

1F NAVIS-A	1F NAVIS-B	1F NAVIS-C	1F ARGOS-F	1F NIRE	1F KAEDE	1F KUSU
<p>A-3: Phase Change Memory (9:00-10:20) Chairs: Y. Sasago (Hitachi) M. Tada (LEAP)</p>	<p>B-3: Atomic-Scale Characterization (9:00-10:10) Chairs: T. Tsunomura (TEL) T. Aoyama (Toshiba)</p>	<p>C-3: Graphene Growth (9:00-10:15) Chairs: H. Miyazaki (Toshiba) S. Sato (AIST)</p>	<p>D-3: III-V and Ge MOSFET (9:00-10:20) Chairs: T. Hiramoto (Univ. of Tokyo) O. Weber (CEA-LETI)</p>	<p>E-3: Spin Related Physics and Topological Insulators (9:00-10:15) Chairs: T. Tanamoto (Toshiba) H. Gotoh (NTT-BRL)</p>		<p>G-3: Microfluidic Devices and Imaging Technologies (9:00-10:15) Chairs: J. Ohta (NAIST) C.-H. Liu (NTHU)</p>
<p>9:00 A-3-1 Carrier Injection Induced Switching of Superlattice GeTe/Sb₂Te₃ Phase Change Memories S. Kato¹, M. Araidai¹, K. Kamiya¹, T. Yamamoto¹, K. Shiraiishi¹, T. Ohyanagi² and N. Takaura², ¹Univ. of Tsukuba and ²Low-power Electronics Association & Project (Japan)</p>	<p>9:00 B-3-1 (Invited) 3D dopant analysis in nano scale devices (FinFETs) by Atom Probe Tomography A.K. Kambham^{1,2}, A. Kumar^{1,2} and W. Vandervorst^{1,2}, ¹Katholieke Univ. Leuven and ²IMEC (Belgium)</p>	<p>9:00 C-3-1 Potential-Energy Surface of Graphene on Transition-Metal Surfaces K. Toyoda, K. Nozawa, N. Matsukawa and S. Yoshii, Panasonic Corp. (Japan)</p>	<p>9:00 D-3-1 Scalable La-silicate Gate Dielectric on InGaAs Substrate with High Thermal Stability and Low Interface State Density D.H. Zadeh¹, H. Oomine¹, K. Kakushima², Y. Kataoka², A. Nishiyama², N. Sugii², H. Wakabayashi², K. Tsutsui¹, K. Natori¹ and H. Iwai¹, ¹Frontier Research Center, Tokyo Inst. of Tech. and ²Interdisciplinary Graduate School of Science and Engineering, Tokyo Inst. of Tech. (Japan)</p>	<p>9:00 E-3-1 Quantum capacitance probing of spin and charge dynamics in a one- and two-electron double quantum dot T. Ota¹, K. Hitachi¹, T. Fujisawa² and K. Muraki¹, ¹NTT Basic Research Lab. and ²Tokyo Tech. (Japan)</p>		<p>9:00 G-3-1 (Invited) Smart Microfluidic and Analytical Devices Based on Electrochemical Principles H. Suzuki, Univ. of Tsukuba (Japan)</p>
<p>9:20 A-3-2 Chemical Vapor Deposition GeTe/Sb₂Te₃ Super-Lattice Phase Change Memory M. Kitamura, T. Morikawa, T. Ohyanagi, M. Tai, M. Kinoshita, K. Akita and N. Takaura, Low-power Electronics Association and Project (Japan)</p>	<p>9:30 B-3-2 Deterministic placement of doping atoms on hydroxylated surfaces L. Mathey^{1,2,3}, L. Veyre¹, H. Fontaine², V. Enyedi², K. Yckache², J. Guerrero², N. Chevalier², F. Martin¹, J.P. Barnes², F. Bertin¹, C. Durand¹, M. Berthe¹, B. Grandidier⁴, C. Thieuleux¹ and C. Copere^{1,5}, ¹C2P2, CPE Lyon, ²CEA-LETI, ³Osaka Univ., ⁴IEMN and ⁵ETH Zurich (France)</p>	<p>9:15 C-3-2 Laser-Irradiated Direct Synthesis of Graphene and Device Application K. Koshida, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, ISIR, Osaka Univ. (Japan)</p>	<p>9:20 D-3-2 Channel Length Scaling Limits of III-V Channel MOSFETs Governed by Source-Drain Direct Tunneling S. Koba¹, M. Ohmori¹, Y. Maegawa¹, H. Tsuchiya^{1,2}, Y. Kamakura^{2,3}, N. Mori^{2,3} and M. Ogawa¹, ¹Kobe Univ., ²JST-CREST and ³Osaka Univ. (Japan)</p>	<p>9:15 E-3-2 In-plane magnetic field effect on magnetic focusing in an InGaAs two-dimensional electron gas T. Okayasu, M. Kohda and J. Nitta, Tohoku Univ. (Japan)</p>		<p>9:30 G-3-2 Microfluidic Device with Accurately Aligned Optical Fibers for Measuring Transmission Spectrum Using Supercontinuum Light H. Imura, D. Deng, S. Kumagai, Y. Ohishi and M. Sasaki, Toyota Tech. Inst. (Japan)</p>
<p>9:40 A-3-3 Investigation of Multi-Level-Cell Operation with 2-Step SET Pulse and SET Operation on Super-Lattice Phase Change Memories T. Egami, K. Johguchi, S. Yamazaki and K. Takeuchi, Chuo Univ. (Japan)</p>	<p>9:50 B-3-3 Size and Stress Effects in Ultraviolet Raman Spectra of Few-Nanometer-Thick SOI Nanofilms and Single Nanowires for Future CMOS Devices V.D. Poborchii¹, T. Tada¹, Y. Morita¹, S. Migita¹, T. Kanayama¹ and P. Geshev², ¹National Institute of Advanced Industrial Science and Tech. and ²Inst. of Thermophysics of the Russian Academy of Sciences (Japan)</p>	<p>9:30 C-3-3 Transport Properties and Defects at the Intersection of CVD Graphene Domains Y. Ogawa¹, K. Kawahara¹, M. Miyashita¹, M. Tsuji¹, K. Komatsu², K. Tsukagoshi² and H. Ago¹, ¹Kyushu Univ. and ²National Inst. for Materials Sci. (Japan)</p>	<p>9:40 D-3-3 Multi-electron Wave Packet Transport Dynamics in Nanoscale Channel T. Shiokawa¹, G. Fujita¹, Y. Takada², S. Konabe^{1,5}, M. Muraguchi^{3,5}, T. Yamamoto², T. Endoh^{3,5}, Y. Hatsugai^{1,3} and K. Shiraiishi^{1,4}, ¹Univ. of Tsukuba, ²Tokyo Univ. of Sci., ³Tohoku Univ., ⁴Nagoya Univ. and ⁵CREST (Japan)</p>	<p>9:30 E-3-3 Dynamics of Hole-Spin Superposition in GaAs/AlGaAs Quantum Wells T. Ito^{1,2}, H. Gotoh³, M. Ichida⁴ and H. Ando⁴, ¹Res. Inst. of Electronics, Shizuoka Univ., ²Graduate School of Eng., Shizuoka Univ., ³NTT Basic Res. Labs., NTT Corp. and ⁴Graduate School of Natural Sci., Konan Univ. (Japan)</p>		<p>9:45 G-3-3 Integrated 3D Microfluidic System for Stromal Cell Culture P.Y. Chang¹, K.W. Chang¹, T.H. Punde¹, P.C. Shih¹, Y.Y. Hsu¹, C.J. Li², H.Y. Huang² and C.H. Liu¹, ¹National Tsing Hua Univ. and ²Chang Gung Memorial Hospital (Taiwan)</p>
<p>10:00 A-3-4 A New Insight on I_{RESET} Reduction of Carbon-doped GST based PCM Q. Hubert^{1,2}, C. Jahan¹, V. Sousa¹, L. Perniola¹, A. Kusiak¹, J.L. Battaglia¹, P. Noé¹, M. Bernard¹, C. Sabbione¹, M. Tessaire¹, F. Pierre¹, P. Zulliani¹, R. Annunziata¹, G. Pananakakis² and B. De Salvo¹, ¹CEA - L E T I, Minatec Campus, ²IMEP-LAHC, ³Lab. I2M, Univ. de Bordeaux and ⁴STMicroelectronics (France)</p>		<p>9:45 C-3-4L (Late News) Relationship between Transport Properties and Raman Spectra in Graphene Field Effect Devices H. Tomori, K. Katakura, Y. Ito, R. Hiraike, H. Tanaka, Y. Ootuka and A. Kanda, Univ. of Tsukuba (Japan)</p>	<p>10:00 D-3-4 Effect of Alloy Scattering on Hole Mobility of sSi/sSiGe/sSOI Quantum Well pMOSFETs W. Wu¹, W. Yu², Q. Zhao³, J. Sun¹, D. Zhai¹, Y. Shi¹ and Y. Zhao^{1,4}, ¹Nanjing Univ., ²State Key Lab. of Functional Materials and Informatics, ³Peter Grünberg Inst. 9 and ⁴State Key Lab. of Silicon Materials (China)</p>	<p>9:45 E-3-4 (Invited) Phase-change non-volatile memory equipped with topological insulating properties -Fusion of PCRAM and spintronics- J. Tominaga¹, A. Kolobov¹, P. Fons¹, T. Nakano¹, M. Hase² and S. Murakami³, ¹AIST, ²Univ. of Tsukuba and ³Tokyo Inst. of Tech. (Japan)</p>		<p>10:00 G-3-4 Light source modulated and oxygen annealing NbOx/Si-LAPS for hydrogen ion image sensor Y.T. Yeh¹, T.W. Chiang¹, A. Das¹, Y.H. Liao², X.Z. Zhuang¹, C.M. Yang² and C.S. Lai¹, ¹Univ. of Chang Gung and ²Univ. of Chang Gung (Taiwan)</p>
		<p>10:00 C-3-5L (Late News) Floating-Gated Memory Based on Carbon Nanotube Field-Effect Transistors with Si Floating Dots K. Seike, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, ISIR, Osaka Univ. (Japan)</p>				

Coffee Break

Short Presentation (10:40-11:55)						
<p>Short Presentation: Area 4 PS-4 (10:40-11:55) Chairs: T. Endoh (Tohoku Univ.) K. Ishihara (Sharp)</p>	<p>Short Presentation: Area 1&2 PS-1, PS-2 (10:40-11:55) Chairs: T. Aoyama (Toshiba) Y. Otsuka (Toray)</p>	<p>Short Presentation: Area 13 PS-13 (10:40-11:55) Chairs: S. Sato (AIST) S. Hara (Hokkaido Univ.)</p>	<p>Short Presentation: Area 3 PS-3 (10:40-11:55) Chair: D. Hisamoto (Hitachi)</p>	<p>Short Presentation: Area 9 PS-9 (10:40-11:55) Chairs: H. Gotoh (NTT-BRL) G. Liang (NUS)</p>	<p>Short Presentation: Area 12 PS-12 (10:40-11:55) Chairs: Y. Suzuki (Osaka Univ.) H. Munekata (Tokyo Tech)</p>	<p>Short Presentation: Area 10 PS-10 (10:40-11:55) Chairs: H. Kajii (Osaka Univ.) S. Tokito (Yamagata Univ.)</p>

