Wednesday, September 28

Poster Session (15:00-17:00) Multi-Purpose Hall and 102

All poster presenters must give the short oral presentations in Short Presentation Session scheduled on September 28, 11:00 - 12:00.
Each Area Session Room; see program Time Table

01: Advanced LSI Processing & Materials Science

(14 papers)

PS-1-01
Structural and Electrical Characterization of Epitaxial Ge Thin Film on Si (001) Formed by Sputtering
°S. Otsuka[1], T. Mori[1], Y. Morita[1], N. Uchida[1], Y. Liu[1], S. O'uchi[1], H. Fuketa[1], S. Migita[1], M. Masahara[1], T. Matsukawa[1], [1]AIST (Japan)

PS-1-02
Growth of Heavily Doped *n*-Ge Epitaxial Layer by *In situ* Phosphorus-doping with Low-temperature Metal-Organic Chemical Vapor Deposition
°S. Ike[1,2], W. Takeuchi[1], O. Nakatsuka[1], S. Zaima[1,3], [1]Graduate School of Eng., Nagoya Univ. (Japan), [2]Research Fellow of JSPS (Japan), [3]IMaSS, Nagoya Univ. (Japan)

PS-1-03
Formation Technology of Flat Surface after Selective-Epitaxial-Growth on Ion-implamted (100) Oriented Thin SOI Wafers
°K. Furukawa[1], A. Teramoto[1], R. Kuroda[1], T. Suwa[1], K. Hashimoto[1], S. Sugawa[1], D. Suzuki[2], Y. Chiba[2], K. Ishii[2], A. Shimizu[2], K. Hasebe[2], [1]Tohoku Univ. (Japan), [2]Tokyo Electron Tohoku Ltd. (Japan)

PS-1-04
Impact of $Si_xGe_{1-x-y}Sn_y$ Interlayer on Reduction in Schottky Barrier Height of Metal/*n*-Ge Contact
°A. Suzuki[1,2], S. Toda[1], O. Nakatsuka[1], M. Sakashita[1], S. Zaima[1,3], [1]Graduate School of Eng., Nagoya Univ. (Japan), [2]Research Fellow of JSPS (Japan), [3]IMaSS, Nagoya Univ. (Japan)

PS-1-05
Self-Aligned Deposition of Source/Drain Contact Metal with Electrodeposition Technique for High Performance Schottky Barrier Ge MOSFETs Fabrication
°D. Zhai[1], J. Jiang[1,2], J. Li[1], X. Yu[1], R. Zhang[1], Y. Zhao[1], [1]Zhejiang Univ. (China), [2]The:51th Res. Inst. of China Electronics Tech. Group Corp. (China)

PS-1-06
Influence of Low Thermal Budget Plasma Oxidation and Millisecond Laser Anneal on Gate Stack Reliability in view of 3D Sequential Integration
°C.-M.V. Lu[1,2], C. Fenouillet-Béranger[1], R. Gassilloud[1], H. Graoui[3], D. Larmagnac[4], S. Sharma[3], X. Garros[1], C. Leroux[1], A. Toffoli[1], G. Romano[1,2], R. Kies[1], N. Rambal[1], M.-P. Samson[2], B. Previtali[1], C. Guedj[1], N. Bernier[1], S. Kerdiles[1], L. Brunet[1], P. Batude[1], T. Skotnicki[2], M. Vinet[1], [1]CEA-LETI (France), [2]STMicroelectronics (France), [3]Applied Materials Inc. (USA), [4]Applied Materials France (France)

PS-1-07
Integration of Low Temperature 480°C SiOCN as Offset Spacer in view of 3D Sequential Integration
°C.-M.V. Lu[1,2], C. Fenouillet-Béranger[1], C. Bout[1], A. Roule[1], V. Beugin[1], J. Fort[3], C. Arvet[2], N. Posseme[1], V. Loup[1], P. Besson[2], M.-P. Samson[2], B. Previtali[1], C. Tabone[1], A. Michallet[2], N. Rochat[1], D. Benoit[2], F. Pierre[1], L. Brunet[1], P. Batude[1], T. Skotnicki[2], M. Vinet[1], [1]CEA-LETI (France), [2]STMicroelectronics (France), [3]Applied Materials France (France)

PS-1-08
Enhanced Electrical and Reliability Characteristics in Ge p-MOSFETs by In-situ Plasma Treatments and Capping Hf/Zr on Interfacial Layers
°T. Huang[1], C. Hsu[1], K.S. Chang-Liao[1], Y. Hsu[1], C. Huang[1], Y. Li[1], [1]National Tsing Hua Univ. (Taiwan)

PS-1-09
Novel GeO_x Interface Layer Engineering by Ultra Low Power Microwave Plasma Oxidation
°K. Shiraga[1], J. Miyahara[2], G. Nakamura[1], Y. Fujino[1], K. Akiyama[1], K. Tapily[3], T. Harada[1], E. Hara[1], A. Tanihara[1], N. Yamamoto[1], Y. Hirota[1], T. Kaitsuka[1], T. Morimoto[1], K. Hasebe[1], [1]Tokyo Electron Ltd. (Japan), [2]Tokyo Electron Yamanashi Ltd. (Japan), [3]TEL Technology Center (USA)

PS-1-10
Charge Retention and Stability of Metal Nano Dots in SiO_2; First-principles Study on Metal Dependence
°S. Yamazaki[1], Y. Asayama[1], Y. Onda[1], T. Nakayama[1], [1]Chiba Univ. (Japan)

PS-1-11
Microstructure Analysis of Nanosized Advanced Materials through the ACOM-TEM Technique
°A. Valery[1,2], L. Gaben[1], M. Grégoire[1], Y. Le-Friec[1], F. Lorut[1], L. Clément[1], [1]STMicroelectronics (France), [2]Univ. Grenoble Alpes, CNRS, SIMAP (France)

PS-1-12(Late News)
Carrier and Heat Transport Properties of Poly-crystalline GeSn on Insulator Substrates
°N. Uchida[1], J. Hattori[1], K. Fukuda[1], T. Maeda[1], R. Lieten[2,3], Y. Ohishi[4], R. Takase[5], M. Ishimaru[5], J. Locquet[3], [1]AIST (Japan), [2]IMEC (Belgium), [3]KU Leuven (Belgium), [4]Osaka univ. (Japan), [5]Kyushu Inst. of Tech. (Japan)

PS-1-13(Late News)
Heavy Sb-doping for Poly-GeSn on Insulator Using Pulsed Laser Annealing in Water
°K. Takahashi[1,2], M. Kurosawa[1,3,4], H. Ikenoue[5], M. Sakashita[1], O. Nakatsuka[1], S. Zaima[1,3], [1]Grad. Sch. of Engineering, Nagoya Univ. (Japan), [2]Research Fellow of JSPS (Japan), [3]IMaSS, Nagoya Univ. (Japan), [4]JST-PRESTO (Japan), [5]Kyushu Univ. (Japan)

PS-1-14(Late News)
Schottky-barrier-height Reduction for n-Si and n-Ge by Insertion of Tungsten Silicide and Germanide Films Chemically Synthesized using Gas-phase Reactions
°N. Okada[1,2], N. Uchida[2], T. Kanayama[2], [1]JST-PRESTO (Japan), [2]AIST (Japan)

02: Interconnect Technologies and 3D Integration / Sensor / MEMS Intergration / Materials and Characterization

(12 papers)

PS-2-01
A Novel Noise Analysis Method with Multi-physics Simulation for Capacitive CMOS-MEMS Inertial Sensor System
°T. Konishi[1], D. Yamane[2], H. Ito[2], S. Dosho[2], N. Ishihara[2], H. Toshiyoshi[3], K. Masu[2], K. Machida[1], [1]NTT Advanced Tech. Corp. (Japan), [2]Tokyo Tech (Japan), [3]Univ. of Tokyo (Japan)

PS-2-02
Development of Single Crystalline 4H-SiC MEMS for Harsh Environments
°F. Zhao[1], C. Fang Huang[2], [1]Washington State Univ. (USA), [2]National Tsing Hua Univ. (Taiwan)

