British Columbia (Singapore)</i>		17:50 M-5-3 Printable Top-Gate Type Polymer Light-Emitting Transistors with Amorphous Fluoropolymer Insulators Patterned by Using the Vacuum UV Treatment <i>H. Kajii, D. Terashima, Y. Kusumoto, I. Ikezoe and Y. Ohmori, Osaka Univ. (Japan)</i>
18:05 G-5-4 (Late News) Electrostatic tuning of charge velocity in a quantum Hall edge channel defined along the perimeter of a gate metal <i>R. Murata¹, M. Hashisaka¹, K. Muraki² and T. Fujisawa¹, ¹Toyko Tech. of Tech. and ²NTT Basic Res. Lab. (Japan)</i>			18:05 J-5-4 A DRAM Sense Amplifier Circuit by Multi-pillar Vertical MOSFET Realizing Sub-1V Core Voltage Operation without Overdrive Technique <i>H. Na^{1,2} and T. Endoh^{1,2}, ¹Tohoku Univ. and ²JST-CREST (Japan)</i>			18:05 M-5-4 (Late News) The Influence of Gate Insulator Dipoles on Charge Transport in Solution-Processed Top-Gate Organic Field-Effect Transistors with High Mobility and Operational Stability <i>K. Takagi¹, T. Nagase^{1,2}, T. Kobayashi^{1,2} and H. Naito^{1,2}, ¹Osaka Prefecture Univ. and ²The Research Inst. for Molecular Electronic Devices (RIMED) (Japan)</i>
Rump Sessions (RS-A;Room D & RS-B;Room E)						