Thursday, September 26

1F KASHI	3F VEGA	3F RIGEL	3F BOARDROOM	3F CHAPEL	3F RAN
H-3: Advanced Circuits (2) (9:00-10:10) Chairs: N. Wu (CAS) T. Hirose (Kobe Univ.)	J-3: Oxide Devices (9:00-10:15) Chairs: M. Kuzuhara (Fukui Univ.) Y. Miyamoto (Tokyo Tech)	K-3: Silicon Photonics Devices (9:00-10:15) Chairs: H. Fukuda (NTT) H. Isshiki (UEC)	M-3: Wide Gap Materials and Characterization (9:00-10:30) Chairs: H. Umezawa (AIST) T. Ishikawa (Toyota Central R&D Labs.)	N-3: OTFT and Transport Properties (9:00-10:15) Chairs: T. Manaka (Tokyo Tech) M. Sakai (Chiba Univ.)	P-3: Material Process and Properties of Oxides (9:00-10:15) Chairs: T. Kawae (Kanazawa Univ.) T. Nagata (NIMS)
9:00 H-3-1 (Invited) High Performance Multi-Core for Communication and Multimedia Applications Z. Yu, X. Yu, S. Zhu, P. Ou, J. Zhang, M. He, S. Cui, K. You, R. Xiao, H. Qian, Z. Yu and X. Zeng, Fudan Univ. (China)	9:00 J-3-1 Scaling to 100nm Channel Length of Crystalline In-Ga-Zn-Oxide Thin Film Transistors with Extremely Low Off-State Current Y. Kobayashi, S. Matsuda, D. Matsubayashi, H. Suzawa, M. Sakakura, K. Hanaoka, Y. Okazaki, T. Yamamoto, S. Hondo, T. Hamada, S. Sasagawa, M. Nagai, Y. Hata, T. Maruyama, Y. Yamamoto and S. Yamazaki, Semiconductor Energy Laboratory Co., Ltd. (Japan)	9:00 K-3-1 (Invited) High speed silicon modulators for integrated transceivers G.T. Reed ¹ , D.J. Thomson ¹ , F.Y. Gardes ² , G.Z. Mashanovich ³ , Y. Hu ⁴ , K. Li ¹ , P.W. Wilson ¹ , L. Zimmermann ² , H. Porte ³ , B. Goll ⁴ , H. Zimmermann ⁴ , D. Knoll ² , S. Lischke ² , S.W. Chen ⁵ , S.S.H. Hsu ⁶ , J.M. Fedeli ⁶ , K. Debnath ⁷ , T.F. Krauss ⁸ , L. O'Faolain ⁷ , ¹ Univ. of Southampton, ² IHP, ³ PHOTLINE Tech., ⁴ Vienna Univ. of Tech., ⁵ National Tsing Hua Univ., ⁶ CEALETI, ⁷ Univ. of St. Andrews and ⁸ Univ. of York (UK)	9:00 M-3-1 (Invited) Research and Development on Ga₂O₃ Power Devices M. Higashiwaki ¹ , K. Sasaki ^{2,1} , M.H. Wong ³ , T. Kamimura ⁴ , D. Krishnamurthy ¹ , A. Kuramata ⁵ , T. Masu ³ and S. Yamakoshi ² , ¹ National Inst. of Info. and Communications Tech., ² Tamura Corp. and ³ Koha Co., Ltd. (Japan)	9:00 N-3-1 (Invited) Materials and devices of high-performance organic transistors J. Takeya ^{1,2,3,4} , J. Soeda ^{1,3} , M. Uno ⁴ , Y. Kanaoka ⁴ , K. Nakayama ^{1,3} , T. Okamoto ¹ , C. Mitsui ¹ and H. Matsui ¹ , ¹ Univ. of Tokyo, ² PI-CRYSTAL Incorporation, ³ Osaka Univ. and ⁴ TRI-Osaka (Japan)	9:00 P-3-1 Ultrasonic-Assisted Mist Deposition for Green Materials and Devices S. Fujita ¹ , K. Kaneko ² , S. Katori ³ , T. Kawaharamura ⁴ and M. Furuta ⁴ , ^{1,2} Kyoto Univ., ³ Tsuyama National College of Tech. and ⁴ Kochi Univ. Tech. (Japan)
9:30 H-3-2 Digital Word-Parallel Associative Memory in 180nm CMOS for Nearest Euclidean Distance Search Based on Distance Mapping into Clock-Number Domain T. Akazawa, S. Sasaki and M. Hans Juergen, Univ. of Hiroshima (Japan)	9:15 J-3-2 Gate Oxide Thickness Dependence of Intrinsic Gain and Flicker Noise in InGaZnO Thin Film Transistors T. Morooka ¹ , K. Fukase ¹ , S. Nakano ² , S. Toriyama ² , H. Momose ¹ and T. Ohguro ¹ , ¹ Toshiba Corp. Semiconductor & Storage Products Company and ² Toshiba Corp. (Japan)	9:30 K-3-2 Mach-Zehnder Interferometer Optical Modulator With Cascade P/N Junctions A.K. Sana, R. Furutani, Y. Amemiya and S. Yokoyama, Hiroshima Univ. (Japan)	9:30 M-3-2 New Concept Power Device; Diamond Vacuum Switch S. Yamasaki ^{1,2,3,4} , D. Takeuchi ^{1,2,3} , S. Koizumi ^{2,3,5} , T. Makino ^{1,2,3} , M. Ogura ^{1,2,3} , H. Kato ^{1,2,3} , H. Ohashi ^{1,2,3} and H. Okushi ^{1,2,3} , ¹ AIST, ² JST-ALCA, ³ JST-CREST, ⁴ Univ. of Tsukuba and ⁵ NIMS (Japan)	9:30 N-3-2 Prediction of Band Mobilities of Pentacene, Rubrene and C₈-BTBT from First Principle Calculations H. Kobayashi, N. Kobayashi, S. Hosoi, N. Koshitani, D. Murakami, R. Shirasawa, Y. Kudo, D. Hobara, Y. Tokita and M. Itabashi, Sony Corp. (Japan)	9:15 P-3-2 Fabrication of Aluminum Oxide Thin Films by Solution-Source Non-Vacuum Process of Mist Chemical Vapor Deposition with Ozone Assistance T. Uchida ¹ , T. Kawaharamura ² , M. Furuta ² and S. Fujita ¹ , ¹ Kyoto Univ. and ² Kochi Univ. of Tech. (Japan)
9:50 H-3-3 TLC/MLC NAND Flash Mix-and-Match Design with Exchangeable Storage Array S. Hachiya ¹ , K. Johguchi ¹ , K. Miyaji ^{1,2} and K. Takeuchi ¹ , ¹ Chuo Univ. and ² Shinshu Univ. (Japan)	9:30 J-3-3 Fabrication and Characterization of High-Performance ZnO Thin-Film Transistors R.J. Lyu ¹ , H.C. Lin ^{1,2} and T.Y. Huang ¹ , ¹ National Chiao Tung Univ. and ² National Nano Device Labs. (Taiwan)	9:45 K-3-3 GeSn Metal-Semiconductor-Metal Photodetectors with Suppressed Dark Current by Ammonium Sulfide Surface Passivation Y. Dong ¹ , W. Wang ¹ , X. Xu ¹ , X. Gong ¹ , P. Guo ¹ , Q. Zhou ¹ , L. Wang ¹ , G. Han ¹ , Z. Xu ¹ , S.F. Yoon ² , G. Liang ¹ and Y.C. Yeo ¹ , ¹ National Univ. of Singapore and ² Nanyang Techno. Univ. (Singapore)	9:45 M-3-3 Gate Oxide Reliability on Large-Area Surface Defects in 4H-SiC Epitaxial Wafers O. Ishiyama ¹ , K. Yamada ¹ , H. Sako ¹ , K. Tamura ¹ , M. Kitabatake ¹ , J. Senzaki ^{1,2} and H. Matsuhata ^{1,2} , ¹ R&D Partnership for Future Power Electronics Tech. and ² AIST (Japan)	9:45 N-3-3 A Study of Low-Temperature Carrier Transport in Solution-Processed Organic Field-Effect Transistors J. Okada ¹ , T. Nagase ^{1,2} , T. Kobayashi ^{1,2} , K. Takimiya ³ , M. Ikeda ⁴ and H. Naito ^{1,2} , ¹ Osaka Prefecture Univ., ² The Research Institute for Molecular Electronic Devices (RIMED), ³ Hiroshima Univ. and ⁴ Functional Chemicals R&D Lab., Nippon Kayaku Co. (Japan)	9:30 P-3-3 Investigation of Dzyaloshinskii-Moriya Interaction in Rhombohedral and Tetragonal BiFeO₃/CoFe Bilayers K. Mukaiyama, H. Naganuma, M. Oogane and Y. Ando, Tohoku Univ. (Japan)
	9:45 J-3-4 Suppression of Threshold Voltage Variation Due to Conduction Band Lowering Effect in Crystalline In-Ga-Zn-Oxide Thin Film Transistors D. Matsubayashi ¹ , Y. Kobayashi ¹ , S. Matsuda ¹ , T. Obonai ² , N. Ishihara ² and S. Yamazaki ¹ , ¹ Semiconductor Energy Laboratory Co., Ltd. and ² Advanced Film Device Inc. (Japan)	10:00 K-3-4 Optical modulation based on surface plasmon resonance using metal-insulator-semiconductor structure T. Tabei and S. Yokoyama, Hiroshima Univ. (Japan)	10:00 M-3-4 Characterization of a Basal-Plane Dislocation in 4H-SiC by X-Ray Three-Dimensional Topography and Transmission Electron Microscopy R. Tanuma ¹ , D. Morii ¹ and H. Tsuchida ¹ , ¹ Central Res. Inst. of Electric Power Industry and ² Fuji Electric Co., Ltd. (Japan)	10:00 N-3-4 Flexible Organic Field-effect Transistors Fabricated by Thermal Lamination S. Yamaguchi ¹ , Y. Yamaguchi ¹ , J. Hayashi ¹ , M. Sakai ¹ , S. Kuniyoshi ¹ , H. Yamauchi ¹ , K. Kudo ¹ , Y. Sadamitsu ² and M. Hamada ² , ¹ Chiba Univ. and ² Nippon Kayaku Co., Ltd. (Japan)	9:45 P-3-4 High-Mobility TiO₂-Channel TFTs with Optimized Anatase Microstructures T. Yajima, G. Oike, T. Nishimura, K. Nagashio and A. Toriumi, Univ. of Tokyo (Japan)
	10:00 J-3-5L (Late News) InGaSb/AlSb high hole mobility FETs on Si Substrate H.W. Huang, P.C. Chiu, H.C. Ho, Y.M. Hsin and J.I. Chyi, National Central Univ. (Taiwan)		10:15 M-3-5 Observation of Deep Levels and Their Hole Capture Behavior in p-type 4H-SiC Epilayers with and without Electron Irradiation M. Kato ¹ , K. Yoshihara ¹ , M. Ichimura ¹ , T. Hatayama ² and T. Ohshima ¹ , ¹ Nagoya Inst. of Tech., ² Nara Inst. of Sci. & Tech. and ³ Japan Atomic Energy Agency (Japan)		10:00 P-3-5 Significant Conductivity Enhancement of TiO₂ Films by Both Field Effect and Chemical Doping G. Oike, T. Yajima, T. Nishimura, K. Nagashio and A. Toriumi, Univ. of Tokyo (Japan)

Coffee Break

Short Presentation (10:40-11:55)					
Short Presentation: Area 5&11 PS-5, PS-11 (10:40-11:55) Chairs: A. Kitagawa (Kanazawa Univ.) M. Sasaki (Toyota Tech. Univ.)	Short Presentation: Area 6 PS-6 (10:40-11:55) Chairs: Y. Miyamoto (Tokyo Tech) N. Hara (Fujitsu Lab.)	Short Presentation: Area 7 PS-7 (10:40-11:55) Chairs: H. Isshiki (UEC) Y. Tanaka (Fujitsu Lab.)	Short Presentation: Area 14 PS-14 (10:55-11:55) Chairs: M. Kato (Nagoya Inst. Tech.) Y. Tanaka (AIST)	Short Presentation: Area 15 PS-15 (10:40-11:55) Chairs: K. Ohdaira (JAIST) T. Taima (Kanazawa Univ.)	Short Presentation: Area 8 PS-8 (10:40-11:55) Chairs: K. Hara (Shizuoka Univ.) T. Suemasu (Univ. of Tsukuba)

POSTER SESSION (13:00-15:00, ARGOS-C.D.E)

Area 1: Advanced LSI Processing & Materials Science

(14 Papers)

PS-1-1
Fabrication of Tri-Gated Junctionless Poly-Si Transistors with Photoresist Trimming Technique

C.I. Lin¹, K.H. Lee¹, C.L. Cheng¹, H.C. Lin^{1,2} and T.Y. Huang¹, ¹National Chiao Tung Univ. and ²National Nano Device Labs. (Taiwan)

PS-1-2
Synthesis of Perovskite Structure SrHfO₃ Thin Films on Si Substrates Using RF Sputtering and Rapid Thermal Anneal

S. Migita, Y. Morita, M. Masahara and H. Ota, AIST (Japan)

PS-1-3
A New Ar Desorption Peak in Thermal Desorption Spectroscopy Measurement of Sputtered HfO₂ Accompanied by its Structural Phase Transformation

T. Iwai, T. Yajima, T. Nishimura, K. Nagashio and A. Toriumi, Univ. of Tokyo (Japan)

PS-1-4
Study of the interfacial SiO₂ scavenging in HfO₂/SiO₂/Si stacks through the ultra-high vacuum annealing

X. Li, T. Yajima, T. Nishimura, K. Nagashio and A. Toriumi, Univ. of Tokyo (Japan)

PS-1-5
Observation of Scattering Effect on Carrier Mobility of MOSFET with La-incorporated-HfO₂ Gate Dielectric

S.W. You, M. Hasan, M.C. Nguyen, Y.S. Jeon, D.T. Tong, D.H. Lee, J.K. Jung and R. Choi, Inha Univ. (Korea)

PS-1-6
Mechanism of Low-Temperature Activation of B in Si by Soft X-ray Irradiation

A. Heya¹, T. Fukuoka¹, N. Matsuo¹, K. Kanda² and T. Noguchi³, ¹Univ. of Hyogo, ²LASTI, Univ. of Hyogo and ³Univ. of the Ryukyus (Japan)

PS-1-7
Detection of Effect of Uniaxial Strain on the Valence Band of SiGe by HXPES with High Spatial Resolution

S. Yamahori¹, K. Sawano¹, E. Ikenaga², Y. Shiraki¹ and H. Nohira¹, ¹Univ. of Tokyo City and ²Inst. of Japan Synchrotron Radiation Research (Japan)

PS-1-8
Dependence of Band Alignment and Interfacial Suboxide GeOx Thickness of Thermal GeO₂/Ge Stacks on GeO₂ Thickness by X-ray Photoelectron Spectroscopy

X.L. Wang¹, S.K. Wang¹, J. Zhang², W.W. Wang¹, H.G. Liu¹, J. Yan¹, C. Zhao¹, D.P. Chen¹ and T.C. Ye¹, ¹Inst. of Microelectronics, Chinese Academy of Sciences and ²North China Univ. of Tech. (China)

PS-1-9
Effects of the Interface-related and Bulk-fixed Charges in Ge/GeO₂ Stack on Band Bending of Ge Studied by X-ray Photoemission Spectroscopy

W.F. Zhang^{1,2}, C.H. Lee^{1,2}, C.M. Lu¹, T. Nishimura^{1,2}, K. Nagashio^{1,2}, K. Kita^{1,2} and A. Toriumi^{1,2}, ¹Univ. of Tokyo and ²JST-CREST (Japan)

PS-1-10
Ultrathin GeOx Interfacial Repairer Formed by Thermal Oxidation for Germanium MOS Devices

L. Han^{1,2}, S.K. Wang¹, B.Q. Xue¹, X. Zhang², W.R. Wu³, H.D. Chang¹, W. Zhao¹, B. Sun¹, Y. Zhao³, H.G. Liu¹ and Y.P. Cu¹, ¹Inst. of Microelectronics, ²Southeast Univ. and ³Nanjing Univ. (China)

PS-1-11
Effect of Oxygen Potential Lowering in N-doped GeO₂ on Suppression of GeO Desorption and Planarization of Ge Interface

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)

PS-1-12
Novel Sn-assisted Nitridation of Ge/HfO₂ Interface and Improved Electrical Properties of This MOS Capacitor

M. Zhao, R.R. Liang, J. Wang and J. Xu, Tsinghua Univ. (China)

PS-1-13
Reduction of Schottky Barrier Height for n-type Ge Contact by using Sn Electrode

A. Suzuki¹, S. Asaba¹, J. Yokoi¹, O. Nakatsuka¹, M. Kurosawa^{1,2}, K. Kato¹, M. Sakashita¹, N. Taoka¹ and S. Zaima¹, ¹Nagoya Univ. and ²JSPS (Japan)

PS-1-14 (Late News)
Residual Defects in Low-dose Arsenic Implanted Si after High-temperature Rapid Thermal Annealing: Their Behavior and Influence on CCD Image Sensors

A. Sagara¹, A. Uedono², N. Oshima², R. Suzuki³ and S. Shibata¹, ¹Panasonic Corp., ²Univ. of Tsukuba and ³National Inst. of Advanced Indus. Sci. and Tech. (Japan)

Area 2: Advanced Interconnect / Interconnect Materials and Characterization

(10 Papers)

PS-2-3
Room Temperature Bonding of Heterogeneous Materials for Near-Infrared Image Sensor

T. Shuto¹, K. Iwanabe¹, M. Ogura², K. Nishida² and T. Asano¹, ¹Kyushu Univ. and ²IRspec Corp. (Japan)

PS-2-4
Young Modulus of Si in 3D-LSIs and Reliability

M. Murugesan, J.C. Bea, T. Fukushima, K.W. Lee, T. Tanaka and M. Koyanagi, Tohoku Univ. (Japan)

PS-2-5
Self-Assembly and Electrostatic (SAE) Carrier Technology for Via-Last Backside-Via Multichip-to-Wafer 3D Integration

H. Hashiguchi, T. Fukushima, J.C. Bea, K.W. Lee, T. Tanaka and M. Koyanagi, Tohoku Univ. (Japan)

PS-2-6
Luminescence from SiO₂ by Helium Ion Microscopy without any Damage Characterized by TEM-EELS

S. Ogawa¹, T. Iijima¹, R. Sugie², N. Kawasaki² and Y. Otsuka², ¹Advanced Industrial Science and Technology (AIST) and ²Toray Research Center, Inc. (Japan)

PS-2-7
Stress Field and Defect Evaluation with Shallow Trench Isolation Structure after Transistor Fabrication Processing by Raman and Cathodoluminescence Spectroscopies

M. Koderd¹, N. Tsuchiya¹, S. Kakinuma² and N. Naka², ¹Toshiba Corp. and ²Horiba, Ltd. (Japan)

PS-2-8
Effects of Sputtering Gas on Formation of Ultrathin PtHfSi Film

Y. Yoshimura and S. Ohmi, Tokyo Inst. of Tech. (Japan)

PS-2-9
On-Chip Folded Dipole Antennas for Inter-Chip UWB Signal Transmission

K. Hashimoto, T. Sugitani, S. Kubota and T. Kikkawa, Univ. of Hiroshima (Japan)

PS-2-10 (Late News)
Advanced TSV Fabrication Processes for Future Packaging

Y. Morikawa, T. Sakuihisi, T. Murayama, A. Suzuki, M. Hatanaka and K. Suu, ULVAC, Inc. (Japan)

PS-2-11 (Late News)
Low Stress C Doped WN Diffusion Barrier for Cu Interconnection

Y.T. Kim and Y.H. Kim, Korea Inst. of Sci. and Tech. (Korea)

PS-2-12 (Late News)
Analysis of Printed Ag Electrode on a-InGaZnO

Y. Ueoka¹, T. Nishibayashi², Y. Ishikawa¹, H. Yamazaki¹, Y. Osada¹, M. Horita¹ and Y. Uraoka¹, ¹Nara Inst. of Sci. and Tech. and ²TOKYO ELECTRON LTD. (Japan)

Area 3: CMOS Devices / Device Physics

(24 Papers)

PS-3-1
Chemical Analysis of Multi-Step Deposited and Two-Step (Ultraviolet Ozone cum Rapid Thermal) Annealed Sub-1-nm EOT HfO₂/TiN Gate Stack for High-k Last Integration

K.S. Yew¹, D.S. Ang¹, L.J. Tang² and J.S. Pan³, ¹Nanyang Tech. Univ., ²Inst. of Microelectronics, A*STAR and ³Institute of Materials Research and Eng., A*STAR (Singapore)

PS-3-2
Effects of Rutile TiO₂ Interlayer on HfO₂/Ge MOS Structure

K. Kobashi^{1,2}, T. Nagata², T. Nabatame², Y. Yamashita², A. Ogura¹ and T. Chikyow², ¹Meiji Univ. and ²NIMS (Japan)

PS-3-3
Effects of HfO₂ and Lanthanum Capping Layer Thickness on the Narrow Width Behavior of Gate First High-K and Metal Gate NMOS Transistors

S.S. Naresh¹, N.R. Mohapatra¹ and P.K. Duhari², ¹IIT-Gandhinagar and ²IIT-Bombay (India)

PS-3-4
Correlation between 1/f Noise Parameters and Random Telegraph Noise in 28-nm High-k/Metal Gate pMOSFETs with Embedded SiGe Source/Drain

S.C. Tsai¹, S.L. Wu², J.F. Chen¹, K.S. Tsai², T.H. Kao¹, C.W. Yang³, C.G. Chen³, K.Y. Lo³, O.B. Cheng³, Y.K. Fang¹ and S.J. Chang¹, ¹National Cheng Kung Univ., ²Cheng Shiu Univ. and ³United Microelectronics Corp. (Taiwan)

PS-3-5
Study of Trap Properties of High-k/Metal Gate pMOSFETs with Aluminum Ion Implantation by Random Telegraph Noise and 1/f Noise Measurements