PS-2-03
Design and Characterization of the Disk-shaped Piezoresistive Pressure Sensor
°A.Y. Chang[1], S.H. Tseng[1], H.H. Tsai[1], Y.Z. Juang[1], [1]National Applied Research Labs. (Taiwan)

PS-2-04
Reductive Kinetic Study of Oxidized Cu Surface by Catalyzed Formic Acid Vapor
P.W. Chou[1], °J.M. Song[1], M. Akaike[2], M. Fujino[2], T. Suga[2], J.Y. Lin[3], [1]National Chung Hsing Univ. (Taiwan), [2]Univ. of Tokyo (Japan), [3]Indus. Tech. Res. Inst. (Taiwan)

PS-2-05
High Efficiency MOSFET Bridge Rectifier for AlN MEMS Cantilever Vibration Energy Harvester
°R. Takei[1], H. Okada[1], D. Noda[2], R. Ohta[2], T. Takeshita[1], T. Itoh[3], T. Kobayashi[1], [1]AIST (Japan), [2]Micromachine Center (Japan), [3]Univ. of Tokyo (Japan)

PS-2-06
Poly-InSb nMOSFETs for Monolithic 3DIC
°M. Takahashi[1,2], T. Irisawa[2], W.H. Chang[2], J. Tominaga[2], S. Fujikawa[1], H. Fujishiro[1], T. Maeda[1,2], [1]Tokyo Univ. of Science (Japan), [2]AIST (Japan)

PS-2-07
Rotation Analysis of the Light Scattering Variation of Latent Flaws through Light Scattering Measurement with Applied Stress Effect
°Y. Sakata[1], N. Terasaki[1], K. Sakai[1], K. Nonaka[1], [1]AIST (Japan)

PS-2-08
Soft-rubber-packaged PZT MEMS Touch Sensor Optimized for Human-machine Interface Applications
°T. Takeshita[1], T. Kobayashi[1], R. Takei[1], T. Itoh[2], S. Takamatsu[2], [1]AIST (Japan), [2]Univ. of Tokyo (Japan)

PS-2-09
Physical Surface Treatments for Improving Direct Copper Bonding
P.H. Chiang[1], °S.Y. Liang[1], J.M. Song[1], S.K. Huang[2], Y.T. Chiu[2], C.P. Hung[2], [1]National Chung Hsing Univ. (Taiwan), [2]Advanced Semiconductor Engineering Group (Taiwan)

PS-2-10
Highly Efficient Fiber Coupling Structure for Si Wire Waveguide Using Standard CMOS Compatible SiN Waveguides
°Y. Maegami[1], M. Okano[1], G. Cong[1], M. Ohno[1], K. Yamada[1], [1]AIST (Japan)

PS-2-11
Effect of Plasma Power on Properties of Amorphous Silicon Carbide Hard Mask Films Deposited by Plasma Enhanced Chemical Vapor Deposition
°S. Lee[1], J. Yang[1], D. Lee[1], K. Park[1], G. Hur[1], J. Lee[1], C. Youn[2], T. Choi[2], [1]TES Co., Ltd (Korea), [2]Sejong Univ. (Korea)

PS-2-12(Late News)
Width Dependence of Platinum and Titanium Thermistor Characteristics for Application in Room-Temperature Antenna-Coupled Terahertz Microbolometer
°A. Banerjee[1], H. Satoh[1], A. Tiwari[1], C. Apriono[2], E.T. Rahardjo[2], N. Hiromoto[1], H. Inokawa[1], [1]Shizuoka Univ. (Japan), [2]Univ. Indonesia (Indonesia)

03: CMOS Devices / Device Physics

(13 papers)

PS-3-01
Accurate Design of Si-Compatible Tunneling Field-Effect Transistor with GeSn Source Junction by *Ab Initio* Calculation and Device Simulation
°J. Lee[1], Y. Cho[1], S. Cho[1], [1]Gachon Univ. (Korea)

PS-3-02
Perspective Analysis of tri-Gate Germanium Tunneling Field Effect Transistor with Dopant Segregation Region at Source/Drain
°L. Liu[1], L. Sun[1], Y. Zhang[1], [1]Peking Univ. (China)

PS-3-03
Influence of Line-Edge Roughness (LER) on Multiple-Gate (MG) Tunnel Field-Effect Transistors (TFETs)
°W.Y. Choi[1], S.H. Choi[1], J.W. Lee[1], I. Huh[1], [1]Sogang Univ. (Korea)

PS-3-04
Investigation of Ge Channel Negative Capacitance FET with Analytical Model: Impact of Ferroelectric Dielectrics
°Y. Peng[1], G. Han[1], Z. Chen[1], Q. Li[1], C. Zhang[1], J. Zhang[1], Y. Hao[1], [1]Xidian Univ. (China)

PS-3-05
Performance Comparison of Si, $In_{0.53}Ga_{0.47}As$ and GaSb 10-nm Double Gate nMOSFETs by Deterministically Solving Time Dependent BTE
°S. Di[1], L. Shen[1], Z. Lun[1], P. Chang[1], K. Zhao[1,2], T. Lu[1], G. Du[1], X. Liu[1], [1]Peking Univ. (China), [2]Beijing Info. Sci. and Tech. Univ. (China)

PS-3-06
Temperature and Doping Concentration Dependence Characteristics in Junctionless Gate-all-Around Polycrystalline Silicon Thin-Film-Transistors
°C.T. Tso[1], T.Y. Liu[1], F.M. Pan[1], J.T. Sheu[1], [1]NCTU (Taiwan)

PS-3-07
A Physical Based Model for Negative Bias Temperature Instability
C. Ma[1], °F. Sun[1], L. Zhang[2], X. Lin[1], M. Chan[2], [1]Peking Univ. (China), [2]Hong Kong Univ. of Sci. and Tech. (Hong Kong)

PS-3-08
Negative Bias Temperature Instability by Body Bias on Ring Oscillators in Thin BOX Fully-Depleted Silicon on Insulator Process
°R. Kishida[1], K. Kobayashi[1], [1]Kyoto Inst. of Tech. (Japan)

PS-3-09
Study of Self-heating Effects in Hybrid SOI/bulk Nanoscale FinFETs
°U. Kumar[1], V. Rao[2], [1]Indian Inst. of Tech. Bombay (India), [2]Indian Inst. of Tech. Delhi (India)

PS-3-10
Analysis and Modeling of Zero-V_{TH} Native Devices with Industry Standard BSIM6 Model
°C. Gupta[1], H. Agarwal[1], Y.K. Lin[2], S. Khandelwal[2], A. Ito[3], C. Hu[2], Y.S. Chauhan[1], [1]Indian Inst. of Tech. Kanpur (India), [2]Univ. of California, Berkeley (USA), [3]Broadcom (USA)

PS-3-11
Low Frequency Noise of Accumulation-Mode n- and p-MOSFETs fabricated on (110) Crystallographic Silicon-Oriented Wafers
°P. Gaubert[1], A. Teramoto[1], S. Sugawa[1], [1]Tohoku Univ. (Japan)

PS-3-12
Study on ON-Resistance Degradation Modeling Used for HCI Induced Degradation Characteristic of LDMOS Transistors
°M. Higashino[1], H. Aoki[1], N. Tsukiji[1], M. Kazumi[1], T. Totsuka[1], S. Shibuya[1], K. Kurihara[1], H. Kobayashi[1], [1]Gunma Univ. (Japan)

PS-3-13(Late News)
Multilayer TiNi Alloys as Gate Metal for InGaAs MOS Devices
H. Do[1], Q. Luc[1], M.Huu Ha[1], S. Huynh[1], C. Chang[1], J. Lin[1], °K. Yang[1], C. FanChang[1], Y. Lin[1], E. Chang[1], [1]NCTU (Taiwan)

04: Advanced Memory Technology

(10 papers)

PS-4-01
Enhanced Operation Characteristics in Poly-Si Nanowire Charge-Trapping Flash Memory Device with Ge Buried Channel
°C. Cheng[1], K.S. Chang-Liao[1], H. Fang[1], C. Huang[1], [1]National Tsing Hua Univ. (Taiwan)