T.H. Kao¹, S.L. Wu², K.S. Tsai², Y.K. Fang¹, B.C. Wang¹, C.M. Lai³, C.W. Hsu³, Y.W. Chen³, O.B. Cheng³ and S.J. Chang¹, ¹National Cheng Kung Univ., ²Cheng Shiu Univ. and ³United Microelectronics Corp. (Taiwan)

PS-5-9
Area-efficient Reconfigurable Ring Oscillator for Characterization of Static and Dynamic Variations
A.K.M.M. Islam¹ and H. Onodera^{1,2}, ¹Kyoto Univ. and ²JST,CREST (Japan)

PS-5-10
Novel Dynamic Reconfigurable FPGA based on Multi-Context Scheme Using One-Time Memory with Gate-Induced Permanent Path
M. Oda, K. Zaitzu and S. Yasuda, Toshiba Corp. (Japan)

PS-5-11
FPGA Implementation of 60-FPS QVGA-to-VGA Single-Image Super-Resolution
S. Chikuda, T. Ohira, Y. Sanada, M. Igarashi, M. Ikebe, T. Asai and M. Motomura, Hokkaido Univ. (Japan)

PS-5-12
A VLSI Processor with Configurable Processing Element Array for Balanced Feature Extraction in High Resolution Images
H.B. Zhu¹ and T. Shibata², ¹The Univ. of Tokyo and ²Tohoku Univ. (Japan)

PS-5-13
An Analog VLSI Implementation of One-Class Support Vector Machine
R. Zhang¹, M. Kaneko¹ and T. Shibata², ¹Japan Advanced Inst. of Sci. and Tech. and ²Tohoku Univ. (Japan)

PS-6-12
Analyses of Chemical States at SiN₂/GaN Interface by HAXPES
Y. Saito¹, T. Yonemura¹, J. Iihara¹, S. Uemura¹, Y. Tateno¹, T. Kouchi¹, T. Araya², S. Kurachi², T. Komatani² and J. Wada², ¹Sumitomo Electric Industries, Ltd. and ²Sumitomo Electric Device Innovations, Inc. (Japan)

PS-6-13
Investigation of Temperature Dependence of DIBL for InGaAs Multi-Gate n-MOSFETs Considering Quantum Confinement
S.H. Wu, Y.S. Wu and P. Su, National Chiao Tung Univ. (Taiwan)

PS-6-14
Performance scalability studies by TCAD simulation of raised source/drain versus implanted source/drain plasma-PH₃ passivated In_{0.53}Ga_{0.47}As MOSFET
A.B.S. Sumarlina^{1,2} and G. Samudra¹, ¹National Univ. of Singapore and ²GLOBALFOUNDRIES (Singapore)

PS-6-15
Ultrahigh Sensitive Non-Resonant and Resonant Terahertz Detection by Asymmetric Dual-Grating Gate HEMTs
Y. Kurita¹, G. Ducournau², D. Coquillat³, K. Kobayashi¹, A. Satou¹, Y.M. Meziari⁴, V.V. Popov⁵, W. Knap⁶, T. Suemitsu¹ and T. Otsuji¹, ¹RIEC, Tohoku Univ., ²IEMN, ³CNRS, Univ. Montpellier 2, ⁴Univ. Salamanca and ⁵Kotelnikov Inst. of Radio Eng. and Electronics (Japan)

PS-6-16
Microwave Performance of In_{0.25}Ga_{0.75}As MOSFET with an InGaP interfacial layer
H.D. Chang¹, G.M. Liu¹, B. Sun¹, H.G. Liu¹, X.L. Zhou² and J.Q. Pan², ¹Institute of Microelectronics Chinese Academy of Sciences and ²Institute of Semiconductor Chinese Academy of Sciences (China)

PS-6-17
Comparison between theoretical and experimental results for energy states of two-dimensional electron gas in pseudomorphically strained InAs-HEMTs
Y. Nishio, T. Tange, N. Hirayama, T. Iida and Y. Takahashi, Tokyo Univ. of Science (Japan)

PS-6-18
On the electrical characteristics of the atomic layer deposition Al₂O₃/In_{0.53}Ga_{0.47}As MOSCAPs with various annealing processes
Q.H. Luc, E.Y. Chang, H.D. Trinh, H.Q. Nguyen, B.T. Tran, Y.C. Lin and H.B. Do, Univ. of Chiao Tung (Taiwan)

PS-6-19
Design of AlGaAs/InGaAs Heterojunction Tunneling Field-Effect Transistor for Low-Standby-Power and High-Performance Application
Y.J. Yoon¹, S. Cho², J.H. Seo¹, E.S. Cho³, S.W. Kang¹, J.H. Bae¹, J.H. Lee¹, B.G. Park⁴, J.S. Harris² and I.M. Kang¹, ¹Kyungpook National Univ., ²Stanford Univ., ³Gachon Univ. and ⁴Seoul National Univ. (Korea)

PS-6-20
High Performance Solution-deposited InGaZnO Thin Film Transistors using Microwave Annealing and Ar/O₂ Plasma Treatment at Low Process Temperature
J.G. Gu¹, K.S. Kim¹, H.M. An² and W.J. Cho¹, ¹Kwangwoon Univ. of Korea and ²Osan College. of Korea (Korea)

PS-6-21
High-performance Single/Dual-layer Channel IGZO TFT Fabricated on Glass Substrates at Low-temperature
Y. Tian¹, D.D. Han¹, S.M. Zhang^{1,2}, F.Q. Huang^{1,2}, D.F. Shan^{1,2}, Y.Y. Cong¹, J. Cai^{1,2}, L.L. Wang^{1,2}, S.D. Zhang^{1,2}, X. Zhang¹ and Y. Wang¹, ¹Peking Univ. and ²Peking Univ. (China)

PS-6-22
High performance and electrical characterization of write-once-read-many-times memory devices base on IGZO thin film with O₂ plasma treatment
P. Liu¹, T.P. Chen¹, Y.H. Zhao¹, Z. Liu¹, X.D. Li¹ and J.I. Wong¹, ¹Nanyang Technological Univ. and ²Guangdong University of Tech. (Singapore)

PS-6-23
Improved Stability of ZnO Thin Film Transistor with Dual Gate Structure under Negative Bias Stress
H.J. Yun¹, Y.S. Kim², Y.M. Kim¹, S.D. Yang¹, H.D. Lee¹ and G.W. Lee¹, ¹National Univ. of Chungnam and ²National Nanofab Center (Korea)

PS-6-24
Effects of Composition on Electrical Properties of Amorphous In-Ga-Zn-O Thin-Film Transistors Deposited Using Atmospheric Pressure Plasma Jet
C.H. Wu¹, K.M. Chang^{2,3}, H.Y. Hsu¹, C.Y. Chen¹, S.J. Wang⁴, I.J. Hsieh¹, M.C. Hsu¹ and C.S. Chang¹, ¹Chung Hua Univ., ²Chiao Tung Univ., ³I-shou Univ. and ⁴Cheng Kung Univ. (Taiwan)

PS-6-25
The channel layer engineering using Al₂O₃ inter-layer in ZnO based TFTs
S.H. Kim, K.S. Jeong, H.J. Yun, S.D. Yang, Y.M. Kim, J.S. Kim, Y.U. Ko, J.U. An, H.D. Lee and G.W. Lee, Chungnam National Univ. (Korea)

PS-6-26
Implementation of Multi-threshold Voltage a-IGZO TFTs with Oxygen Plasma Treatment
X. He¹, L.Y. Wang¹, S.J. Li¹, M.S. Chan² and S.D. Zhang^{1,3}, ¹Peking Univ., ²Hong Kong Univ. of Science and Tech. and ³Shenzhen Graduate School, Peking Univ. (China)

PS-6-27
Solution-Processed Ca-doped InZnO Oxide Semiconductor for Thin Film Transistor Applications
D. Liu^{1,2}, Y. Wang^{1,2}, Y.X. Yu², X. Gong², Y. Tian², Y.R. Wang², Z. Chen², D.D. Han², Y. Wang² and J.F. Kang², ¹Peking University Shenzhen Graduate School and ²Peking Univ. (China)

Area 6: Compound Semiconductor Electron Devices & Related Technologies
 (33 Papers)

PS-6-1
Fully Recessed Schottky Barrier Diodes with a Digital Etching on AlGaIn/GaN Heterostructures
N. Jeon¹, W. Choi¹, H. Ryu¹, H.Y. Cha² and K.S. Seo¹, ¹Seoul National Univ. and ²Hongik Univ. (Korea)

PS-6-2
Analysis of Forward Characteristics in AlGaIn/GaN SBD with Schottky Contact Lying on Mesa Edge
Y.R. Park, S.C. Ko, W.Y. Jang, J.J. Kim, W.J. Jang, S.B. Bae, J.K. Mun and E.S. Nam, Electronics and Telecommunication Research Inst. (Korea)

PS-6-3
Effects of High-Temperature Annealing on Properties of Al₂O₃/InAlN Interface Formed by Atomic Layer Deposition
T. Nakano, M. Chiba and M. Akazawa, Hokkaido Univ. (Japan)

PS-6-4
A Device Performance Study of Stacked Gate Dielectrics AlGaIn/GaN MOS-HEMTs by Mixed Oxide Thin Film Growth Techniques
B.Y. Chou¹, Y.S. Wu¹, E.L. Huang¹, W.F. Chen¹, H.Y. Liu¹, W.C. Hsu¹, C.S. Lee², W.C. Ou¹ and C.S. Ho¹, ¹Univ. of National Cheng Kung and ²Univ. of Feng Chia (Taiwan)

PS-6-5
Suppress Current Collapse Effect by Optimizing 0.12um Gate Structure of AlGaIn/GaN HEMTs on Si-substrate for Microwave Power Applications
D. Kim¹, S. Eom¹, S. Han¹, H. Cha² and K. Seo¹, ¹Seoul National Univ. and ²Hongik Univ. (Korea)

PS-6-6
Improvement of process uniformity in recessed gate AlGaIn/GaN HFET by selective etching of in-situ Si₃N₄ on AlGaIn
H.Y. Ko, J. Park, H. Lee, Y. Jo, M. Song and T. Jang, LG Electronics (Korea)

PS-6-7
Improvement of Hysteresis Behavior in AlGaIn/GaN MIS-HEMTs with SiN_x Using NH₃
H. Ryu¹, W. Choi¹, N. Jeon¹, H.Y. Cha² and K.S. Seo¹, ¹Seoul National Univ. and ²Hongik Univ. (Korea)

PS-6-8
Effect of SF₆ Plasma Treatment on Gate Leakage and Subthreshold Characteristics of AlGaIn/GaN HEMTs
N. Lee, N. Jeon, D. Kim, M. Kim, S. Choi and K.S. Seo, Seoul National Univ. (Korea)

PS-6-9
On-wafer Nonlinear Behavior Modeling Technology for High Power GaN HEMTs Using Load-dependent X-parameters
C.S. Chiu¹, C.W. Chuang¹, B.Y. Chen¹, W.D. Liu¹, G.W. Huang^{1,2}, Y.C. Lin², Y.S. Chiu² and E.Y. Chang², ¹National Nano Device Labs. and ²National Chiao Tung Univ. (Taiwan)

PS-6-10
Investigations on the Dynamic On-Resistance of High Voltage AlGaIn/GaN HFETs
J.H. Shin, S.Y. Jang and T. Jang, LG Electronics (Korea)

PS-6-11
Wet cleaning process for GaN Surface at room temperature
Y. Tsuji^{1,2}, T. Katsuyama¹, A. Teramoto², Y. Shirai², S. Sugawa² and T. Ohmi², ¹Sumitomo Electric Industries, Ltd. and ²Tohoku Univ. (Japan)

PS-6-28 (Late News)

Normally-off AlGaIn/GaN MIS-HFET using stacked NiO/Al₂O₃ Gate Structure Formed by Atomic Layer Deposition

Y. Yamada, A. Suzuki, N. Otsuka and D. Ueda, Panasonic Corp. (Japan)

PS-6-29 (Late News)

AlGaIn/GaN HEMTs on Silicon with Hybrid Source-Drain for Source-Drain Scaling and Frequency Dispersion Suppression

C.W. Tsou, Y.W. Lian, J.C. Hung, Y.S. Lin and S.H. Hsu, National Tsing Hua Univ. (Taiwan)

PS-6-30 (Late News)

Electrical Characteristic of AlGaIn/GaN HEMTs with AlN Spacer Layer

N.M. Shrestha, Y. Li and E.Y. Chang, National Chiao Tung Univ. (Taiwan)

PS-6-31 (Late News)

Improved Breakdown Properties in Short Gate InP-based HEMTs with Novel Tri-Layer Channel Structure

A. El Moutaouakil, H. Sugiyama and H. Matsuzaki, NTT Corp. (Japan)

PS-6-32 (Late News)

Crystal growth of InAs/AlGaSb heterostructures by molecular beam epitaxy and fabrication of InAs HFETs using Ni/Au alloy ohmic metal

K. Moriguchi, T. Maemoto, K. Ogata and S. Sasa, Osaka Institute of Technology (Japan)

PS-6-33 (Late News)

GaSb-on-insulator metal-oxide-semiconductor field-effect transistors on Si fabricated by direct wafer bonding technology

M. Yokoyama¹, H. Yokoyama², M. Takenaka¹ and S. Takagi¹, ¹Univ. of Tokyo and ²NTT Photonics Labs., NTT Corp. (Japan)

Area 7: Photonic Devices and Optoelectronic Integration

(23 Papers)

PS-7-1

Efficiency Improvement of GaN-Based LEDs with Double Nano-pattern

J.K. Huang, D.W. Lin, C.Y. Lee, H.W. Huang, P.T. Lee and H.C. Kuo, National Chiao Tung Univ. (Taiwan)

PS-7-2

Enhanced Performance of GaN-Based Light-Emitting Diodes on Patterned Sapphire Substrate with a Novel Patterned SiO₂/Al₂O₃ Passivation Layer

H. Guo^{1,2}, H.J. Chen¹, X. Zhang², P.Y. Zhang², H.G. Liu¹, B. Sun¹, Q.H. Liao³, S.J. Hu², S.K. Wang¹ and Y.P. Cu², ¹Inst. of Microelectronics, ²Univ. of Southeast and ³Univ. of Nanchang (China)

PS-7-4

Enhancement of Light output Power of Vertical GaN-based Light-emitting Diode Using Novel Thermal Dissipation Design

F.I. Lai¹, Y.Z. Lee² and H.C. Kuo², ¹Yuan-Ze Univ. and ²National Chiao-Tung Univ. (Taiwan)

PS-7-5

Enhancement of light power for blue light-emitting diodes by graded-composition AlGaIn/GaN superlattice electron-blocker layer

B.C. Lin¹, C.C. Lin² and H.C. Kuo¹, ¹National Chiao Tung Univ. and ²National Chiao Tung Univ. (Taiwan)

PS-7-6

Performance Improvement of GaN Metal-Semiconductor-Metal Photodetectors with Sputtered AlN Nucleation Layer

C.C. Hung¹, C.K. Wang¹, Y.Z. Chiou¹, C.H. Yen², T.H. Chiang² and S.J. Chang², ¹Southern Taiwan Univ. of Sci. and Tech. and ²National Cheng Kung Univ. (Taiwan)

PS-7-7

Interrelated Ultraviolet and Long-lived Blue luminescence bands of Oxidized Nanocrystalline Porous Silicon

B. Gelloz¹, R. Mentek² and N. Koshida², ¹Nagoya Univ. and ²Tokyo Univ. Agr.&Tech. (Japan)

PS-7-9

High brightness red light from fluorescence polymer/InGaIn hybrid light-emitting diodes

C.L. Hsieh, Y.L. Chen, C.F. Lai and C.J. Chang, Feng Chia Univ. (Taiwan)

PS-7-10

Luminescent Properties of Ce:Gd₃(Al, Ga, Mg, M)SO₁₂ Crystal (M=Zr, Hf)

S. Kurosawa, K. Kamada, Y. Yokota and A. Yoshikawa, Tohoku Univ. (Japan)

PS-7-11

Study on the Relation Between the Air Duty Cycle and the Light Extraction Efficiency of InGaIn-Based Light-Emitting Diodes by Utilizing Two Dimensional Photonic Crystals

M.L. Lee, C.J. Hsieh, V.C. Su, Y.H. You, P.H. Chen, H.C. Lin, H.B. Yang and C.H. Kuan, National Taiwan Univ. (Taiwan)

PS-7-12

Efficient Energy Transfer from 1,3,5-Tris(N-phenylbenzimidazol-2-yl) Benzene to Mn: CdS Quantum Dots