PS-4-02
Modified Switching Mechanism for GeSbTe based Chalcogenide Superlattice Phase Change Memories
X. Yu[1], °J. Robertson[1], [1]Cambridge Univ. (UK)

PS-4-03
Ab-initio modeling of Conductive channel in Cu – Al_2O_3 conductive bridge RRAM
J. Dawson[1], °J. Robertson[1], [1]Cambridge Univ. (UK)

PS-4-04
Elliptical Pillar Duplication by Self-Aligned Double Patterning Technology
°A.J. Hong[1], J. Shim[1], M. Lee[1], K. Lee[1], K. Jung[1], J. Hong[1], H. Seong[1], K. Kim[1], S. Jeon[1], Y. Kim[1], J. Park[1], H. Hong[1], K. Lee[1], E. Jung[1], [1]Samsung Electronics Co. Ltd (Korea)

PS-4-05
Compact Model of FeFET Memory Based on Multi-Domain Landau-Khalatnikov Theory
°H. Asai[1], K. Fukuda[1], J. Hattori[1], H. Koike[1], N. Miyata[1], M. Takahashi[1], S. Sakai[1], [1]AIST (Japan)

PS-4-06
SiCOH Low-k material based RRAM for BEOL Process Compatible Nonvolatile Memory Application
°L. Zheng[1], Y. Dai[1], L. Yu[1], L. Chen[1], Q. Sun[1], S. Ding[1], W. Zhang[1], [1]Fudan Univ. (China)

PS-4-07
Enhanced Retention Characteristics in Double Gate Tunnel FET based DRAM
°N. Navlakha[1], J.T. Lin[2], A. Kranti[1], [1]Indian Inst. of Tech. Indore (India), [2]National Sun Yat-Sen Univ. (Taiwan)

PS-4-08
Facile Aqueous Synthesis of CeO_2 Octahedrons for Memristor Application
°H. Du[1], B. Qu[1], T. Wan[1], J. Chen[2], D. Chu[1], [1]UNSW (Australia), [2]IMR, Tohoku Univ. (Japan)

PS-4-09(Late News)
Improvement of Switching Endurance of Conducting-Bridge Random Access Memory by Addition of Metal Ion-Containing Ionic Liquid
°K. Kinoshita[1], A. Harada[1], H. Yamaoka[1], A. Sakaguchi[1], K. Watanabe[1], S. Kishida[1], Y. Fukaya[1], T. Nokami[1], T. Itoh[1], [1]Tottori Univ. (Japan)

PS-4-10(Late News)
One-Transistor Ferroelectric Versatile Memory with Multi-Level Operation
Y.C. Chiu[1], °Y.W. Hung[1], C.C. Fan[1], C. Liu[1], W.W. Lai[1], Y.R. Chen[1], P.W. Chen[2], C.H. Cheng[2], C.Y. Chang[1], W.C. Chou[1], [1]NCTU (Taiwan), [2]National Taiwan Normal Univ. (Taiwan)

05: Advanced Circuits and Systems

(8 papers)

PS-5-01
Novel Integrated Voltage Regulators with High-Side NMOS Power Switch and Dedicated Bootstrap Driver Using Vertical MOSFET for Efficiency Enhancement
°K. Itoh[1,2,3], M. Muraguchi[1,2,3], T. Endoh[1,2,3], [1]Graduate School of Eng., Tohoku Univ. (Japan), [2]CIES, Tohoku Univ. (Japan), [3]JST-ACCEL (Japan)

PS-5-02
Temperature Sensor Using Cascoded Diode-connected MOSFETs Operating in Sub-threshold Region
R.L. Wang[1], J.L. Shi[1], Y.F. Hao[1], °C.S. Tsai[1], L.W. Wang[1], K.B. Lee[1], Y.T. Chuang[2], H.H. Liao[2], H.H. Tsai[2], Y.Z. Juang[2], [1]National Kaohsiung Normal Univ. (Taiwan), [2]National Applied Research Labs. (Taiwan)

PS-5-03
Multi-Ring MOSFETs for Mobility Enhancement and Parasitic Resistances Reduction in RF and Analog Applications
Y.Y. Lin[1], °J.C. Guo[1], [1]NCTU (Taiwan)

PS-5-04
Noise Analysis of a Serial Multiple Sampling in Back-Illuminated CMOS Image Sensor
°H. Wakabayashi[1], K. Yamaguchi[1], Y. Yamagata[2], [1]Sony Semiconductor Solutions Corp. (Japan), [2]Sony LSI Design Inc. (Japan)

PS-5-05
A Gain Cell Array with Retention Increment Design for Bit-Area Efficient On-Chip Memory Applications
°S. Manisankar[1], H. Kim[1], Y. Chung[1], [1]Kyungpook National Univ. (Korea)

PS-5-06
An All-Digital Duty-Cycle Corrector with Synchronous and High Accuracy Output for DDR-SDRAM Application
Y.L. Lo[1], °C.W. Tsai[2], C.C. Chang[1], H.Y. Liu[1], W.B. Yang[3], K.H. Cheng[2], [1]National Kaohsiung Normal Univ. (Taiwan), [2]National Central Univ. (Taiwan), [3]Tamkang Univ. (Taiwan)

PS-5-07
Property-Driven Functional Verification Technique for High-Speed Vision System-on-Chip Processor
°V. Nshunguyimfura[1], J. Yang[1], L. Liu[1], N. Wu[1], [1]Chinese Academy of Sciences (China)

PS-5-08(Late News)
Analysis and Suppression of Low-Frequency Noise for Two-Dimensional Integrated Magnetic Sensor
°T. Kimura[1], Y. Sakairi[1], A. Mori[1], T. Masuzawa[1], [1]Ibaraki Univ. (Japan)

06: Compound Semiconductor Electron Devices & Related Technologies

(14 papers)

PS-6-01
InAs Quantum-Well MOSFET Performance Improvement by Using PEALD AlN Passivation Layer and *In-Situ* NH_3 Post Remote-Plasma Treatment
P.C. Chang[1], Q.H. Luc[1], G.Y. Lin[1], °C.C. Chang[1], J.W. Lin[1], C.C. Fan Chang[1], K.S. Yang[1], Y.C. Lin[1], S.M. Sze[1], E.Y. Chang[1], [1]NCTU (Taiwan)

PS-6-02
Deposition Temperature and Al_2O_3 Thickness Dependence on the Mobility of HfO_2/Al_2O_3/InGaAs Gate Stacks
°K. Ohsawa[1], N. Kise[1], Y. Miyamoto[1], [1]Tokyo Tech (Japan)

PS-6-03
Equivalent Oxide Thickness Self-Reduction and Work Function Self-Alignment Using Ti/AlN Doping Layer for Mo/HfO_2/InGaAs NMOS
°H. Do[1], Q. Luc[1], M. Ha[1], S. Huynh[1], C. Chang[1], J. Lin[1], K. Yang[1], C. Chang[1], Y. Lin[1], E. Chang[1], [1]NCTU (Taiwan)

PS-6-04
Effect of Interface Traps on the Device Performances of the Tunneling Field-Effect Transistors Based on InGaAs
°R.H. Kwon[1], Y.J. Yoon[1], J.H. Seo[1], Y.I. Jang[1], M.S. Jo[1], J.-H. Lee[1], I.M. Kang[1], [1]Kyungpook National Univ. (Korea)

PS-6-05
Atomic-Layer Deposited High-k Metal Gates of Ge/III Metal -Oxide-Semiconductor Devices and numerical simulations
B.Y. Chen[1,2], °C.L. Chu[1], J.L. Chen[3], G.L. Luo[1], T.T. Li[4], E.Y. Chang[2], [1]National Nano Device Labs. (Taiwan), [2]NCTU (Taiwan), [3]I-Shou Univ. (Taiwan), [4]National Central Univ. (Taiwan)

PS-6-06
The Study of GaN-based Fin-HEMT with Low Current Collapse Phenomenon by Plasma Enhanced Atomic Layer Deposition
°A. Tzou[1], S. Chen[2], Z. Li[3], C. Chang[1], H. Kuo[1,2], [1]NCTU (Taiwan), [2]National Nano Device Labs. (Taiwan), [3]Epistar (Taiwan)