S. Cao¹, L. Jia², L. Wang¹, F.M. Gao¹, G.D. Wei¹, J.J. Zheng^{1,2} and W.Y. Yang¹, ¹Ningbo University of Technology, School of Materials and ²Ningbo University of Technology, School of Mechanical Eng. (China)

PS-7-13

UV and Visible range Electroluminescence from MOS Devices Fabricated by Spin-Coating of Gd/Dy Organic Compound Films on Silicon

T. Matsuda¹, S. Saito¹, H. Iwata¹ and T. Ohzone², ¹Toyama Prefectural Univ. and ²Dawn Enterprise Co., Ltd. (Japan)

PS-7-14

Nonpolar GaN Two Dimensional Photonic Crystal Nanocavities

T.T. Wu, S.Y. Lo, C.W. Tsao, H.M. Huang, C.Y. Chang, Y.P. Lan, T.C. Lu, H.C. Kuo and S.C. Wang, National Chiao Tung Univ. (Taiwan)

PS-7-15

Fabrication of Silicone Grating Using a Photoimprinted Polymer Mold and Period Control by Mechanical Distortion

T. Ishihara¹, I. Yamada¹, J. Yanagisawa¹, K. Koyama², T. Inoue², J. Nishii³ and M. Saito², ¹Univ. of Shiga Prefecture, ²Ryukoku Univ. and ³Hokkaido Univ. (Japan)

PS-7-16

The Metal Grating Design of Plasmonic Hybrid III-V/Si Evanescent Lasers

M.H. Hsu, C.C. Lin and H.C. Kuo, National Chiao Tung Univ. (Taiwan)

PS-7-17

Double wavelength infrared emission by plasmonic thermal emitter

H.H. Chen, W.L. Hunag and S.C. Lee, National Taiwan Univ. (Taiwan)

PS-7-18

Sensitivity Improvement of Optical Fiber Refractive Index Sensor with Multimode Interference Structure using Localized Surface Plasmon Resonance

H. Daitoh, S. Tawe and H. Fukano, Univ. of Okayama (Japan)

PS-7-19

High-Sensitivity, Short-Length Optical Fiber Refractive-Index Sensor using a Multimode Interference Structure with an End-Face Mirror

T. Hashimoto, S. Tawe and H. Fukano, Univ. of Okayama (Japan)

PS-7-20

Ta₂O₅ optical waveguide on silica substrate fabricated by CF₄ reactive ion etching

G. Li, Y. Zhao, T. Maruyama and K. Iiyama, Univ. of Kanazawa (Japan)

PS-7-21

Transient Characteristics of Electroluminescence from Self-aligned Si-based Quantum Dots

Y. Suzuki¹, K. Makihara¹, M. Ikeda² and S. Miyazaki¹, ¹Nagoya Univ. and ²Hiroshima Univ. (Japan)

PS-7-22

Modes Switching in a Semiconductor Circular Ring Laser Diode due to the Generation of Solitons Wave Guiding

M.C. Shih and Y.C. Sun, National Univ. of Kaohsiung (Taiwan)

PS-7-23

Visible Light Blinded IR Detector by a Si-based MIS Device with Multi-dielectric Layers

M.C. Shih, S.W. Fang and W.H. Lan, National Univ. of Kaohsiung (Taiwan)

PS-7-24 (Late News)

Sensitivity Enhancement of SOI Photodiode with Randomly Arranged Au Nanoparticles

A. Ono^{1,2}, Y. Enomoto³, Y. Matsumura³, H. Satoh^{1,2} and H. Inokawa¹, ¹Research Institute of Electronics, Shizuoka Univ., ²Shizuoka Univ. and ³Nippon Steel & Sumikin Chemical Co. Ltd. (Japan)

PS-7-25 (Late News)

Long-Period Waveguide Grating on Silicon-on-Insulator (SOI) Substrate Realized by Anisotropic Wet Etching

R.W. Chuang^{1,2}, M.T. Hsu¹ and G.S. Wang¹, ¹National Cheng Kung Univ. and ²National Nano Device Labs. (Taiwan)

Area 8: Advanced Material Synthesis and Crystal Growth Technology

(21 Papers)

PS-8-1

Ballistic Electro-Deposition of Thin Si, Ge, and SiGe Films

R. Suda¹, M. Ito¹, M. Yagi¹, A. Kojima¹, R. Mentek¹, N. Mori², J. Shirakashi¹ and N. Koshida¹, ¹Tokyo Univ. of Agri. & Tech. and ²Osaka Univ. (Japan)

PS-8-2

Photon Energy Dependence of Low-Temperature Crystallization of a-Ge and a-Si_{0.5}Ge_{0.5} Films by Soft X-ray Irradiation

F. Kusakabe, Y. Maruyama, A. Heya, N. Matsuo, K. Kanda, S. Miyamoto, S. Amano and T. Mochizuki, Univ. of Hyogo (Japan)

PS-8-3

Large grain growth of poly-GeSn on insulator by pulsed laser annealing in water

M. Kurosawa^{1,2}, N. Taoka¹, H. Ikenoue³, O. Nakatsuka¹ and S. Zaima¹, ¹Nagoya Univ., ²JSPS and ³Kyushu Univ. (Japan)

PS-8-4

UV detection of n-type Ultrananocrystalline Diamond/Hydrogenated Amorphous Carbon Composite Films by Coaxial Arc Plasma Deposition

H. Gima, S. Ai Riyami and T. Yoshitake, Kyushu Univ. (Japan)

PS-8-5
Ultrananocrystalline Diamond/Hydrogenated Amorphous Carbon Composite Films for Metal-Semiconductor-Metal Photodetector

T. Hanada, S. Ohmagari and T. Yoshitake, Kyushu Univ. (Japan)

PS-8-6
Photovoltaic Characteristics of Heterojunction Diode Comprising Boron-Doped Ultrananocrystalline Diamond/Hydrogenated Amorphous Carbon Composite Film and n-Type Silicon

Y. Katamune and Y. Yoshitake, Kyushu Univ. (Japan)

PS-8-7
Optical and electrical properties of MoS₂ and Fe-doped MoS₂

S.Y. Wang¹, C.C. Huang¹, Y.S. Huang² and D.Y. Lin¹, ¹National Changhua Univ. of Edu. and ²National Taiwan Univ. of Sci. and Tech. (Taiwan)

PS-8-8
Crystallinity Control of Sputtered ZnO:Al Transparent Conducting Films by Utilizing Buffer Layers Fabricated via Nitrogen Mediated Crystallization

N. Itagaki^{1,2}, K. Oshikawa¹, I. Suhariadi¹, K. Matsushima¹, D. Yamashita¹, H.W. Seo¹, K. Kamataki¹, G. Uchida¹, K. Koga¹ and M. Shiratani¹, ¹Kyushu Univ. and ²JST-PRESTO (Japan)

PS-8-9
H₂ Plasma Pretreatment of Seed Layer on Synthesis of ZnO Nanorods by microwave hydrothermal method

H.S. Koo, C.C. Lin, Y.J. Chen, C.H. Peng and M. Chen, Ming-Hsin Univ. of Sci. and Tech. (Taiwan)

PS-8-10
Nitridation of Zinc Oxide Film by Pulse Mode Rapid Thermal Annealing

C.W. Lin, P.C. Ho, S.J. Chang and W.W. Chen, Univ. of Tatung (Taiwan)

PS-8-11
Growth of crystalline SrTiO₃ thin film on Si(100) by pulsed laser deposition

A. Imanaka, T. Sasaki, Y. Hotta and S. Sato, 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
Homogeneous Deposition of Gold Nanoparticles on Rough Titanium Oxide Surfaces by Electrochemical Process

Y. Kimura, E.F.F. Mehdi, T. Miya, T. Tobe, R. Kojima and M. Niwano, Tohoku Univ. (Japan)

PS-8-15
Preferential N-H Bond Direction in GaAsN(001) Grown by Chemical Beam Epitaxy

K. Ikeda, K. Demizu, N. Kojima, Y. Ohshita and M. Yamaguchi, Toyota Technological Inst. (Japan)

PS-8-16
Development of phosphor thin films on SiN substrate for electron beam excitation assisted optical microscope

A. Miyake^{1,2}, S. Kanamori¹, W. Inami^{1,2}, H. Kominami¹, Y. Kawata^{1,2} and Y. Nakanishi¹, ¹Shizuoka Univ. and ²CREST, JST (Japan)

PS-8-17
Crystalline and Electrical Properties of Fullerene Doped GaAs pin Diodes

J. Nishinaga and Y. Horikoshi, Waseda Univ. (Japan)

PS-8-18
Heteroepitaxial Growth of InSb Thin Films on a Silicon-on-Insulator Substrate

T. Sakamoto, H. Shimoyama, Y. Yasui, M. Mori and K. Maezawa, Univ. of Toyama (Japan)

PS-8-19
Synthesis of MAX-Phase Containing Ti-Si-C Films by Sputter-Deposition Using Elemental Targets

T. Sonoda, S. Nakao and M. Ikeyama, AIST (Japan)

PS-8-20
Growth and Luminescence Properties of Ce and Ca co-doped LiGdF₄-LiF Eutectic Scintillator

K. Hishinuma¹, K. Kamada^{2,3}, S. Kurosawa^{1,2}, S. Suzuki¹, A. Yamaji¹, Y. Yokota² and A. Yoshikawa^{1,2,3}, ¹Tohoku Univ., ²New Industry Creation Hatchery Center and ³C&A Corp. (Japan)

PS-8-21
Functional possibilities of inorganic-organic hybrid scintillator

K. Kamada^{1,2}, S. Kurosawa², Y. Yokota², T. Yanagida², M. Nikl¹ and A. Yoshikawa^{1,2}, ¹C&A Corp., ²Tohoku Univ., ³Kyushu Inst. of Tech. and ⁴Inst. of Phys. AS CR (Japan)

PS-8-22 (Late News)
Crystal Characteristic of GaN/ZnO Heterostructure Grown by Molecular Beam Epitaxy

C.Y. Chang¹, Y.P. Lan¹, H.M. Huang¹, T.C. Lu¹, L.W. Tu², W.F. Hsieh¹, H.C. Kuo¹ and S.C. Wang¹, ¹National Chiao Tung Univ. and ²National Sun Yat-Sen Univ. (Taiwan)

PS-9-2
Molecular Beam Epitaxy Growth of Low-Density InAs Quantum Dots on InP(311)B Substrate Emitting at Telecommunication Wavelengths

K. Konishi¹, T. Takakuma¹, K. Akahane², I. Suemune³ and J. Ishi-Hayase¹, ¹Keio Univ., ²NICT and ³Hokkaido Univ. (Japan)

PS-9-3
CMOS Temperature Sensor Using a PTAT-voltage biasing Common-source Amplifier with a Source-degeneration Polycrystalline Silicon Resistor

R.L. Wang¹, C.C. Fu¹, C. Yu¹, Y.F. Hao¹, J.L. Shi¹, C.F. Lin², H.H. Liao², H.H. Tsai² and Y.Z. Juang², ¹National Kaohsiung Normal Univ. and ²National Chip Implementation Center, National Applied Research Lab. (Taiwan)

PS-9-4
Power Gain Characteristic of Single-Electron Transistors (SETs)

D.M. Luong and K. Honjo, Univ. of Electro-Communications (Japan)

PS-9-5
Novel Tri-State Latch Using Single-Peak Negative Differential Resistance (NDR)

S. Shin¹, I.M. Kang² and K.R. Kim¹, ¹Ulsan National Inst. of Sci. and Tech. and ²Kyungpook National Univ. (Korea)

PS-9-6
Novel Oxygen sensor Using Oxygen Intercalation of Layered Semiconductor CuFeTe₂

M. Kozaki, N. Nagashima, Y. Ikawa, H. Kuriyaki and K. Toko, Kyushu Univ. (Japan)

PS-9-7
High Performance and Stability Fully Transparent Aluminum-doped Zinc Oxide Thin-Film Transistors

D. Shan^{1,2}, D. Han¹, F. Huang^{1,2}, Y. Tian¹, S. Zhang^{1,2}, L. Qi^{1,2}, Y. Cong¹, S. Zhang^{1,2}, X. Zhang¹ and Y. Wang¹, ¹Peking Univ. and ²Peking Univ. (China)

PS-9-8
Size Effects on Phase Formation and Electrical Robustness of Nickel Silicide Nanowires

I.H. Chen¹, Y.Y. Hsiao², C.C. Wang², C.L. Hsin³ and P.W. Li⁴, ¹National Central Univ., ²National Central Univ., ³National Central Univ., ⁴National Central Univ. and ⁵National Central Univ. (Taiwan)

PS-9-9
Double Sided Fabrication Process of Bi₂Sr₂CaCu₂O_{8+x} THz Oscillator Stack On-chip Coupled to THz Detector by Dilute Acid Solution

T. Nishikata¹, T. Kato¹, Y. Kotaki¹, H. Suematsu¹, K. Yasui¹ and A. Kawakami², ¹Nagaoka Univ. of Tech. and ²Kobe Advanced ICT Res. Center, National Inst. of Info. and Communications Tech. (Japan)

PS-9-10
Pn-Diode-Structured p-CuOx/SiOx/n-SiC/n-Si Resistive Nonvolatile Memory

A. Yamashita, Y. Sato, T. Tsukamoto and Y. Suda, Tokyo Univ. of Agric. and Tech. (Japan)

PS-9-11
Uniformity Improvement of Resistance State by Using Novel Electrical Operation for the Flexible AlN Unipolar Resistive RAM (RRAM)

C.L. Lin¹, C.M. Wu¹, Y.H. Yang¹, C.H. Soh¹, W.Y. Chang¹, Y.L. Huang¹ and P.C. Juan², ¹Feng Chia Univ. and ²Mingchi Univ. of Tech. (Taiwan)

PS-9-12
Photoresponse Enhancement of Plasmonic Terahertz Wave Detector Based on Asymmetric Silicon MOSFETs with Antenna Integration

M.W. Ryu¹, J.S. Lee¹, K. Park¹, W.K. Park², S.T. Han² and K.R. Kim¹, ¹Ulsan National Inst. of Sci. and Tech. and ²Korea Electrotech. Res. Inst. (Korea)

PS-9-13
Filament Analysis Utilizing Tiny Resistive Random Access Memory with Removable Bottom Electrode

S.G. Koh¹, K. Kinoshita^{1,2}, Y. Sawai¹ and S. Kishida^{1,2}, ¹Tottori Univ. and ²Tottori Univ. Electronic Display Research Center (Japan)

PS-9-14
The Influence of Water on Memory Characteristics of NiO-ReRAM

R. Ogata¹, K. Kinoshita^{1,2}, M. Yoshihara¹, N. Murayama¹ and S. Kishida^{1,2}, ¹Tottori Univ. and ²Tottori Univ. Electronic Display Research Center (Japan)

PS-9-15
Enhancement of Resistive Switching in Cu/HfO₂/Pt Structures by Providing Water

S. Hasegawa¹, K. Kinoshita^{1,2} and S. Kishida^{1,2}, ¹Tottori Univ. and ²Tottori Univ. Electronic Display Research Center (Japan)

PS-9-16
Flexible Dual-layer Channel Gallium-doped ZnO Thin-film Transistors Fabricated on Plastic Substrates at Room Temperature

F. Huang^{1,2}, D. Han¹, D. Shan^{1,2}, S. Zhang^{1,2}, Y. Tian¹, Y. Cong¹, J. Cai^{1,2}, L. Wang^{1,2}, S. Zhang^{1,2}, X. Zhang¹ and Y. Wang¹, ¹Peking Univ. and ²Peking Univ. (China)

PS-9-17
Integration of epitaxial PZT thin film infrared detector array with JFET compatible CMOS process

K. Oishi¹, D. Akai² and M. Ishida^{1,2}, ¹Toyouhashi Univ. of Tech. and ²Electronics-Inspired Interdisciplinary Res. Inst. (EIRIS) (Japan)

PS-9-18 (Late News)
Effects of Performance Improvement on InGaZnO Thin Film using by Micro-wave Irradiation for both ReRAM and TFT Applications

Y.H. Hwang¹, H.M. An² and W.J. Cho¹, ¹Kwangwoon Univ. and ²Osan College (Korea)

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

(19 Papers)

PS-9-1
Ballistic Transport of Massless Dirac Fermions in Graphene

Y. Sata¹, S. Masubuchi¹, M. Onuki¹, T. Yamaguchi¹, K. Watanabe², T. Taniguchi² and T. Machida^{1,3}, ¹Univ. of Tokyo, ²NIMS and ³PRESTO-JST (Japan)

PS-9-19 (Late News)

Single-Electron Counting Statistics with a Finite Frequency Bandwidth
N. Watase, M. Hashisaka and T. Fujisawa, Tokyo Inst. Tech. (Japan)