PS-6-07
Effects of Different Fe-doped GaN Buffer in AlGaN/GaN HEMTs on Si Substrate
°S.C. Chen[1], J.W. Chiu[1], B.H. Li[1], H.C. Chiu[1], R. Xuan[2], C.W. Hu[2], [1]Chang Gung Univ. (Taiwan), [2]Episil-Precision Inc (Taiwan)

PS-6-08
Leakage Current Reduction of Gated Ohmic Anode AlGaN/GaN Schottky Barrier Dioide by Applying Anode Edge Termination
°R. Ki[1], I. Hwang[1], H. Cha[2], K. Seo[1], [1]Seoul National Univ. (Korea), [2]Hongik Univ. (Korea)

PS-6-09
The Influence of AlGaN/GaN Schottky Barrier Diode (SBD) with SiH_4 Doping in Barrier Layer
°J.W. Chiu[1], S.C. Chen[1], B.H. Li[1], H.C. Chiu[1], R. Xuan[2], C.W. Hu[2], [1]Chang Gung Univ. (Taiwan), [2]Episil-Precision Inc (Taiwan)

PS-6-10
ZnO and ZnON Film-Profile Engineered TFTs for BEOL High-Voltage Operations
°M. Wu[1], H. Lin[1], P. Li[1], T. Huang[1], [1]NCTU (Taiwan)

PS-6-11
High-Performance Thin-Film Transistors with ZnO/Al_2O_3 Superlattice Channel by Atomic Layer Deposition
°G.D. Cui[1], D.D. Han[1], J.C. Dong[1], Y.Y. Cong[1], X.M. Zhang[1], H.J. Li[1], W. Yu[1], S.D. Zhang[1], X. Zhang[1], Y. Wang[1], [1]Peking Univ. (China)

PS-6-12
Room-temperature Fabrication of Amorphous IGZO TFTs with Co-sputtered $Zr_xSi_{1-x}O_2$ Gate Dielectrics
P.Y. Liu[1], S.J. Wang[1], C.H. Hung[1], C.H. Wu[2], N.S. Wu[1], °H.P. Yan[1], T.H. Lin[1], [1]National Cheng Kung Univ. (Taiwan), [2]Chung Hua Univ. (Taiwan)

PS-6-13
Study of Fabrication and Current-voltage Characteristics of MoS_2/WSe_2 Heterojunction Diode
°Y.H. Jiang[1], [1]National Taiwan Univ. of Sci. and Tech. (Taiwan)

PS-6-14(Late News)
Hydrazine (N_2H_4)-based Surface Treatment Method for AlGaN/GaN MIS-HEMTs with a High Quality Interface
°H. Jung[1], M. Shin[1], H. Ahn[1], J. Do[1], S. Chang[1], K. Cho[1], B. Min[1], H. Kim[1], H. Yoon[1], J. Lim[1], [1]Electronics and Telecommunications Res. Inst. (Korea)

07: Photonic Devices and Related Technologies

(13 papers)

PS-7-01
Low Threshold Current AlGaAsSb/InGaASb/GaSb Quantum Well Laser Operating at Wavelength of 2-μm
X. Li[1], °H. Wang[1], Z.L. Qiao[1], C.Y. Liu[1], [1]Nanyang Technological Univ. (Singapore)

PS-7-02
Experimental Observation of Direct Bandgap Photoluminescence from Tensile-strained Ge Nanodots Embedded within SiO_2 Matrix
°M.H. Kuo[1], S.K. Chou[1], W.T. Lai[2], Y.W. Pan[2], S.D. Lin[2], T. George[2], P.W. Li[1,2], [1]National Central Univ. (Taiwan), [2]NCTU (Taiwan)

PS-7-03
Passivation Effect of Ozone Water Treatment of InGaN/GaN Nanostructures Fabricated by Hydrogen Environment Anisotropic Thermal Etching (HEATE)
°K. Ogawa[1], T. Mizutani[1], S. Ishijima[1], Y. Namae[1], A. Matsuoka[1], A. Kikuchi[1,2], [1]Sophia Univ. (Japan), [2]Sophia Nanotech. Res. Center (Japan)

PS-7-04
Withdrawn

PS-7-05
High Sensitivity Flexible Metal-Insulator-Metal Localized Surface Plasmon Resonance Sensors on PDMS Substrate
°H.T. Lin[1,2], C.Y. Chang[1], S.W. Haung[1], T.Y. Shieh[1,2], M.H. Shih[1,2,3], [1]Academia Sinica (Taiwan), [2]NCTU (Taiwan), [3]National Sun Yat-sen Univ. (Taiwan)

PS-7-06
Fabrication of Surface Plasmon Resonance Sensors with Highly Uniform Metallo-Dielectric Nanostructures over a Large Area
°J.F. Luo[1], N.T. Huang[1], C.L. Wu[1], L.A. Wang[1], [1]National Taiwan Univ. (Taiwan)

PS-7-07
Plasmonic Hole Array Perfect Absorbers for Wavelength-Selective Infrared Pyroelectric Detectors
°T. Dao[1,2], S. Ishii[1,2], T. Yokoyama[1,2], T. Sawada[1,2], R. Sugavaneshwar[1,2], K. Chen[1,2], Y. Wada[1], T. Nabatame[1,2], T. Nagao[1,2,3], [1]NIMS (Japan), [2]JST-CREST (Japan), [3]Hokkaido Univ. (Japan)

PS-7-08
GaN Metal-Organic-Metal Ultraviolet Sensors with Fullerene Organic Layers
°C.-H. Chen[1], M.-H. Yang[1], [1]Cheng Shiu Univ. (Taiwan)

PS-7-09
A New Method of Fabricating Fabry-PéRot Type Optical Fiber Temperature Sensor using an External Silicon Microsphere
°S.S. Chang[1], J.H. Chen[1], G.H. Chen[1], L.A. Wang[1], [1]National Taiwan Univ. (Taiwan)

PS-7-10
Si Slot Waveguide with $Er_xY_{2-x}SiO_5$ Coupled with Si Wire and Distributed Bragg Reflector
°Y. Tsuyuki[1], G. Nakamura[1], H. Isshiki[1], [1]The Univ. of Electro-Communications (Japan)

PS-7-11
Numerical Analysis of InGaAsP Carrier-depletion Optical Modulator on III-V CMOS Photonics Platform
°N. Sekine[1], J. Han[1,2], M. Takenaka[1,2], S. Takagi[1,2], [1]Univ. of Tokyo (Japan), [2]JST-CREST (Japan)

PS-7-12
Wavelength Dependent Photodetection Characteristics of Avalanche Photodiode Fabricated by Standard CMOS Process
°Z.A.F.M. Napiah[1,2], T. Hishiki[1], K. Iiyama[1], [1]Kanazawa Univ. (Japan), [2]UTeM (Malaysia)

PS-7-13
Highly Stable Electro-Optic Polymers for TiO_2 Vertical Slot Waveguide Modulators and Efficiently Poling
°Y. Enami[1], [1]Kochi Univ. of Tech. (Japan)

08: Advanced Material Synthesis and Crystal Growth Technology

(12 papers)

PS-8-01
Etch-pit and Grown-in Dislocations in CVD Homoepitaxial Diamond
°N. Tsubouchi[1], Y. Mokuno[1], [1]AIST (Japan)

PS-8-02
Ni-induced Layer Exchange Crystallization of Sputtered Amorphous Carbon for Multi-layer Graphene on Insulator
°H. Murata[1], K. Toko[1], T. Suemasu[1], [1]Univ. of Tsukuba (Japan)

PS-8-03
Synthesis of Si Nanosheet Bundles by Extraction of Ca Atoms from $CaSi_2$ Powders by Inositol Hexakisphosphate Solution
°X. Meng[1], K. Sasaki[1], Y. Kumazawa[1], P. Yuan[1], H. Tatsuoka[1], [1]Shizuoka Univ. (Japan)

PS-8-04
Reliability of Epitaxial Nickel Disilicide Thin Film
°C. Hsin[1], S. Lee[1], [1]National Central Univ. (Taiwan)