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

PS-10-1

The Numerical Model Fitting and Transient Luminescence Analysis for Understanding Degradation Mechanism in Phosphorescent Blue Organic Light Emitting Diodes (OLEDs)
T. Hirai, K. Weber, J. O'Connell, M. Bown and K. Ueno, CSIRO (Australia)

PS-10-2

Electrostatic discharge robustness on organic ring oscillator.
K. Kuribara¹, W.L. Liu², J.J. Liou², T. Yokota¹, T. Sekitani¹, J. Chung³, Y.H. Jeong⁴, Z. Wang², C.L. Lin³ and T. Someya^{1,5}, ¹Department of School of Engineering, Univ. of Tokyo, ²the Department of Electrical Engineering and Computer Science, Univ. of Central Florida, ³the National Center for Nanomaterials Technology, Inha Univ., ⁴the National Center for Nanomaterials Technology, Pohang Univ. of Sci. and Tech., ⁵Department of Electronic Engineering, Feng Chia Univ. and ⁶Exploratory Research for Advanced Technology (ERATO), Japan Science and Technology Agency (JST) (Japan)

PS-10-3

Thermal Stability of Short Channel, High-Mobility Organic Thin-Film Transistors having Bottom-Contact Configuration
M. Kitamura^{1,2} and Y. Arakawa², ¹Kobe Univ. and ²Univ. of Tokyo (Japan)

PS-10-4

Device performance of top-gate organic transistors with embedded electrodes: Effects of thin and planar C₆-BTBT layer on FET characteristics
Y. Kimura¹, T. Nagase^{1,2}, T. Kobayashi^{1,2}, K. Takimiya³, M. Ikeda⁴ and H. Naito^{1,2}, ¹Univ. of Osaka Prefecture, ²The Res. Inst. for Molecular Electronic Devices (RIMED), Osaka Prefecture University, ³Univ. of Hiroshima and ⁴Nippon Kayaku Co., Ltd. (Japan)

PS-10-5

Preparation of a Hole-Transport Layer Tethered to ITO Surface via a Self-Assembled Monolayer Having Reactive Terminal Group
Y. Hagiwara¹, S.H. Kim¹, K. Tanaka¹, R.C. Advincula² and H. Usui¹, ¹Tokyo Univ. Agric. & Technol. and ²Case Western Univ. (Japan)

PS-10-6

Anti-Stiction Technique Using Elastomer Contact Structure in Woven Electronic Textiles
T. Yamashita, S. Takamatsu, K. Miyake and T. Itoh, National Inst. of Advanced Indus. Sci. and Tech. (Japan)

PS-10-7

Organic resistive memories composed of Au nanoparticle/polystyrene with embedded nanoparticle on the electrode
A. Fukushima^{1,2} and K. Fujita^{1,2}, ¹Kyushu Univ. and ²IMCE, Kyushu Univ. (Japan)

PS-10-8

Surface Modification of Self-Assembled Monolayers for Organic Transistors
S. Ito^{1,2}, S.W. Lee^{1,2}, T. Yokota^{1,2}, T. Tokuhara^{1,2}, H. Klauk³, U. Zschieschang³, T. Sekitani^{1,2} and T. Someya^{1,2}, ¹Univ. of Tokyo, ²JST ERATO and ³Max Planck Inst. for Solid State Research (Japan)

PS-10-9

Heteroacene-based organic single crystal transistors under high pressure
K. Sakai¹, Y. Okada¹, S. Kitaoka¹, J. Tsurumi¹, Y. Ohishi¹, A. Fujiwara², H. Sato⁴, A. Yamano⁴, M. Yamagishi¹, C. Mitsui¹, T. Okamoto¹, K. Takimiya³ and J. Takeya¹, ¹Univ. Tokyo, ²Osaka Univ., ³JASRI, ⁴Rigaku and ⁵RIKEN (Japan)

PS-10-10

Effects of Poly(3-hexylthiophene) Concentration on Performance of Extended-Gate Field-Effect Transistor for Silver Ion Detection
E.L. Huang¹, W.F. Chen¹, W.C. Hsu², J.C. Chou¹, C.S. Ho¹, E.P. Yao¹, H.W. Liu and Y.C. Kao, ¹National Cheng Kung Univ. and ²National Yunlin Univ. of Sci. and Tech. (Taiwan)

PS-10-11 (Late News)

Characterization of Light-Extraction Efficiency for WOLEDs with Light-Out-Coupling Layer
M. Harada¹, H. Wakana², S. Ishihara¹, S. Nobuki¹, H. Sakuma¹, M. Kawasaki¹ and S. Aratani¹, ¹Hitachi Research Lab., Hitachi, Ltd. and ²Central Research Lab., Hitachi, Ltd. (Japan)

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

PS-11-1

Fabrication of an Integrated Square Wave Voltammetry (SWV)-Redox Sensor
B. Lim¹, M. Futagawa¹, S. Takahashi¹, F. Dasai^{1,3}, M. Ishida^{1,4} and K. Sawada^{1,3,4}, ¹Toyohashi Univ. of Tech., ²Head Office for "Tailor-Made and Baton-Zone" Graduate Course, Toyohashi Univ. of Tech., ³Core Res. for Evolutional Sci. and Tech., Japan Sci. and Tech. Agency and ⁴Electronics-Inspired Interdisciplinary Res. Inst. (EIIRES), Toyohashi Univ. of Tech. (Japan)

PS-11-2

A Label-Free and Rapid Molecular Biosensor Based on the Combination of the Extended Gate field Effect Transistor and AC Electrokinetics
E.L. Huang¹, I.F. Cheng², W.C. Hsu¹ and T.Y. Chen², ¹National Cheng Kung Univ. and ²National Nano Device Lab. (Taiwan)

PS-11-3

Direct observation of the enzymatically-released pyrophosphates using phenylboronic acid group-immobilized gold electrode by FET
H. Nishida¹, K. Takahashi², Y. Tabuse³, A. Matsumoto⁴, Y. Miyahara⁴, H. Kambara¹ and T. Sakata³, ¹Hitachi, Ltd., ²Waseda Univ., ³Univ. of Tokyo and ⁴Tokyo Med. Dent. Univ. (Japan)

PS-11-4

Device-level Simulation of the Light-addressable Potentiometric Sensor for High-speed and High-resolution Chemical Imaging
Y. Guo¹, K. Miyamoto¹, T. Wagner², M.J. Schöning² and T. Yoshinobu¹, ¹Tohoku Univ. and ²Aechn Univ. of Applied Sciences (Japan)

PS-11-5

Low Temperature Ta₂O₅/X-doped Al₂O₃/SiO₂/Si for pH Sensing Membrane by Spray Pyrolysis Doped System
Y.T. Lin¹, C.M. Yang², T.J. Wang³, W.C. Sun³, M.Y. Shih¹, C.A. Kao¹ and C.S. Lai¹, ¹Univ. of Chang Gung, ²Univ. of Chang Gung and ³Indus. (Taiwan)

PS-11-6

An Enzymatic Amperometric Glucose Sensor on CMOS Chip using Carbon Ink Electrode and Chromatography Paper.
M. Miki, S. Iwahara and S. Uno, Ritsumeikan Univ. (Japan)

PS-11-7

Electrochemical Impedance Spectroscopy of Aqueous Solution in Chromatography Paper and Its Application to Immunochromatography
S. Iwahara, M. Miki and S. Uno, Univ. of Ritsumeikan (Japan)

PS-11-8

An Implantable Wireless Medical System with a High-Gain On-chip Antenna Using Sapphire Substrate
K. Okabe¹, I. Akita¹ and M. Ishida^{1,2}, ¹Toyohashi Univ. of Tech. and ²Electronics-Inspired Interdisciplinary Res. Inst. (EIIRES) (Japan)

PS-11-9

A Thermocouple Device Fabricated on Trench Sidewall for Measuring Accurate Temperature of Microfluid
T. Yamaguchi, S. Kumagai and M. Sasaki, Toyota Technological Institute (Japan)

PS-11-10

Ultralow Power Operation of 3-D Stacked Retinal Prosthesis Chip with Edge Enhancement Function
H. Naganuma¹, T. Tani¹, H. Kino¹, K. Kiyoyama² and T. Tanaka¹, ¹Tohoku Univ. and ²Nagasaki Inst. of Applied Sci. (Japan)

PS-11-11

Moving Single Cells Into Low Shear Stress PEG-Based C-Shape Microwells By OET Force
L.Y. Ke, Y.S. Chen, C.C. Hu and C.H. Liu, Univ. of Tsing Hua (Taiwan)

Area 12: Spintronics Materials and Devices
(16 Papers)

PS-12-1

Resident electrons spin formation and spin dephasing in a single CdTe quantum well
L.P. Yan¹, W.T. Hsu² and S. Adachi¹, ¹Hokkaido Univ. and ²National Chiao Tung Univ. (Japan)

PS-12-2

Correlation between the intensities of differential conductance curves and the spin accumulation signals in Si for CoFe/MgO/SOI devices
M. Ishikawa¹, H. Sugiyama¹, T. Inokuchi¹, T. Tanamoto¹, K. Hamaya², N. Tezuka³ and Y. Saito¹, ¹Corporate Research & Development Center, Toshiba Corp., ²Kyushu Univ. and ³Tohoku Univ. (Japan)

PS-12-3

Fabrication of Half-metallic Co₂MnSi/diamond Schottky Junctions
K. Ueda, M. Nishiwaki, T. Soumiya, K. Kawamoto and H. Asano, Nagoya Univ. (Japan)

PS-12-4

Preparation and Characterization of Ordered Double Perovskite SrLaVMoO₆ Thin Films
T. Shinno, K. Sanbou, T. Miyawaki, K. Ueda and H. Asano, Nagoya Univ. (Japan)

PS-12-5

Design of a Three-Terminal MTJ-Based Nonvolatile Logic Element with a 2-ns 64-Bit-Parallel Reconfiguration Capability
D. Suzuki, M. Natsui, A. Mochizuki and T. Hanyu, Tohoku Univ. (Japan)

PS-12-6

Theoretical study on Topological Insulator based Spintronic Tristable Multivibrator
G. Gupta, A. Nurbawono, M. Zeng, M.B.A. Jalil and G. Liang, National Univ. of Singapore (Singapore)

PS-12-7

Epitaxial Growth of Ferromagnetic Semiconductor Ga_{1-x}Mn_xAs Film on Ge(001) Substrate
Y. Sato^{1,2}, A. Spiesser¹, H. Saito¹, S. Yuasa¹, K. Ando¹ and N. Miura², ¹National Inst. of Adv. Indus. Sci. and Tech. and ²Meiji Univ. (Japan)

PS-12-9

Structural and transport properties in epitaxial Fe₂CrSi/MgAl₂O₃/Fe₂CrSi structures
K. Inagaki, N. Fukutani, H. Tanaka, T. Miyawaki, K. Ueda and H. Asano, Nagoya Univ. (Japan)

- PS-12-10**
Lateral spin-valve devices with two different epitaxial Heusler-alloy electrodes
S. Oki¹, K. Yamasaki¹, K. Tanikawa¹, S. Yamada¹, M. Miyao^{1,2} and K. Hamaya¹, ¹Kyushu Univ. and ²CREST-JST (Japan)
- PS-12-11**
Properties of perpendicular-anisotropy magnetic tunnel junctions prepared by different MTJ etching process
S. Miura¹, H. Honjo¹, K. Tokutome¹, N. Kasai², S. Ikeda^{2,3}, T. Endoh^{2,3,4} and H. Ohno^{2,3}, ¹NEC Corp., ²CSIS Tohoku Univ., ³Tohoku Univ. and ⁴Tohoku Univ. (Japan)
- PS-12-12**
Magnetic moment in Diluted Magnetic Semiconductor GaGdAs measured by Magnetic Circular Dichroism
N. Funaki¹, Y. Uda¹, S. Matsumoto¹, H. Miyagawa¹, S. Koshiba¹, N. Takahashi², M. Misuzaki³, N. Kawamura³ and M. Suzuki³, ¹Univ. of Kagawa, ²Univ. of Kagawa and ³Japan Synchrotron Research Inst. (Japan)
- PS-12-13**
Epitaxial growth and properties of n-type magnetic semiconductor (In,Co)As
T.T. Nguyen, D.A. Le, N.H. Pham and M. Tanaka, Univ. of Tokyo (Japan)
- PS-12-14**
A Design of Optical Isolator Utilizing Surface Plasmons in Co / Al₂O₃ / AlGaAs Waveguides for Integration into Photonic Integrated Circuits
T. Kaihara¹, H. Shimizu¹, V. Zayets², H. Saito², K. Ando² and S. Yuasa², ¹Tokyo Univ. Agri. & Tech. and ²National Inst. Advanced Indus. Sci. and Tech. (Japan)
- PS-12-15**
Oxidized titanium nitride thin films in situ grown by pulsed laser deposition for diluted magnetic semiconductor
S.C. Chen², K.H. Wu², J.Y. Juang², T. Kobayashi² and H.C. Kuo¹, ¹Chiao-Tung Univ. and ²Chiao-Tung Univ. (Taiwan)
- PS-12-16**
Zinc defect enhanced saturation magnetization in Mn-doped ZnO thin films
S.S. Li^{1,2}, Y.K. Su^{1,2,3}, H.H. Tang^{1,2} and Y.M. Hu¹, ¹Inst. of Electro-Optical Sci. and Eng., National Cheng Kung Univ., ²Advanced Optoelectronic Tech. Center, National Cheng Kung Univ., ³Inst. of Microelectronics, National Cheng Kung Univ. and ⁴Department of Applied Physics, National Univ. of Kaohsiung (Taiwan)
- PS-12-17**
Structural and Magnetic Properties of Ternary Transition-metal Chalcogenide CrFeTe Grown by MBE
K. Yamawaki, N. Sekita, K. Kanazawa and S. Kuroda, Graduate School Pure & Applied of Sciences, Univ. of Tsukuba (Japan)
- Area 13: Applications of Nanotubes, Nanowires, and Graphene**
 (21 Papers)
- PS-13-1**
Comparative Study of Schottky Barrier Germanium Nanowire Transistors Modulated with Dopant-Segregated Regions
Y.B. Zhang, L. Sun, H. Xu, Y.Q. Xia, Y. Wang and S.D. Zhang, Peking Univ. (China)
- PS-13-2**
A Gold Nanoparticle/Polyaniline Nanofiber Sensor for Detecting H₂S Impurity in Hydrogen Fuel
C.J. Liu and K. Hayashi, Kyushu Univ. (Japan)
- PS-13-3**
Monte Carlo Simulation of Phonon Transport in Silicon Nanowires Including Realistic Dispersion Relation
K. Kukita¹, I.N. Adisusilo¹ and Y. Kamakura^{1,2}, ¹Osaka Univ. and ²JST CREST (Japan)
- PS-13-4**
Flexible Thermoelectric Textiles Made from Shape-controlled Bi₂Te₃ Nanowires
Y. Nonoguchi, K. Ashiba and T. Kawai, Nara Inst. Sci. Tech. (Japan)
- PS-13-5**
InP Nanowires on Graphene-Covered Micron Fe Wires
K. Tateno, G. Zhang and H. Gotoh, NTT Basic research Labs. (Japan)
- PS-13-6**
Fabrication and Structural Characterization of Vertical Free-Standing InAs Nanowires Hybridized with Ferromagnetic MnAs Nanoclusters
H. Fujimigari, S. Sakita and S. Hara, Hokkaido Univ. (Japan)
- PS-13-7**
Performance Projections of III-V Channel Nanowire nMOSFETs in the Ballistic Transport Limit
K. Shimoida¹, H. Tsuchiya^{1,2}, Y. Kamakura^{2,3}, N. Mori^{2,3} and M. Ogawa¹, ¹Univ. of Kobe, ²JST CREST and ³Univ. of Osaka (Japan)
- PS-13-8**
Aluminum Doped Core-shell type ZnO/ZnS Nanowires: Structural and Photoluminescence Studies
S. Dhara¹, K. Imakita¹, P.K. Giri^{1,2}, M. Mizuhata³ and M. Fujii¹, ¹Kobe Univ., ²Indian Institute of Technology Guwahati and ³Kobe Univ. (Japan)
- PS-13-9**
Local Transport Study of Quantum Dots Formed in SWNT Network FET by Scanning Gate Microscopy
M. Matsunaga¹, X. Wei¹, T. Yahagi¹, K. Maeda¹, J.P. Bird², K. Ishibashi², Y. Ochiai¹ and N. Aoki¹, ¹Chiba univ., ²Univ. at Buffalo and ³RIKEN (Japan)
- PS-13-10**
Chemically-Doped n-type Carbon Nanotube Thin-Film Transistors: Doping Concentration Dependence and Influence of Ambient Air
T. Yasunishi, S. Kishimoto and Y. Ohno, Univ. of Nagoya (Japan)
- PS-13-11**
Strain Effect on Electronic Properties Tuning of Bilayer WS₂
Z. Xin^{1,2}, L. Zeng¹, K. Wei¹, G. Du¹, J. Kang¹ and X. Liu¹, ¹Peking Univ. and ²Peking Univ. (China)
- PS-13-12**
Epitaxial CVD graphene growth on Cu/mica for gate stack research
J.L. Qi^{1,2}, K. Nagashio¹, W. Liu¹, T. Nishimura¹ and A. Toriumi¹, ¹The Univ. of Tokyo and ²Harbin Institute of Technology (Japan)
- PS-13-13**
Theoretical Investigation of Electrical Properties of MoS₂ FETs with Strained Channel Layer
N. Harada, S. Sato and N. Yokoyama, National Inst. of Advanced Indus. Sci. and Tech. (Japan)
- PS-13-14**
Nonequilibrium Green Function Simulations of Graphene-Nanoribbon Resonant-Tunneling Transistors
N. Mori^{1,2}, T. Edagawa¹, Y. Kamakura^{1,2} and L. Eaves³, ¹Osaka Univ., ²CREST, JST and ³Univ. of Nottingham (Japan)
- PS-13-15**
Epitaxial Growth and Electronic Properties of Large Hexagonal Graphene Domains on Cu(111) Thin Film
H. Ago¹, K. Kawahara¹, Y. Ogawa¹, S. Tanoue¹, M.A. Bissett¹, M. Tsuji¹, H. Sakaguchi¹, R.J. Koch², F. Fromm², T. Seyller², K. Komatsu³ and K. Tsukagoshi³, ¹Kyushu Univ., ²Technische Universität Chemnitz and ³National Inst. for Materials Sci. (Japan)
- PS-13-16**
Energy Harvesting Capability of PVDF/rGO Composite
H. Ning, L. Wu, A. Li and N. Hu, Chiba Univ. (Japan)
- PS-13-17**
Room Ambient condition graphene based THz detection
A. Mahjoub¹, S. Suzuki¹, Y. Iso¹, T. Ouchi¹, N. Aoki¹, K. Miyamoto¹, T. Yamaguchi², T. Omatsu¹, J.P. Bird³, D.K. Ferry⁴, K. Ishibashi² and Y. Ochiai¹, ¹Chiba Univ., ²Advance Device Labs (RIKEN), ³Univ. at Buffalo and ⁴Arizona State Univ. (Japan)
- PS-13-18**
Fabrication and Radio Frequency Characterization of Graphene Interconnect
K. Heo¹, S.Y. Lee², K.S. Cho³, S.S. Kim¹, Y.H. Lee² and S.W. Hwang³, ¹Korea Univ., ²Sungkyunkwan Univ. and ³Samsung Advanced Inst. Tech. (Korea)
- PS-13-19**
Ab Initio Calculations of Polycyclic Aromatic Hydrocarbons Adsorbed on Graphite Edge for Molecular-Scale Surface Coatings of Lithium-Ion Battery Anodes
T. Kawai, ¹NEC Corp. and ²Univ. of Tsukuba (Japan)
- PS-13-20**
Metal-Insulating transition in disordered graphene nanoribbons controlled by helium ion irradiation
Z. Moktadir¹, S. Hang¹, K. Higashimine², M. Manoharan², H. Mizuta^{1,2} and J. Reynolds¹, ¹Faculty of applied Physical Sciences, Electronics and Computer Science, Univ. of Southampton, U. K. and ²School of Materials Sci., JAIST (UK)
- PS-13-21 (Late News)**
Fabrication of graphene devices using resist-free process
M. Nakamura, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto, ISIR, Osaka Univ. (Japan)
- Area 14: Power Devices and Materials**
 (16 Papers)
- PS-14-1**
Investigation of Via Degradation Behavior under Thermal Cycling Stress on Power Device
M. Zhang¹, Y. Yoshihisa¹, K. Furiya², Y. Imai¹, K. Hatasako¹ and S. Maegawa¹, ¹Renesas Electronics Corp. and ²Renesas Semiconductor Engineering Corp. (Japan)
- PS-14-2**
Hot carrier effect of a scaled thin-film SOI power MOSFET under constant drain electric field
T. Takasugi and S. Matsumoto, Kyushu Inst. of Tech. (Japan)
- PS-14-3**
Floating Field Plate HV-MOSFET by 28nm High-k Metal Gate Process
J.M. Wang, P.C. Peng, T.L. Lee, Y.C. King and C.J. Lin, National Tsing Hua Univ. (Taiwan)
- PS-14-4**
An Explicit Compact Model for High-Voltage LDMOS
H. Zhou¹, X. Zhou¹ and F. Benistant², ¹Nanyang Technological Univ. and ²GLOBALFOUNDRIES Singapore Pte. Ltd. (Singapore)

PS-14-5

Role of Carrier Response Delay on Switching Performance of Injection-Enhanced IGBT

T. Yamamoto¹, M. Miyake², H. Kato¹, U. Feldmann², H.J. Mattausch² and M. Miura-Mattausch²,
¹DENSO Corp. and ²Hiroshima Univ. (Japan)

PS-14-6

Fabrication and Characterization of Imm Size Diamond SBD

H. Umezawa¹, S. Shikata¹ and T. Funaki², ¹AIST and ²Osaka Univ. (Japan)

PS-14-7

Leakage Current Analysis of Diamond SBDs Operated at High Temperature

H. Umezawa and S. Shikata, AIST (Japan)

PS-14-8

High-temperature characteristics of diamond Schottky diodes using various Schottky metals

K. Kawamoto, K. Ueda, M. Nishiwaki and H. Asano, Nagoya Univ. (Japan)

PS-14-9

Schottky Barrier Height Modulation of the Metal/4H-SiC Contact by Ultra-Thin Dielectric Insertion Technique

B.Y. Tsui¹, J.C. Cheng¹, L.S. Lee², C.Y. Lee² and M.J. Tsai², ¹National Chiao Tung Univ. and ²Industrial Technology Research Institute (Taiwan)

PS-14-10

Suppressing Al Memory-Effect on CVD growth of 4H-SiC Epilayers by adding Hydrogen Chloride Gas

S. Ji¹, K. Kojima¹, Y. Ishida¹, S. Saito¹, S. Yoshida¹, H. Tsuchida² and H. Okumura¹, ¹AIST and ²Central Res. Inst. of Electric Power Industry (Japan)

PS-14-11

As and Al Activation in SiC Wafer by Atmospheric Thermal Plasma Jet Annealing

H. Hanafusa, R. Ashihara, K. Maruyama, S. Koyanagi, S. Hayashi, H. Murakami and S. Higashi, Hiroshima Univ. (Japan)

PS-14-12

The XPS Study on Depth Profile of N Atom in Oxynitride Film Formed on 4H-SiC by Radical Nitridation

H. Okada¹, A. Takashima², T. Muro³ and H. Nohira¹, ¹Tokyo City Univ. and ²Japan Synchrotron Radiation Res. Inst. (Japan)

PS-14-13

Evaluating the cryogenic performance of SiC PiN diodes

P.M. Gammon¹, C.A. Fisher¹, V.A. Shah¹, M.R. Jennings¹, A. Pérez-Tomás², S.E. Burrows¹, M. Myronov¹, D.R. Leadley¹ and P.A. Mawby¹, ¹Univ. of Warwick and ²IMB-CNM-CSIC (UK)

PS-14-14 (Late News)

4H-SiC Screw Dislocations and Their Electronic Structures

T. Yamasaki^{1,5}, H. Koyama^{1,5}, J. Nara^{1,5}, J. Koga², T. Uda^{2,5}, A. Kuroda³, K. Minami³ and T. Ohno^{1,4,5}, ¹National Institute for Materials Science, ²ASMS, Co. Ltd., ³RIKEN AICS, ⁴IIS, Univ. of Tokyo and ⁵MARCEED (Japan)

PS-14-15 (Late News)

Heavy Ribbon Wire Bonding for Advanced Power Module Packages

S.M. Park, S. Nagao, T. Sugahara and K. Suganuma, Osaka Univ. (Japan)

PS-14-16 (Late News)

Cell Pitch Design Limitation for Electrical and Thermal Characteristics in Super Junction MOSFET

J.M. Geum¹, S.S. Kyoung¹, E.S. Jung², Y.T. Kim³ and M.Y. Sung¹, ¹Korea Univ., ²Maple Semiconductor Inc. and ³Korea Inst. of Sci. & Tech.(KIST) (Korea)

Area 15: Photovoltaic Materials and Devices

(20 Papers)

PS-15-1

Activation of Silicon Implanted with Dopant Atoms by Microwave Heating

T. Sameshima¹, T. Nakamura¹, S. Yoshidomi¹, M. Hasumi¹, T. Ishii¹, Y. Inouchi¹, M. Naito² and T. Mizuno³, ¹Tokyo Univ. of Agr. and Tech., ²Nissin Ion Equipment Co., Ltd. and ³Kanagawa Univ. (Japan)

PS-15-2

Influence of Post-Deposition Annealing on the Passivation Quality of Room Temperature Atomic Layer Deposited Aluminum Oxide

H. Lee^{1,4}, T. Nagata³, N. Ikeno¹, K. Arafune^{2,4}, H. Yoshida^{2,4}, S. Satoh^{2,4}, T. Chikyow³ and A. Ogura^{1,4}, ¹Meiji Univ., ²Univ. of Hyogo, ³National Inst. of Materials Sci. and ⁴JST-CREST (Japan)

PS-15-3

Worldwide Performance Estimation of Silicon-based Photovoltaic Modules Using Meteorological Data

A. Kamei, S. Yoshida, N. Kataoka, S. Ueno and T. Minemoto, Ritsumeikan Univ. (Japan)

PS-15-4

Theoretical Analysis of Optimum Bandgap Profile of Cu(In,Ga)Se₂ Solar Cells with Optical and Defect Properties

M. Murata¹, J. Chantana², D. Hironiwa², K. Aoyagi², N. Kataoka¹ and T. Minemoto¹, ¹Ritsumeikan Univ. and ²Ritsumeikan Global Innovation Res. Organization (Japan)

PS-15-5

Crystallographic and Optical Properties of Cu₂ZnSn_{1-x}Ge_xSe₂ Solid Solution

M. Morihama, F. Gao, T. Maeda and T. Wada, Ryukoku Univ. (Japan)

PS-15-6

Effect of Surface Morphology on the Density of Energy States in GaAsN Grown by Chemical Beam Epitaxy

B. Bouzai, N. Kojima, Y. Ohshita and M. Yamaguchi, Toyota Tech. Inst. (Japan)

PS-15-7

Improved characteristics of P3HT:PCBM photodetectors with indium-tin-oxide electrodes modified by self-assembled monolayers

Y. Sato¹, H. Kajii¹, T. Morimune² and Y. Ohmori¹, ¹Osaka Univ. and ²Kagawa National College of Tech. (Japan)

PS-15-8

Structural and Electrical Properties of Fluorinated Copper Phthalocyanine for Organic Photovoltaics

Y. Kuzumoto^{1,2}, H. Matsuyama¹ and M. Kitamura^{1,3}, ¹Kobe Univ., ²SHARP Corp. and ³The Univ. of Tokyo (Japan)

PS-15-9

Study of Electron Extraction Layers in Inverted Organic Photovoltaic Cells Using Small Molecules

K. Yamamoto¹, Y. Zhou¹, T. Kuwabara¹, K. Takahashi¹ and T. Taima^{1,2}, ¹Kanazawa Univ. and ²JST-PRESTO (Japan)

PS-15-10

Impedance analysis of the multilayered organic solar cells with and without hole buffer layer

E. Itoh and S. Nakagoshi, Shinshu Univ. (Japan)

PS-15-11

Organic Solar Cells Using Fullerene Introducing Polymer as Cathode Buffer Layer

Y. Kimoto¹, T. Akiyama² and K. Fujita¹, ¹Kyushu Univ. and ²The Univ. of Shiga Prefecture (Japan)

PS-15-12

Efficiency Improvement of Polymeric Bulk-Heterojunction Solar Cells Using PEDOT:PSS Buffer Layers Doped with Alcohol Derivatives

D.Y. Kim, M.J. Han, K.D. Seong, J.H. Kim and S. Seo, Gachon Univ. (Korea)

PS-15-13

Quantum Processes of Exciton Dissociation at Organic Semiconductor Interfaces

K. Sato and T. Nakayama, Chiba Univ. (Japan)

PS-15-14

Effects of Boron-doped Photoanode on Dye-sensitized Solar Cell Using Mixed Phase of Nanoparticles TiO₂

C.Y. Ho, A. Subramanian, J.K. Lin, C. Yang and H.W. Wang, Chung Yuan Christian Univ. (Taiwan)

PS-15-15

Enhanced Efficiency of Dye Sensitized Solar Cells Using Thin Lanthanum Oxide Barrier Layers

S.K. Liu¹, Y.H. Tsai¹, C.H. Chen², Y.W. Wang¹ and G.Y. Wang¹, ¹National Kaohsiung Univ. of Applied Sciences and ²Cheng Shiu Univ. (Taiwan)

PS-15-16

Fabrication and Characterization of BaSi₂ Epitaxial Films over 1.5 μm on Si(111)

R. Takabe¹, K. Nakamura¹, M. Baba¹, W. Du¹, M.A. Khan¹, K. Toko¹, M. Sasase², K. Hara³, N. Usami^{2,4} and T. Suemasu^{1,4}, ¹Univ. of Tsukuba, ²The Wakasa Wan Energy Research Center, ³Nagoya Univ. and ⁴JST-CREST (Japan)

PS-15-17

Direct Formation of Polycrystalline BaSi₂ Films on Glass Substrate by RF Sputtering

N.A.A. Latiff¹, T. Yoneyama¹, T. Shibutani², K. Matsumaru³, K. Toko¹ and T. Suemasu^{1,3}, ¹Univ. of Tsukuba, ²Tosoh Corp. and ³JST-CREST (Japan)

PS-15-18

Conversion Efficiency Enhancement of InGaN/GaN MQW Solar Cells with Inserting Grading InGaN Barrier Layer

C.C. Hsieh¹, F.I. Lai¹, H.W. Wang², H.C. Kuo³ and S.H. Lin², ¹Yuan-Ze Univ. and ²National Chiao-Tung Univ. (Taiwan)

PS-15-19

Enhanced Light Harvesting of Nitride-Based Nano-Pillars Covered with ZnO Using Indium-Tin-Oxide Nano-Whiskers

L.H. Hsu¹, C.C. Lin¹, H.Y. Lee², P.C. Yu¹, J.K. Huang¹ and H.C. Kuo¹, ¹National Chiao-Tung Univ. and ²National Cheng-Kung Univ. (Taiwan)

PS-15-20 (Late News)

Organometal halide/mesoporous TiO₂ heterojunction for self-powered visible-light photodetection