PS-8-05
Influence of Post Annealing Treatment on Fixed Charge State and Chemical Bonding State of Sr-silicate Film
°S. Taniwaki[1], M. Umano[1], H. Yoshida[1], K. Arafune[1], S. Satoh[1], Y. Hotta[1], [1]Univ. of Hyogo (Japan)

PS-8-06
Formation of AlO_x/GeO_x/Ge Gate Stack Structure by Thermal Oxidation
°A. Heya[1], N. Matsuo[1], [1]Univ. of Hyogo (Japan)

PS-8-07
Fabricating High Quality YIG Thin Film by Mist CVD under Open-Air Atmospheric Pressure
°L. Liu[1], Y. Suwa[1], Y. Nakasone[1], M. Nishi[1], E.K.C. Pradeep[1], T. Kawaharamura[1], [1]Kochi Univ. of Tech. (Japan)

PS-8-08
Bismuth Doping Effect on Structural and Photocatalytic Activity of Bi-doped TiO_2 Nanoparticles
°Y.-H. Chang[1], K.-C. Hsiao[1], T.-H. Lin[1], P.-Y. Wu[1], Y.-K. Tseng[1], T.-F. Lin[1], M.-C. Wu[1,2], [1]Chang Gung Univ. (Taiwan), [2]Chang Gung Memorial Hospital (Taiwan)

PS-8-09
The Properties of the $In_xGa_{1-x}Sb$ Epilayer Grown on GaAs Substrate by Metalorganic Chemical Vapor Deposition Using the Interfacial Misfit Dislocation Technique
°S. Huynh[1], Q. Luc[1], M. Ha[1], H. Do[1], H. Yu[1], E. Chang[1], [1]NCTU (Taiwan)

PS-8-10
The Growth of $In_xGa_{1-x}Sb$ Epilayer on GaAs Substrate by Metalorganic Chemical Vapor Deposition Using an Interfacial Misfit Dislocation GaSb Buffer Layer
S. Huynh[1], M. Ha[1], Q. Luc[1], H. Do[1], C. Hsiao[2], C. Chang[1], °J. Lin[1], H. Yu[1], E. Chang[1], [1]NCTU (Taiwan), [2]National Cheng Kung Univ. (Taiwan)

PS-8-11(Late News)
Preparation of IGZO Thin Layer by a Low-temperature Non-vacuum Technique
°E.K.C. Pradeep[1], G.T. Dang[1], M. Ohtani[1], K. Kobiro[1], T. Kawaharamura[1], [1]Kochi Univ. of Tech. (Japan)

PS-8-12(Late News)
Crystallographic Polarity Effect of ZnO on Thin Film Growth of Pentacene
T. Nakamura[1,2], °T. Nagata[1], R. Hayakawa[1], T. Yoshimura[2], S. Oh[1], N. Hiroshiba[3,1], T. Chikyow[1], N. Fujimura[2], Y. Wakayama[1], [1]NIMS (Japan), [2]Osaka Prefecture Univ. (Japan), [3]Tohoku Univ. (Japan)

09: Physics and Applications of Novel Functional Devices and Materials

(14 papers)

PS-9-01
Wide-field Imaging of Magnetic Field with Nitrogen-vacancy Centers in Diamond by Frequency Modulation of Microwaves
Y. Miura[1], S. Kashiwaya[2], °S. Nomura[1], [1]Univ. of Tsukuba (Japan), [2]AIST (Japan)

PS-9-02
Low-noise and Wide-bandwidth Current Readout at Low Temperatures Using a Superconducting-quantum-interference-device Amplifier
°M. Tran[1,2], Y. Okazaki[1], S. Nakamura[1], M. Ortolano[2], N. Kaneko[1], [1]AIST (Japan), [2]Politecnico di Torino (Italy)

PS-9-03
Transport property of $NbSe_2/WSe_2$ van der Waals Junction
°Y. Sata[1], R. Moriya[1], Y. Hoshi[1], S. Masubuchi[1], K. Watanabe[2], T. Taniguchi[2], K. Ueno[3], T. Machida[1,4], [1]IIS, Univ. of Tokyo (Japan), [2]NIMS (Japan), [3]Saitama Univ. (Japan), [4]INQIE, Univ. of Tokyo (Japan)

PS-9-04
Optical Characterization of Ultrathin Ge-on-Insulator: Electron and Phonon Confinement, Raman Enhancement, Optical Phonon Lifetime Reduction, Acoustic Phonon Spectral Reconstruction and Drop in Thermal Conductivity
°V. Poborchii[1], H. Ishii[1], H. Hattori[1], W. Chang[1], T. Tada[1], P. Geshev[2], T. Maeda[1], [1]AIST (Japan), [2]Institute of Thermophysics (Russia)

PS-9-05
High-performance Si-doped ZnO Thin-film Transistors Fabricated on Flexible Plastic Substrate at Low Temperature
H. Li[1], D. Han[1], °G. Cui[1], W. Yu[1], Y. Cong[1], S. Zhang[1], X. Zhang[1], Y. Wang[1], [1]Peking Univ. (China)

PS-9-06
Resistive Switching in Planar Metal/NiO Bilayer System with Low Voltage Operation
°Y. Nakano[1], K. Okabe[1], T. Kimura[1], [1]Kyushu Univ. (Japan)

PS-9-07
Ultrafine (≤10nm) InGaN Quantum Structures Fabricated by Hydrogen Environment Anisotropic Thermal Etching (HEATE)
°S. Ishijima[1], T. Mizutani[1], K. Ogawa[1], Y. Namae[1], A. Matsuoka[1], A. Kikuchi[1,2], [1]Sophia Univ. (Japan), [2]Sophia Nanotech. Res. Center (Japan)

PS-9-08
Hole-Tunneling $Si_{1-x}Ge_x$/Si ASDQW RTD with High Resonant Current and High Peak-to-Valley Current Ratio
°A. Shinkawa[1], M. Wakiya[1], Y. Maeda[1], T. Tsukamoto[1], Y. Suda[1], [1]Tokyo Univ. of Agri. & Tech. (Japan)

PS-9-09
DFT-based *ab initio* MD Simulation of the Ionic Conduction in N/F-Doped ZrO_2 under Epitaxial Strain
°M. Oka[1], H. Kamisaka[1], T. Fukumura[2], T. Hasegawa[1,3], [1]Univ. of Tokyo (Japan), [2]Tohoku Univ. (Japan), [3]KAST (Japan)

PS-9-10
Withdrawn

PS-9-11(Late News)
Electronic Band Structure of TiN/MgO nanostructures
°K. Kobayashi[1], H. Takaki[1,2], M. Shimono[1], N. Kobayashi[2], K. Hirose[3], [1]NIMS (Japan), [2]Univ. of Tsukuba (Japan), [3]NEC Corp. (Japan)

PS-9-12(Late News)
Gate-stack Engineering of Self-organized Nanospherical Ge-gate/SiO_2/$Si_{1-x}Ge_x$-channel on Si (100) and Si (110) for Ge MOS Devices
P.H. Liao[1], C.W. Tien[2], K.P. Peng[2], H.C. Lin[2], T. George[1], °P.W. Li[1,2], [1]National Central Univ. (Taiwan), [2]NCTU (Taiwan)

PS-9-13(Late News)
Static and Dynamic Contacts in Graphene Nano-Electro-Mechanical (NEM) Switches
°W. Wang[1], M. Muruganathan[1], H. Mizuta[1,2], [1]JAIST (Japan), [2]Univ. of Southampton (UK)

PS-9-14(Late News)
Optical Modulating Device using Phase Transition of $[(GeTe)_2/(Sb_2Te_3)]_{20}$ Superlattice
°T. Sugiyama[1], A. Kubo[1], T. Nakano[2], [1]Univ. of Tsukuba (Japan), [2]AIST (Japan)

10: Organic Materials Science, Device Physics, Applications and Printed Technologies
(13 papers)

PS-10-01
Nanoimprint TiO_2 Slot Layer for Hybrid EO polymer/TiO_2 Vertical Slot Waveguide Modulators
Y. Jouane[1], °Y. Enami[1], [1]Kochi Univ. of Tech. (Japan)