Y. Zhang¹, X. Dai¹, X. Deng², J. Li^{1,2} and H. Lin¹, ¹Tsinghua Univ. and ²Hainan Univ. (China)

Thursday, September 26

1F NAVIS-A	1F NAVIS-B	1F NAVIS-C	1F ARGOS-F	1F NIRE	1F KAEDE	1F KUSU
<p>A-4: Flash Memory (2) (15:25-16:45) Chairs: Y. Sasago (Hitachi) Y.C. Chen (Macronix)</p>	<p>B-4: Oxidation and Interface Characterization (15:25-16:25) Chairs: H. Nohira (Tokyo City Univ.) K. Kita (Univ. of Tokyo)</p>	<p>C-4: Graphene Properties (15:25-16:40) Chairs: T. Kawai (NEC) K. Maehashi (Osaka Univ.)</p>	<p>D-4: Reliability (1) (15:25-16:45) Chairs: Y. Nishida (Renesas Electronics) N. Mori (Osaka Univ.)</p>	<p>E-4: Quantum Circuits and Computing (15:25-16:40) Chairs: T. Machida (Univ. of Tokyo) T. Nakaoka (Sophia Univ.)</p>		<p>G-4: CMOS-MEMS Sensors & Biomedical Applications (15:25-16:40) Chairs: Y. Mita (Univ. of Tokyo) H. Suzuki (Hiroshima Univ.)</p>
<p>15:25 A-4-1 A Novel High-Density Embedded AND-type Spilt Gate Flash Memory <i>W.C. Shen¹, H.W. Pan¹, Z.S. Yang¹, Y.D. Chih², T.L. Lee¹, C.W. Lien¹, Y.C. King¹ and C.J. Lin¹, ¹National Tsing Hua Univ. and ²Taiwan Semiconductor Manufacturing Company (Taiwan)</i></p>	<p>15:25 B-4-1 Detection of oxidation-induced compressive stress in Si(100) substrate near the SiO₂/Si interface with atomic-scale resolution <i>T. Suwa¹, K. Nagata², H. Nohira³, K. Nakajima⁴, A. Teramoto¹, A. Ogura², K. Kimura¹, T. Muro⁵, T. Kinoshita², S. Sugawa¹, T. Hattori¹ and T. Ohmi¹, ¹Tohoku Univ., ²Meiji Univ., ³Tokyo City Univ., ⁴Kyoto Univ. and ⁵JASRI (Japan)</i></p>	<p>15:25 C-4-1 Performance Comparison of Graphene Nanoribbon, Si Nanowire and InAs Nanowire FETs in the Ballistic Transport Limit <i>N. Hasegawa¹, K. Shimoda¹, H. Tsuchiya^{1,2}, Y. Kamakura^{2,3}, N. Mori^{2,3} and M. Ogawa¹, ¹Univ. of Kobe, ²JST CREST and ³Univ. of Osaka (Japan)</i></p>	<p>15:25 D-4-1 Extraction of Time Constants Ratio over Nine Orders of Magnitude for Understanding Random Telegraph Noise in MOSFETs <i>T. Obara, A. Yonezawa, A. Teramoto, R. Kuroda, S. Sugawa and T. Ohmi, Tohoku Univ. (Japan)</i></p>	<p>15:25 E-4-1 Sub-k_BT Bit-Energy Operation of Superconducting Logic Devices using Adiabatic Quantum Flux Parametron <i>N. Yoshikawa, N. Takeuchi, K. Inoue and Y. Yamanashi, Yokohama National Univ. (Japan)</i></p>		<p>15:25 G-4-1 (Invited) Smart Infrared Detector <i>M. Denoual¹, Eng. ENSICAEN and ²Inst. CNRS (France)</i></p>
<p>15:45 A-4-2 A Logic CMOS Process Compatible Two-Bit MTP SONOS Nonvolatile Memory <i>C.T. Tsai¹, H.T. Wang¹, C.H. Chou¹, Y.H. Ho¹, S.S. Chung², W. Chang², S.D. Wang² and C.H. Chen², ¹National Chiao Tung University and ²UMC (Taiwan)</i></p>	<p>15:45 B-4-2 Layer-by-Layer GeO₂ Formation in the Self-Limited Oxidation Regime of Ge <i>C.H. Lee^{1,2}, T. Nishimura^{1,2}, T. Tabata^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹Univ. of Tokyo and ²JST-CREST (Japan)</i></p>	<p>15:40 C-4-2 First-Principles Simulations Applied to Graphene Nanoribbon Transistors <i>M. Ohfuchi, Fujitsu Labs. (Japan)</i></p>	<p>15:45 D-4-2 Understandings on Surface Orientation Impacts on Random Telegraph Signal Noise Related Carriers Trapping Time Constants and Current Fluctuations <i>J. Chen, I. Hirano and Y. Mitani, Toshiba Corp. (Japan)</i></p>	<p>15:40 E-4-2 Sub-Milliwatt, 30-GHz Microprocessor Based on Low-Voltage Rapid Single-Flux-Quantum Circuit Technology <i>M. Tanaka, Y. Hayakawa, K. Takata and A. Fujimaki, Nagoya Univ. (Japan)</i></p>		<p>15:55 G-4-2 Novel Sensor Circuits Design Using Multiphysics Simulation for CMOS-MEMS Technology <i>T. Konishi¹, D. Yamane², T. Matsushima¹, S. Maruyama¹, K. Kagaya², H. Ito², N. Ishihara², H. Toshiyoshi¹, K. Machida^{1,2} and K. Masu², ¹NTT Advanced Tech. Corp., ²Tokyo Tech. and ³Univ. of Tokyo (Japan)</i></p>
<p>16:05 A-4-3 Experimental Study of 3D Fin-Channel Charge Trapping Flash Memories with TiN Metal and Poly-Si Gates <i>Y.X. Liu, T. Matsukawa, K. Endo, S. O'uchi, J. Tsukada, H. Yamauchi, Y. Ishikawa, W. Mizubayashi, Y. Morita, S. Migita, H. Ota and M. Masahara, AIST (Japan)</i></p>	<p>16:05 B-4-3 Modified Deal-Grove model for the thermal oxidation of Ge and Al₂O₃ capped Ge <i>S.K. Wang¹, X.L. Wang¹, L. Han^{1,2}, W. Zhao¹, B. Sun¹, W.W. Wang¹, C. Zhao¹ and H.G. Liu¹, ¹Inst. of Microelectronics, Chinese Academy of Sciences and ²Southeast University (China)</i></p>	<p>15:55 C-4-3 Ultra-low Damage Fabrication of Graphene Nanoribbons by Neutral Beam Etching <i>T. Okada¹, C.Y. Su², C.H. Huang², K. Igarashi¹, A. Wada¹, L.J. Li³, K.I. Ho², P.W. Li², I.H. Chen¹, C.S. Lai² and S. Samukawa^{1,5}, ¹Tohoku Univ., ²Chang Gung Univ., ³Academia Sinica, ⁴National Central Univ. and ⁵WPI-AIMR, Tohoku Univ. (Japan)</i></p>	<p>16:05 D-4-3 Analyzing the Reliability of High-k Dielectric Metal Gate MOSFETs by Using Random Telegraph Signal <i>D.C. Huang¹, J. Gong² and C.F. Huang¹, ¹National Tsing Hua Univ. and ²Tunghai Univ. (Taiwan)</i></p>	<p>15:55 E-4-3 Peak Position Control of Coulomb Oscillations in Silicon Single-Electron Transistors with Floating Gate Operating at Room Temperature <i>Y. Tanahashi^{1,2}, R. Suzuki¹, T. Saraya¹ and T. Hiramoto¹, ¹Univ. of Tokyo and ²Chuo Univ. (Japan)</i></p>		<p>16:10 G-4-3 Amperometric Electrochemical Sensor Array for On-Chip Simultaneous Imaging <i>T. Kuno, K. Niitsu and K. Nakazato, Univ. of Nagoya (Japan)</i></p>
<p>16:25 A-4-4 Investigation of Random Grain-Boundary Induced Variability for Stackable NAND Flash Using 3D Voronoi Grain Patterns <i>C.W. Yang and P. Su, National Chiao Tung Univ. (Taiwan)</i></p>		<p>16:10 C-4-4 Experimental Study on SET/RESET Conditions for Graphene ReRAM <i>A. Shindome^{1,2}, T. Takahashi², S. Oda¹ and K. Uchida^{1,2}, ¹Tokyo Inst. Tech. and ²Keio Univ. (Japan)</i></p>	<p>16:25 D-4-4 A method to determine the lateral trap position in ultra-scaled MOSFETs <i>Y.Y. Illarionov^{1,2}, S.E. Tyaginov^{1,2}, M. Bina¹ and T. Grasser¹, ¹Inst. for Microelectronics, TU Vienna and ²Ioffe Physical-Technical Inst. (Austria)</i></p>	<p>16:10 E-4-4 (Invited) Semiconductor Isotope Engineering of Silicon and Diamond for Quantum Computation and Sensing <i>K.M. Itoh¹, J. Ishi-Hayase¹, H. Watanabe² and S. Shikata², ¹Keio Univ. and ²AIST (Japan)</i></p>		<p>16:25 G-4-4 A CMOS Image Sensor Having Stacked Photodiodes for Lensless Observation System of Digital Enzyme-linked Immunosorbent Assay (ELISA) <i>H. Takehara¹, K. Miyazawa¹, T. Noda^{1,3}, K. Sasagawa^{1,3}, T. Tokuda^{1,3}, S.H. Kim^{2,3}, R. Iino^{2,3}, H. Noji^{2,3} and J. Ohta^{1,3}, ¹Nara Inst. of Sci. and Tech., ²Univ. of Tokyo and ³JST-CREST (Japan)</i></p>
<p>16:25 C-4-5 Wideband high frequency response graphene-FET on flexible substrate <i>C.H. Yeh, Y.W. Lian, C.H. Liao, S. Hsu and P.W. Chiu, National Tsing Hua Univ. (Taiwan)</i></p>						

Coffee Break

Thursday, September 26

1F KASHI	3F VEGA	3F RIGEL	3F BOARDROOM	3F CHAPEL	3F RAN
	<p>J-4: Wide Gap Power Devices (1) (15:25-16:40) Chairs: H.-Y. Cha (Hongik Univ.) N. Hara (Fujitsu Lab.)</p>	<p>K-4: Microcavities and Their Applications (15:25-16:40) Chairs: S. Iwamoto (Univ. of Tokyo) Y. Ishikawa (Univ. of Tokyo)</p>	<p>M-4: Spins in Semiconductors (15:25-16:40) Chairs: R. Jansen (AIST) Y. Saito (Toshiba)</p>	<p>N-4: Organic Photovoltaics (15:25-16:40) Chairs: M. Ikegami (Toin Univ. of Yokohama) S. Tokito (Yamagata Univ.)</p>	<p>P-4: Nitrides : from Growth to Applications (15:25-16:40) Chairs: T. Iwai (Fujitsu Lab.) T. Kawae (Kanazawa Univ.)</p>
	<p>15:25 J-4-1 (Invited) Progress in SiC and GaN High Voltage Power Devices <i>T.P. Chow, Rensselaer Poly. Inst. (USA)</i></p>	<p>15:25 K-4-1 (Invited) A qubit-photon controlled-NOT gate using a quantum dot strongly coupled to a cavity <i>H. Kim¹, R. Bose¹, G.S. Solomon² and E. Waks¹,¹Univ. of Maryland and ²Joint Quantum Insitute, NIST (USA)</i></p>	<p>15:25 M-4-1 (Invited) A graphene solution to conductivity mismatch: spin injection from ferromagnetic metal/graphene tunnel contacts into silicon <i>O.M.J. van 't Erve, C.H. Li, A. Friedman, E. Cobas, J. Robinson, A.T. Hanbicki and B.T. Jonker, Naval Research Lab. (USA)</i></p>	<p>15:25 N-4-1 (Invited) Hybrid Perovskite Solar Cells <i>M.M. Lee, J. Teuscher, T. Miyasaka, T.N. Murakami and H.J. Snaith, Univ. of Oxford (UK)</i></p>	<p>15:25 P-4-1 (Invited) InN/InGaN Quantum Dots: A Surprise for Highly Sensitive and Fast Potentiometric Biosensors <i>N.H. Alvi and R. Nötzel, Univ. Politécnica de Madrid (Spain)</i></p>
	<p>15:55 J-4-2 Effects of p-GaN Capping Layer on the Current Collapse Behaviors in Normally-off p-GaN Gate AlGaIn/GaN HFETs <i>M.K. Eo¹, H.S. Choi¹, S.Y. Jang², W.S. Kim², J.H. Shin², T.H. Jang² and H.I. Kwon¹, ¹Univ. of Chung-Ang and ²System IC R&D Lab., LG Electronics (Korea)</i></p>	<p>15:55 K-4-2 Introduction of Tensile-Strained Dilute Nitride Quantum Wells For Its Application to Dielectric-Rod Type Photonic Crystals <i>F. Ishikawa^{1,2}, H. Goto² and M. Morifuji², ¹Ehime Univ. and ²Osaka Univ. (Japan)</i></p>	<p>15:55 M-4-2 Mapping of photoexcited local spins in a modulation-doped GaAs/AlGaAs wires <i>J. Ishihara¹, Y. Ohno² and H. Ohno^{1,3}, ¹RIEC, Tohoku Univ., ²Univ. of Tsukuba and ³WPI-AIMR, Tohoku Univ. (Japan)</i></p>	<p>15:55 N-4-2 Solar Cell and Transistor Applications of Naphthodithiophene-Based Polymers <i>V.T. Tran^{1,2}, T.T. Dao^{1,3}, V. Vohra¹ and H. Murata¹, ¹JAIST, ²Ho Chi Minh City Univ. of Tech. and ³Univ. of Transport and Communications (Japan)</i></p>	<p>15:55 P-4-2 Lasing Action in a Micro Optical Cavity with Wurtzite/ Zinc-Blende GaN Crystal Phase Nano Hetero-Structures <i>T. Kouno¹, M. Sakat², K. Kishino³ and K. Hara¹, ¹Shizuoka Univ., ²Univ. of Yamanashi and ³Sophia Univ. (Japan)</i></p>
	<p>16:10 J-4-3 Effect of multiple carbon-doped/undoped GaN buffer layer on current collapse in AlGaIn/GaN HEMTs <i>H.S. Kang¹, C.H. Won¹, D.S. Kim¹, S.M. Jeon¹, Y.J. Kim¹, Y.M. Kwon¹, S. Vodapally¹, J.H. Kim¹, J.H. Lee², Y.S. Lee³ and J.H. Lee¹, ¹Kyungpook National Univ. and ²Samsung Electronics Corp. Ltd. (Korea)</i></p>	<p>16:10 K-4-3 Long Photon Lifetime from Microdisk Cavity Laser with Type II GaSb/GaAs Quantum Dots <i>K.S. Hsu^{1,2}, P.P. Chen^{1,2}, C.C. Chang^{1,2}, W.H. Lin¹, C.T. Lin², S.Y. Lin^{1,2} and M.H. Shih^{1,2}, ¹Res. Center for Applied Sciences and ²Univ. of Chiao Tung (Taiwan)</i></p>	<p>16:10 M-4-3 Thermal Spin Injection and Accumulation in CoFe/MgO/n-type Ge Contacts <i>K.R. Jeon^{1,2}, B.C. Min³, S.Y. Park⁴, K.D. Lee², H.S. Song², Y.H. Park³, Y.H. Jo¹, S.C. Shin^{2,5}, H. Saito¹, S. Yuasa¹ and R. Jansen¹, ¹AIST, ²KAIST, ³KIST, ⁴KBSI and ⁵DGIST (Japan)</i></p>	<p>16:10 N-4-3 Evaluation of Carrier Collection Efficiency of Ordered Bulk-hetero Junction Solar Cells with a Liquid Crystalline Organic Semiconductor <i>K. Nakano, T. Usui, Y. Takayashiki, H. Iino and J. Hanna, Tokyo Tech (Japan)</i></p>	<p>16:10 P-4-3 Study on AlGaIn/GaN growth on carbonized Si substrate <i>T. Sakamoto^{1,2}, S. Wakabayashi^{1,2}, T. Takahashi², T. Ide², M. Shimizu² and Y. Takanashi¹, ¹Tokyo Univ. of Sci. and ²AIST (Japan)</i></p>
	<p>16:25 J-4-4 Improved Current Collapse Phenomenon in AlGaIn/GaN-on-Si HFETs Using Sacrificial GaO_x Process <i>J.G. Lee¹, S.W. Han¹, B.R. Park¹, K.S. Seo², H. Kim¹ and H.Y. Cha¹, ¹Hongik Univ. and ²Seoul National Univ. (Korea)</i></p>	<p>16:25 K-4-4 GaAs/AIAs Coupled Multilayer Cavity by Wafer-Bonding for Two-Color Emission Devices <i>C. Harayama¹, S. Katoh¹, Y. Nakagawa^{1,2}, K. Morita¹, T. Kitada¹ and T. Isu¹, ¹Univ. of Tokushima and ²NICHIA Corp. (Japan)</i></p>	<p>16:25 M-4-4 Effects of interface electric field on the magnetoresistance in spin transistors <i>T. Tanamoto, M. Ishikawa, T. Inokuchi, H. Sugiyama and Y. Saito, Toshiba Corp. (Japan)</i></p>	<p>16:25 N-4-4 Interfacial carrier relaxation in the organic solar cell with inverted structure: the influence of conductivity degradation <i>X. Chen, D. Taguchi, T. Manaka and M. Iwamoto, Tokyo Tech (Japan)</i></p>	<p>16:25 P-4-4 Performance Improvement of GaN-based MSM Photodiodes Grown on Si(111) Substrate by Thermal Cycle Annealing Process <i>J.H. Lin¹, S.J. Huang¹, Y.K. Su² and C.H. Lai¹, ¹National Cheng Kung Univ and ²Kun-Shan Univ (Taiwan)</i></p>

Coffee Break

1F NAVIS-A	1F NAVIS-B	1F NAVIS-C	1F ARGOS-F	1F NIRE	1F KAEDE	1F KUSU
<p>A-5: Ferroelectric Memory and Others (17:05-18:05) Chairs: H. Saito (Fujitsu Semicon.) S. Shuto (Toshiba)</p>	<p>B-5: Ge Science (17:05-18:05) Chairs: T. Nakayama (Chiba Univ.) O. Nakatsuka (Nagoya Univ.)</p>	<p>C-5: Carbon Interconnects (17:05-18:20) Chairs: S. Akita (Osaka Pref. Univ.) M. van der Veen (IMEC)</p>	<p>D-5: Reliability (2) (17:05-18:05) Chairs: K. Sukegawa (Fujitsu Semicon.) D. Hisamoto (Hitachi)</p>	<p>E-5: Quantum Transport in Nanostructures (17:05-18:20) Chairs: T. Nakaoka (Sophia Univ.) A. Kanda (Univ. of Tsukuba)</p>		
<p>17:05 A-5-1 Optimum Crystal Orientation in Rhombohedral PZT Films for FeRAM Application H. Funakubo¹, Y. Ehara¹, T. Oikawa¹, T. Yamada^{2,3} and S. Utsugi¹, ¹Tokyo Inst. Tech., ²Nagoya Univ. and ³JST (Japan)</p>	<p>17:05 B-5-1 Thermodynamic consideration and experimental demonstration for solving the problems of GeO₂ solubility in H₂O and GeO desorption from GeO₂/Ge C. Lu^{1,2}, C.H. Lee^{1,2}, W.F. Zhang^{1,2}, T. Nishimura^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹Univ. of Tokyo and ²JST-CREST (Japan)</p>	<p>17:05 C-5-1 (Invited) Carbon Nano-materials as VLSI Interconnects J. Robertson, H. Sugime, S. Esconjauregui, G. Zhong, C. Zhang, R. Xie and B. Chen, Cambridge Univ. (UK)</p>	<p>17:05 D-5-1 Experimental proof of direct correlation between hydrogen migrated to SiO₂/Si interface and MOSFET characteristics using high energy ¹⁵N²⁺ ion beam M. Suzuki¹, R. Takaishi¹, Y. Higashi¹, M. Tomita¹, Y. Mitani¹, M. Matsumoto² and K. Fukutani², ¹Toshiba Corp. and ²Univ. of Tokyo (Japan)</p>	<p>17:05 E-5-1 (Invited) Resistively Detected NMR Study of Correlated Electrons in a GaAs Quantum Well: Fractional Quantum Hall States and More K. Muraki, ¹NTT Basic Res. Labs, NTT Corporation and ²ERATO Nuclear Spin Electronics Project, JST (Japan)</p>		
<p>17:25 A-5-2 Organic ferroelectric gate FET memory using high-mobility rubrene thin film T. Kanashima¹, Y. Katsura¹ and M. Okuyama², ¹Osaka Univ. and ²Osaka Univ. (Japan)</p>	<p>17:25 B-5-2 Charge neutrality level shift in the Bardeen limit of Fermi-level pinning at atomically flat Ge/metal interface T. Nishimura^{1,2}, T. Nakamura¹, T. Yajima^{1,2}, K. Nagashio^{1,2} and A. Toriumi^{1,2}, ¹The Univ. of Tokyo and ²JST-CREST (Japan)</p>	<p>17:35 C-5-2 Intercalated Multi-layer Graphene Wire and Metal/Multi-layer Graphene Hybrid Wire Obtained by Annealing Sputtered Amorphous Carbon M. Sato¹, M. Takahashi¹, H. Nakano¹, Y. Takakuwa², M. Nihei¹, S. Sato¹ and N. Yokoyama¹, ¹AIST and ²Tohoku Univ. (Japan)</p>	<p>17:25 D-5-2 A New Atomic Defect Model for Positive-Bias Temperature Instability in the High-k Gate n-MOSFET C.J. Gu and D.S. Ang, Nanyang Tech. Univ. (Singapore)</p>	<p>17:35 E-5-2 Pseudo-symmetric bias and correct estimation of Coulomb/confinement energy for an unintentional quantum dot in MOSFET channel K. Ono¹, T. Tanamoto² and T. Ohguro², ¹Riken, and ²Corporate R&D center, Toshiba Corp. (Japan)</p>		
<p>17:45 A-5-3 A New 28nm HKMG CMOS Logic OTP Cell W.Y. Hsiao¹, C.Y. Mei¹, W.C. Shen¹, Y.D. Chih², Y.C. King² and C.J. Lin¹, ¹National Tsing-Hua Univ. and ²Taiwan Semiconductor Manufacturing Company (Taiwan)</p>	<p>17:45 B-5-3 Interaction of Sn atoms with Defects Introduced by Ion Implantation in Ge Substrate T. Arahira, M. Fukudome, N. Taoka, W. Takeuchi, M. Sakashita, O. Nakatsuka and S. Zaima, Nagoya Univ. (Japan)</p>	<p>17:50 C-5-3 Width Dependent Transport in Multilayer Graphene Interconnects: Exploring Ways to Reduce Resistance H. Miyazaki¹, M. Katagiri¹, Y. Yamazaki¹, M. Suzuki¹, N. Sakuma¹, R. Kosugi², K. Imazeki², K. Ueno², A. Kajita¹ and T. Sakai¹, ¹Low-power Electronics Association and Project and ²Shibaura Inst. of Tech. (Japan)</p>	<p>17:45 D-5-3 Recovery and universality in NBTI from the viewpoint of traps Y. Yonamoto, Hitachi, Ltd., Yokohama Research Laboratory (Japan)</p>	<p>17:50 E-5-3 Landau Level Crossing and Anti-crossing of Bilayer Two-dimensional Hole Gas in Ge/SiGe Quantum Well R. Moriya¹, Y. Hoshi^{2,3}, K. Sawano², Y. Shiraki², N. Usami³, S. Masubuchi^{1,4} and T. Machida^{1,4}, ¹IIS Univ. of Tokyo, ²ARL Tokyo City Univ., ³Nagoya Univ. and ⁴INQIE Univ. of Tokyo (Japan)</p>		
		<p>18:05 C-5-4 Multi-layer graphene interconnects grown by CVD for future LSI D. Kondo¹, H. Nakano¹, B. Zhou¹, I. Kubota¹, K. Hayashi¹, J. Yamaguchi¹, T. Ohkochi², M. Kotsugi², S. Sato¹ and N. Yokoyama¹, ¹AIST and ²Spring-8 (Japan)</p>		<p>18:05 E-5-4 Dopant-Atom-based SOI-Transistors by Selective Nanoscale Doping A. Samanta¹, D. Moraru¹, Y. Kuzuya¹, K. Tyszkla^{1,2}, L.T. Anh³, T. Mizuno¹, R. Jablonski¹, H. Mizuta^{3,4} and M. Tabe¹, ¹Shizuoka Univ., ²Warsaw Univ. of Tech., ³Japan Advanced Inst. of Sci. and Tech. and ⁴Univ. of Southampton (Japan)</p>		

1F KASHI	3F VEGA	3F RIGEL	3F BOARDROOM	3F CHAPEL	3F RAN
<p>H-5: Wireless Circuits (1) (17:05-18:05) Chairs: H. Morimura (NTT Labs.) K. Okada (Tokyo Tech)</p>	<p>J-5: Wide Gap Power Devices (2) (17:05-18:35) Chairs: H. Tsuchida (CRIEPI) R. Hattori (Mitsubishi Electric)</p>	<p>K-5: Photonic Crystal and Plasmonics (17:05-18:20) Chairs: T. Isu (Univ. of Tokushima) S. Iwamoto (Univ. of Tokyo)</p>	<p>M-5: Spin Tunneling Materials (17:05-18:20) Chairs: Y. Saito (Toshiba) R. Jansen (AIST)</p>	<p>N-5: Compound Semiconductor Photovoltaics (17:05-18:20) Chairs: N. Kojima (Toyota Tech. Inst.) K. Nishioka (Univ. of Miyazaki)</p>	<p>P-5: Nano-scale Growth for Optical Applications (17:05-18:20) Chairs: T. Suemasu (Univ. of Tsukuba) T. Iwai (Fujitsu Lab.)</p>
<p>17:05 H-5-1 A Sub-threshold Region Operating Ultra-low Power 2.4GHz VCO and Frequency Divider <i>Y. Miyahara, K. Ishikawa and T. Kuroda, Univ. of Keio (Japan)</i></p>	<p>17:05 J-5-1 (Invited) Performance Characteristics and Applications for Second Generation SiC Power MOSFETs <i>J.W. Palmour, B. Hull, D. Gajewski, L. Cheng, J. Liu and S.T. Allen, Cree, Inc. (USA)</i></p>	<p>17:05 K-5-1 Tunable Bandwidth of Flexible Far-Infrared Filter using Metamaterial based Split-Ring Resonators <i>H. Jung and H. Lee, Soongsil Univ. (Korea)</i></p>	<p>17:05 M-5-1 Efficient spin injection in GaAs-based spin-LEDs through crystalline aluminum oxide layers <i>N. Nishizawa and H. Munekata, Tokyo Inst. Of Tech. (Japan)</i></p>	<p>17:05 N-5-1 (Invited) Overview of CZTS-Based Thin Film Solar Cells <i>H. Katagiri^{1,2}, T. Washio^{1,2} and K. Jimbo¹, ¹Nagaoka National College of Tech. and ²JST-CREST (Japan)</i></p>	<p>17:05 P-5-1 (Invited) Quantum Dots Sensitized ZnO Nanowires-array Photoelectrodes for Water Splitting <i>R.S. Liu, National Taiwan Univ. (Taiwan)</i></p>
<p>17:25 H-5-2 A Low Power Low Phase Noise PLL Quadrature Frequency Synthesizer with Optional Fast Lock-in Mode for 2.4GHz Applications <i>X.D. Liu, W.Y. Liu, P. Feng, L.Y. Liu and N.J. Wu, Institute of Semiconductors, Chinese Academy of Sciences (China)</i></p>	<p>17:35 J-5-2 Electrical Characteristics of 21-kV SiC BJTs with Space-Modulated Junction Termination Extension <i>T. Okuda, H. Miyake, T. Kimoto and J. Suda, Kyoto Univ. (Japan)</i></p>	<p>17:20 K-5-2 Observation of enhanced exciton decay rate of single InAs quantum dots in nanoscale metal-semiconductor-metal plasmonic structures <i>T. Yamamoto¹, Y. Ota¹, E. Harbord¹, S. Ishida², N. Kumagai¹, S. Iwamoto^{1,3} and Y. Arakawa^{1,3}, ¹Inst. Nano Quantum Info.Electronics, Univ. Tokyo, ²Res. Center for Advanced Sci. and Tech., Univ. Tokyo and ³Inst. Indus. Sci., Univ. Tokyo (Japan)</i></p>	<p>17:20 M-5-2 Marked difference in structural stability between Co₂FeSi/Si(111) and Co₂FeAl/Si(111) heterointerfaces in post-growth annealing conditions <i>S. Yamada¹, K. Tanikawa¹, S. Oki¹, M. Kawano¹, M. Miyao^{1,2} and K. Hamaya¹, ¹Kyushu Univ. and ²CREST-JST (Japan)</i></p>	<p>17:35 N-5-2 Investigation of Selenization Temperature on High Efficient CZTSe-Based Solar Cells by Sputter Technique <i>S.Y. Kuo¹, D.H. Hsieh², J.F. Yang^{1,3}, F.I. Lai³ and H.C. Kuo², ¹Chang Gung Univ., ²National Chiao-Tung Univ. and ³Yuan Ze Univ. (Taiwan)</i></p>	<p>17:35 P-5-2 Growth of InGaAs single-junction solar cell on GaAs/Ge/Si heterostructure using graded-temperature arsenic technique <i>H.W. Yu¹, Y. Yamamoto², B. Tillack^{2,3}, H.Q. Nguyen¹ and E.Y. Chang¹, ¹National Chiao Tung Univ., ²Innovations for high performance microelectronics and ³Technische Univ. Berlin (Taiwan)</i></p>
<p>17:45 H-5-3 Crossing Transmission Line Modeling Using Two-port Measurements <i>K.K. Tokgoz, L. Kimsrun, S. Kawai, K. Okada and A. Matsuzawa, Tokyo Inst. of Tech. (Japan)</i></p>	<p>17:50 J-5-3 OCVD Characteristics of 4H-SiC PiN Diode with Carbon Implantation <i>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)</i></p>	<p>17:35 K-5-3 Four-Wave Mixing in a GaAs/AlAs Triple-Coupled Multilayer Cavity for Novel Ultrafast Wavelength Conversion Devices <i>T. Kitada¹, Y. Yasunaga¹, Y. Nakagawa^{1,2}, K. Morita¹ and T. Isu¹, ¹Univ. of Tokushima and ²NICHIA Corp. (Japan)</i></p>	<p>17:35 M-5-3 Co/Pt Multilayer Based Reference Layer in Magnetic Tunnel Junctions for Nonvolatile Spintronics VLSIs <i>H. Sato¹, S. Ikeda^{1,2}, S. Fukami¹, S. Ishikawa¹, M. Yamanouchi^{1,2}, K. Mizunuma², F. Matsukura^{1,2,3} and H. Ohno^{2,3}, ¹Center for Spintronics Integrated Systems, Tohoku Univ., ²Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku Univ. and ³WPI Advanced Institute for Materials Research (WPI-AIMR), Tohoku Univ. (Japan)</i></p>	<p>17:50 N-5-3 Cu₂ZnSn(S,Se)_n-Type Thin Film Solar Cells Using Printing and High-Pressure Sintering Process <i>F. Gao, T. Maeda and T. Wada, Ryukoku Univ. (Japan)</i></p>	<p>17:50 P-5-3 Room Temperature Electroluminescence from InAs/GaAs Quantum Dots Grown on Ge/Si Substrate by Metal Organic Chemical Vapor Deposition <i>R. Mohan¹, K. Tanabe¹, S. Kako¹, K. Kawaguchi², M. Nishioka¹ and Y. Arakawa¹, ¹Univ. of Tokyo and ²Fujitsu Labs. Ltd. (Japan)</i></p>
	<p>18:05 J-5-4 Neutron Induced Single-Event Burnout in SiC Power Diode <i>T. Shoji^{1,3}, S. Nishida², K. Hamada² and H. Tadano³, ¹Toyota Central R&D Labs., Inc., ²Toyota Motor Corp. and ³Univ. of Tsukuba (Japan)</i></p>	<p>17:50 K-5-4 Air-Band Optical Cavity in Si Photonic Crystal Waveguides for Biosensing Applications <i>K. Hirai¹, T. Araki¹, J. Cai¹, K. Wada¹, Y. Ishikawa¹, K. Hayashi², T. Horiuchi², Y. Iwasaki², Y. Ueno² and E. Tamechika³, ¹Univ. of Tokyo, ²Labs. of NTT MI and ³Corp. of NTT AT (Japan)</i></p>	<p>17:50 M-5-4 Fabrication of Magnetic Tunnel Junctions with Amorphous CoFeSiB Free Layer for Highly Sensitive Magnetic Sensor Devices <i>K. Fujiwara¹, D. Kato¹, M. Oogane¹, T. Nishikawa², H. Naganuma¹ and Y. Ando¹, ¹Tohoku Univ. and ²KONICA MINOLTA (Japan)</i></p>	<p>18:05 N-5-4 Gold-Free Fully Cu-Metallized InGaP/InGaAs/Ge Multi-Junction Solar Cell <i>C.H. Hsu, H.J. Chang, H.W. Yu, H.Q. Nguyen and E.Y. Chang, National Chiao-Tung Univ. (Taiwan)</i></p>	<p>18:05 P-5-4L (Late News) Direct Synthesis of Graphene films via Alcohol CVD for Transparent Electrode <i>M. Mizoguchi, C. Sakai, A. Nakamura and J. Tammyo, Shizuoka Univ. (Japan)</i></p>
	<p>18:20 J-5-5L (Late News) Evaluation of Fully Implanted Lightly Doped Drain (LDD) GaN-MISFET for Low Voltage and High Frequency Application <i>I. Kume, A. Tanabe, H. Takeda, S. Saito, N. Furutake and T. Hase, Renesas Electronics Corp. (Japan)</i></p>	<p>18:05 K-5-5 Design of a three-dimensional photonic crystal nanocavity based on a <110>-layered diamond structure <i>T. Tajiri¹, S. Takahashi², A. Tandaechanuraf², S. Iwamoto^{1,2} and Y. Arakawa^{1,2}, ¹Institute of Industrial Science and ²Institute of Nano Quantum Information Electronics (Japan)</i></p>	<p>18:05 M-5-5 Anti-ferromagnetic Exchange Coupling in L10-MnGa/Co Bilayer Films <i>R. Ranjbar^{1,2}, S. Mizukami¹, A. Sugihara¹, Q.L. Ma¹, S. Iihama², Y. Ando² and T. Miyazaki¹, ¹WPI Advanced Inst., Univ. of Tohoku and ²Univ. of Tohoku (Japan)</i></p>		