PS-10-02
Control of Crystalline Nesting Structure of Vacuum Deposited Organic Photovoltaic Cells by Co-evapotrant Induced Crystallization Method
°T. Kaji[1], M. Katayama[1], [1]Tokyo Univ. of Agri. & Tech. (Japan)

PS-10-03
Introducing Position Effect of Trifluoromethyl Moiety on Bis-styrylbenzene Skeleton
°H. Mochizuki[1], [1]AIST (Japan)

PS-10-04
Characteristics of Bis-styrylbenzene Derivatives with Various Electron-withdrawing Groups
°H. Mochizuki[1], M. Chikamatsu[1], [1]AIST (Japan)

PS-10-05
Ferroelectric and Piezoelectric Properties of P (VDF-TrFE) Gels
°M. Fukagawa[1], M. Morimoto[1], Y. Koshiba[1], K. Ishida[1], [1]Kobe Univ. (Japan)

PS-10-06
Doping Level Control and Thermoelectric Propertiy of Vapor Phase Polymerization PEDOT thin films
°M. Hirai[1], S. Horike[1], Y. Koshiba[1], M. Morimoto[1], K. Ishida[1], [1]Kobe Univ. (Japan)

PS-10-07
Phase Transition Field-Effect Transistor using α- $(BEDT\text{-}TTF)_2I_3$ Single-Crystal
°Y. Okada[1], T. Ueda[1], D. Yamamoto[1], H. Yamauchi[1], M. Sakai[1], K. Kudo[1], [1]Chiba Univ. (Japan)

PS-10-08
Field Dependence of the Space-charge Limited Current in Polycrystalline Pentacene
°T. Hayashi[1], A. Naka[1], A. Fujiwara[1], T. Yokota[2,3], T. Someya[2,3], [1]NTT BRL. (Japan), [2]Univ. of Tokyo (Japan), [3]JST-ERATO (Japan)

PS-10-09
Metal-Atom Penetration and Clustering Processes in PTCDA Thin Films; First-Principles Study of Film Degradation
°K. Kawabata[1], T. Nakayama[1], [1]Chiba Univ. (Japan)

PS-10-10
Interface Control between an Electrode and a Hole-Transport Polymer via Self-Assembled Monolayers
S. Ono[1], S. Usui[2], K. Tanaka[1], °H. Usui[1], [1]Tokyo Univ. of Agri. & Tech. (Japan), [2]Niigata Univ. (Japan)

PS-10-11
The Charging-Relaxation of Carriers in High Response Organic Phototransistor with Au Nanoparticles
S.-H. Yuan[2], °Z. Pei[1], C.-H. Chen[3], [1]National Chung Hsing Univ. (Taiwan), [2]National Central Univ. (Taiwan), [3]Indus. Tech. Res. Inst. (Taiwan)

PS-10-12
Effect of Geometrical Shape of Nozzle Tip on Electrospray Deposition of Organic Thin Film
°H. Ueda[1], K. Takeuchi[1], A. Kikuchi[1,2], [1]Sophia Univ. (Japan), [2]Sophia Nanotech. Res. Center (Japan)

PS-10-13
Molecular Dynamics Simulation of Thin Film Growth of Organic Semiconductors
°T. Shimada[1], T. Tamura[1], T. Nagahama[1], T. Yanase[1], [1]Hokkaido Univ. (Japan)

11: Sensors and Materials for Biology, Chemistry and Medicine
(9 papers)

PS-11-01
A High Sensitivity Gas Sensor for Nitric Oxide: Poly-Si Nanowire FETs with Phthalocyanine Complexes Surface Modification
°P.Y. Chuang[1], H.M. Chen[1], [1]NCTU (Taiwan)

PS-11-02
Copper Phthalocyanine and Hexadecafluorophthalocyanine Enhancing Nitic Oxide Gas Sensitivity of *p*-Si NWs FETs
°T.Y. Cheng[1], H.M. Chen[1], [1]NCTU (Taiwan)

PS-11-03
Effect of Chemical Surface Modification on Cell/Graphene Gate Transistor
°N. Nishi[1], K. Nishimura[1], K. Tsushima[1], M. Sota[1], X. Chen[1], T. Murakami[1], Y. Miyazawa[2], T. Kajisa[2], M. Kato[1], R. Kometani[1], S. Chiashi[1], S. Maruyama[1], T. Sakata[1], [1]Univ. of Tokyo (Japan), [2]PROVIGATE Inc. (Japan)

PS-11-04
Concentration Effect of Graphene Oxide on Microdomains in Multicomponent Lipid Bilayer Membranes
°Y. Okamoto[1], S. Saito[1], S. Iwasa[1], R. Tero[1], [1]Toyohashi Univ. of Tech. (Japan)

PS-11-05
Non-Lithographic Au Film over Nanosphere SERS Substrate
A. Purwidyantri[1], °C.S. Lai[1,2,3], [1]Chang Gung Univ. (Taiwan), [2]Chang Gung Memorial Hospital (Taiwan), [3]Ming Chi Univ. of Tech. (Taiwan)

PS-11-06(Late News)
A Highly Selective Hydrogen Sensor Based on Self-heated Polysilicon Nanobelt Device
°N.A. Tran[1], F.M. Pan[1], J.T. Sheu[1], [1]NCTU (Taiwan)

PS-11-07(Late News)
Diagnosis of Immediate-type Allergy using SPR Imaging Sensor
°Y. Yanase[1], T. Kawaguchi[1], K. Sakamoto[2], M. Hide[1], [1]Hiroshima Univ. (Japan), [2]Kyushu Inst. of Tech. (Japan)

PS-11-08(Late News)
A Rapid Biosensing Platform Utilizing Si Nanowire Photovoltaic Array and Immunogold Silver Staining
°C.-W. Chen[1], Y.-M. Wu[1], W.-C. Lee[1], T.-Y. Liu[1], F.-M. Pan[1], J.-T. Sheu[1], [1]NCTU (Taiwan)

PS-11-09(Late News)
Size Effects of Pt Nanoparticle/Graphene Composite Materials on the Electrochemcal Sensing of Hydrogen Peroxide and Glucose
°H.C. Hsu[1], J.A. Pai[1], Y.H. Lin[1], J.S. Su[1], C.L. Sun[1,2], [1]Chang Gung Univ. (Taiwan), [2]Chang Gung Memorial Hospital (Taiwan)

12: Spintronics Materials and Devices
(20 papers)

PS-12-01
Gate Controlled Switching between Two Different Persistent Spin Helix States and Determination of Dresselhaus Spin-orbit Interaction Parameter
K. Yoshizumi[1], M. Kohda[1], °J. Nitta[1], [1]Tohoku Univ. (Japan)

PS-12-02
A Self-Terminated Energy-Efficient Nonvolatile Flip-Flop Using 3-terminal Magnetic Tunnel Junction Device
°D. Suzuki[1], T. Hanyu[1], [1]Tohoku Univ. (Japan)

PS-12-03
Spin-valve Effect in Nanoscale Si-based Devices with Ferromagnetic Electrodes
°D.H. Duong[1], M. Tanaka[2], N.H. Pham[1,2], [1]Tokyo Tech (Japan), [2]Univ. of Tokyo (Japan)

PS-12-04
Improvement of Brillouin Light Scattering Signal by using Anti-reflection Coating Layer for Magnetic Multilayers
°J. Jung[1], N.H. Kim[1], K. Park[1], H.K. Hwang[1], J.S. Kim[1], C.Y. You[1], [1]DGIST (Korea)

PS-12-05
Integration of Si Nanowire Waveguides and Magneto-optical Plasmonic Waveguides on a Si Substrate
°V. Zayets[1], H. Saito[1], S. Yuasa[1], [1]AIST (Japan)

PS-12-06
Effect of an Mg-Al Insertion for Directly Sputtered $MgAl_2O_4$ (001)-based Epitaxial Magnetic Tunnel Junctions
°M. Belmoubarik[1], H. Sukegawa[1], S. Mitani[1], K. Hono[1], [1.]NIMS (Japan)

PS-12-07
Fabrication of a Spin Injection Device Having a Top-gate Structure
°W. Nomura[1], T. Miyakawa[1], M. Yamamoto[1], T. Uemura[1], [1.]Hokkaido Univ. (Japan)

PS-12-08
Spin Hall Effect-based Asynchronous Nanomagnetic Logic Devices
°V.P.K. Miriyala[1], M.B.A. Jalil[1], G. Liang[1], [1.]National Univ. of Singapore (Singapore)

PS-12-09
Resistance Drift and Degradation of Fe/Spinel $MgAl_2O_4$/Fe (001) Magnetic Tunnel Junctions
°C. Choi[1], H. Sukegawa[2], S. Mitani[2], Y. Song[1], [1.]Hanyang Univ. (Korea), [2.]NIMS (Japan)

PS-12-10
Modeling and Evaluation of Interface Perpendicular Magnetic Anisotropy in Ta/NiFe/Pt Trilayers
°S. Hirayama[1,2], S. Kasai[1], S. Mitani[1,2], [1.]NIMS (Japan), [2.]Univ. of Tsukuba (Japan)

PS-12-11
Research on the Failure Cell Screen Method of MgO Based MTJ
°K. Kim[1], C. Choi[1], Y. Oh[1], H. Sukegawa[2], S. Mitani[2], Y. Song[1], [1.]Hanyang Univ. (Korea), [2.]NIMS (Japan)

PS-12-12
Fabrication of $Bi_2Y_1Fe_5O_{12}$ Films on Glass and Silicon Substrates by Metal Organic Decomposition Method for Photonic Integrated Circuits
M. Hosoda[1], J. Sato[1], D.A. Wahid[1], °H. Shimizu[1], [1.]Tokyo Univ. of Agri. & Tech. (Japan)

PS-12-13
Influence of Surface Smoothing on Spin Seebeck Effect of $Ce_1Y_2Fe_5O_{12}$ Deposited by Metal Organic Decomposition
°S. Hirata[1], T. Ono[1], Y. Amemiya[1], T. Tabei[1], S. Yokoyama[1], [1.]Hiroshima Univ. (Japan)

PS-12-14
Effect of Post-annealing on Magnetic Properties of Ternary Transition-metal Chalcogenide $(Cr,Fe)_{1-\delta}Te$ thin films grown by MBE
°H. Tsuruoka[1], K. Kanazawa[1], S. Kuroda[1], [1.]Univ. of Tsukuba (Japan)

PS-12-15
Magnetic Phase Diagram and Effect of Capping Layer on Ferromagnetism in High T_C Ferromagnetic Oxide Semiconductor Anatase Co-doped TiO_2
T.K. Krasienapibal[1], Y. Koshimoto[2], D. Oka[2], °T. Fukumura[2], T. Hasegawa[1], [1.]Univ. of Tokyo (Japan), [2.]Tohoku Univ. (Japan)

PS-12-16
Stochastic Macro-model of Magnetic Tunnel Junction for Spice Simulation about Writing Current Density Dependence on Resistance Variation
°J. Choi[1], H. Sukegawa[2], S. Mitani[2], Y. Song[1], [1.]Hanyang Univ. (Korea), [2.]NIMS (Japan)

PS-12-17(Late News)
Epitaxial Growth of Bi_2Te_3 Topological Insulator Thin Films with Persistent Linear Magnetoresistance Behaviors
H.Y. Lee[1], Y.S. Chen[1], Y.C. Lin[1], °Y.C. Lee[1], C.T. Liang[1], Y.H. Chang[1], [1.]National Taiwan Univ. (Taiwan)

PS-12-18(Late News)
Epitaxial Growth and Magnetic Properties of Fe_3O_4 Film on Si (111) Substrate
°N. Takahashi[1], Y. Yamamoto[1], T. Yanase[1], T. Shimada[1], T. Nagahama[1], [1.]Hokkaido Univ. (Japan)

PS-12-19(Late News)
Fabrication of Tunnel Junctions with Fe_3O_4 Electrode and MgO Barrier
°Y. Yamamoto[1], S. Sasaki[1], T. Yanase[1], T. Shimada[1], T. Nagahama[1], [1.]Hokkaido Univ. (Japan)

PS-12-20(Late News)
Minority Spin Transport in Epitaxially Grown Nickel-Iron Nitride Films
°F. Takata[1], K. Ito[1,2,3], K. Kabara[2], S. Higashikozono[1], T. Gushi[1], K. Toko[1], M. Tsunoda[2], T. Suemasu[1], [1.]Univ. of Tsukuba (Japan), [2.]Tohoku Univ. (Japan), [3.]JSPS (Japan)

13: Applications of Nanotubes, Nanowires, and Graphene and related 2D materials
(15 papers)

PS-13-01
Thickness-Dependent Flatband Voltage Shift in MOSCAP with MoS_2 and High-*k* Gate Dielectric
°R. Yang[1], J. Cai[2], S. Wang[2], D. Chi[2], K.W. Ang[1], [1.]National Univ. of Singapore (Singapore), [2.]Institute of Materials Research and Engineering (Singapore)

PS-13-02
First Principles Calculation of Charged Vacancies in Single-Layer Molybdenum Disulfide
°S. Urasaki[1], H. Kageshima[1], [1.]Shimane Univ. (Japan)

PS-13-03
High Performance Ultrathin Micro-Supercapacitors
°F. Tanaka[1], A. Sekiguchi[2], K.U. Laszczyk[1], K. Kobashi[2], T. Yamada[2], K. Hata[2], [1.]TASC (Japan), [2.]AIST (Japan)

PS-13-04
High-Mobility and Low-Carrier-Density Sputtered-MoS_2 Film by Low-Temperature Forming-Gas Annealing for 3D-IC
°J. Shimizu[1], T. Ohashi[1], K. Matsuura[1], I. Muneta[1], K. Kakushima[1], K. Tsutsui[1], H. Wakabayashi[1], [1.]Tokyo Tech (Japan)

PS-13-05
Combination of Synthesis and Post-synthesis Approaches for the Preparation of Single-Walled Carbon Nanotubes with a High Percentage of Semiconductor-type
°S. Sakurai[1], S. Li[1,3], M. Yamada[1], H. Sakurai[1,2], A. Sekiguchi[1], F. Tanaka[1,2], D. Futaba[1], K. Hata[1], [1.]AIST (Japan), [2.]TASC (Japan), [3.]National Univ. of Singapore (Singapore)

PS-13-06
Centimeter-scale High-performance Few-layer MoS_2 Fabricated by RF Magnetron Sputtering and Subsequent Post-deposition Annealing
°S. Ishihara[1,3], Y. Hibino[1], N. Sawamoto[1], T. Ohashi[2], K. Matsuura[2], H. Wakabayashi[2], A. Ogura[1], [1.]Meiji Univ. (Japan), [2.]Tokyo Tech (Japan), [3.]Research Fellow of JSPS (Japan)

PS-13-07
Thin Film Transistors with Length-sorted Single-wall Carbon Nanotubes
°Y. Kuwahara[1], F. Nihey[2], T. Saito[1], [1.]AIST (Japan), [2.]NEC Corp. (Japan)

PS-13-08
Growth of Graphene/3C-SiC (111)/4H-SiC (0001) by a Sublimation Technique with a Vertical Infrared-Lamp Annealer
°Y. Sekine[1], K. Kumakura[1], H. Hibino[1,2], [1.]NTT BRL (Japan), [2.]Kwansei Gakuin Univ. (Japan)

PS-13-09
Effects of Nickel Doping on the Optical and Electrical Properties of MoS_2 Photodetectors
°Z.W. Chen[1], T.S. Ko[1], D.Y. Lin[1], J. Suh[2], Z.S. Chen[1], [1.]National Changhua Univ. of Edu. (Taiwan), [2.]Cornell Univ. (USA)

PS-13-10
Fabrication of Graphene/Diamond Heterojunctions and Their Electronic Properties
°K. Ueda[1], S. Tanaka[1], H. Asano[1], [1.]Nagoya Univ. (Japan)

PS-13-11
Structural and Optical Properties of Wurtzite InP/AlInP Core-Multishell Nanowires
°F. Ishizaka[1], Y. Hiraya[1], K. Tomioka[1,2], J. Motohisa[1], T. Fukui[1], [1.]Hokkaido Univ. (Japan), [2.]JST-PRESTO (Japan)

PS-13-12
Photoelectrochemical Properties of Wurtzite Gallium Phosphide Nanowires grown on GaP (111)B substrates
°K. Tateno[1,2], Y. Ono[3], K. Kumakura[1], [1.]NTT BRL (Japan), [2.]NTT Nanophotonics Center (Japan), [3.]NTT Device Tech. Labs. (Japan)

PS-13-13
Improvement of Silicon Nanowire Solar Cells Made by Metal Catalyzed Electroless Etching and Nano-imprint Lithography
°J. Chen[1,2], T. Subramani[1], W. Jevasuwan[1], N. Fukata[1,2], [1.]NIMS (Japan), [2.]Univ. of Tsukuba (Japan)

PS-13-14
Photocatalytic Performance of Multi-Morphological Nb-doped TiO_2 Nanofibers
°T.H. Lin[1], K.C. Hsiao[1], J.S. Chih[1], P.Y. Wu[1], T.F. Lin[1], M.C. Wu[1,2], [1.]Chang Gung Univ. (Taiwan), [2.]Chang Gung Memorial Hospital (Taiwan)

PS-13-15(Late News)
First-Principles Device Simulations of All Two-Dimensional Material Tunneling Field-Effect Transistors
°M. Ohfuchi[1], T. Ozaki[2], [1.]Fujitsu Labs. Ltd. (Japan), [2.]Univ. of Tokyo (Japan)

14: Power Devices and Materials
(19 papers)

PS-14-01
Drain-Extended FinFET Technology for RF Power Applications
°B.Y. Chen[1,2], K.M. Chen[1], C.S. Chiu[1], G.W. Huang[1,2], H.C. Chen[1], C.C. Chen[1], F.K. Hsueh[1], M.C. Chen[1], E.Y. Chang[2], [1.]National Nano Device Labs. (Taiwan), [2.]NCTU (Taiwan)

PS-14-02
Design and Characterization of Logic Compatible Drain Extended FinFETs for Embedded High-Voltage Circuits
H.H. Chen[1], °S.H. Shih[1], Y.C. King[1], C.J. Lin[1], [1.]National Tsing Hua Univ. (Taiwan)

PS-14-03
Impact of the 3D Stacking Power Supply on Chip for High Frequency DC-DC Converter
°K. Hiura[1], Y. Ikeda[1], Y. Hino[1], S. Matsumoto[1], [1.]Kyushu Inst. of Tech. (Japan)

PS-14-04
Comparisons of Hot-carrier Effects of Scaled N-Channel and P-Channel Thin-Film SOI Power MOSFETs under Constant Drain Electric Field
°K. Ikeno[1], S. Matsumoto[1], [1.]Kyushu Inst. of Tech. (Japan)

PS-14-05
AC Hot Carrier Effect of the Thin-Film SOI Power n-MOSFET
°D. Takenaka[1], S. Matsumoto[1], [1.]Kyushu Inst. of Tech. (Japan)

PS-14-06
Performance Enhancement of Bipolar Devices with Slot Pattern RESURF Approach in 40V BCD Technology
°C.H. Huang[1,2], T.Y. Huang[1], C.F. Huang[2], C.H. Cheng[2], C.Y. Yang[1], H.P. Chu[1], K.H. Lo[1,2], T.Y. Tsai[1], H.D. Su[1], J. Gong[3], F. Zhao[4], [1.]Richtek Technology Corp. (Taiwan), [2.]National Tsing Hua Univ. (Taiwan), [3.]Tunghai Univ. (Taiwan), [4.]Washington State Univ. (USA)

PS-14-07
Ohmic Contact on N-type and P-type Ion-implanted 4H-SiC with Low-temperature Silicide-less Process
°H. Shimizu[1], A. Shima[1], Y. Shimamoto[1], [1.]Hitachi, Ltd. (Japan)

PS-14-08
A Surface-Potential-Based Reverse-Transfer Capacitance Model for Vertical SiC DMOSFET
°M. Shintani[1], Y. Nakamura[1], M. Hiromoto[1], T. Hikihara[1], T. Sato[1], [1.]Kyoto Univ. (Japan)

PS-14-09
Oxidation Mechanism of 4H-SiC in Dilute N_2O Ambient
T.H. Wu[1], °B.Y. Tsui[1], Y.H. Tseng[1], C.T. Yeng[2], C.C. Hung[2], C.Y. Lee[2], [1]NCTU (Taiwan), [2]Hestia-Power Inc. (Taiwan)

PS-14-10
Enhanced Thermal Oxidation of 4H-SiC Using $SrTi_{1-x}Mg_xO_{3-\delta}$ Catalyst
°L. Li[1], A. Ikeda[1], T. Asano[1], [1]Kyushu Univ. (Japan)

PS-14-11
Characterization of Electrical Field Enhancement at the Edge of Schottky Electrode on Diamond
°H. Umezawa[1,2], H. Gima[3], K. Driche[2,4], Y. Kato[1], F. Donatini[2], E. Gheeraert[2], T. Yoshitake[3], Y. Mokuno[1], [1]AIST (Japan), [2]Inst. Néel / CNRS (France), [3]Kyushu Univ. (Japan), [4]Univ. of Tsukuba (Japan)

PS-14-12
Defect Reduction in Homoepitaxial Diamond Films for High Breakdown Voltage Schottky Diodes
°T. Teraji[1], H. Umezawa[2], [1]NIMS (Japan), [2]AIST (Japan)

PS-14-13
Effect of Substrate Finish on Microstructure Evolution of Sintered Ag Joints to Attach Power Devices with Paste of Ag Nanoparticles during Isothermal Ageing
°Y. Wang[1,2], J. Li[2], P. Agyakwa[2], C. Johnson[2], S. Li[2], [1]China Aero-Polytechnology Establishment (China), [2]Univ. of Nottingham (UK)

PS-14-14(Late News)
Impact of Optical Phonon Scattering on Inversion Channel Mobility in 4-*H*-SiC Trenched MOSFETs
°K. Kutsuki[1,2], S. Kawaji[1], Y. Watanabe[1], T. Onishi[2], H. Fujiwara[2], K. Yamamoto[3], T. Yamamoto[3], [1]Toyota Central R&D Labs. Inc. (Japan), [2]TOYOTA MOTOR Corp. (Japan), [3]DENSO Corp. (Japan)

PS-14-15(Late News)
Strong Impact of Slight Misalignment of the Trench Direction from [11-20] on Deep Trench Filling Epitaxy for SiC Super-junction (SJ) Devices
°R. Kosugi[1], S. Ji[1], K. Mochizuki[1], H. Kouketsu[1], Y. Kawada[1], H. Fujisawa[1], K. Kojima[1], S. Yoshida[1], Y. Yonezawa[1], H. Okumura[1], [1]AIST (Japan)

PS-14-16(Late News)
Effect of N Bonding Structure in AlON on Leakage Current of 4H-SiC MOS Capacitor
°W. Takeuchi[1], K. Yamamoto[2], T. Mimura[2], M. Sakashita[1], T. Kanemura[2], O. Nakatsuka[1], S. Zaima[1], [1]Nagoya Univ. (Japan), [2]DENSO Corp. (Japan)

PS-14-17(Late News)
Simulation-based Study on the Optical Beam Intensity Dependence of the Optically Triggered 4H-SiC Thyristors Turn-on Operation
°J. Hasegawa[1], L. Pace[2], L.V. Phung[2], M. Hatano[1], D. Planson[2], [1]Tokyo Tech (Japan), [2]Lab. Ampère (France)

PS-14-18(Late News)
4H-SiC Bipolar SRAM Cell for High-temperature Applications
H. Elgabra[1], °A. Siddiqui[1], S. Singh[1], [1]Khalifa Univ. of Science Tech. and Research (United Arab Emirates)

PS-14-19(Late News)
Characterization of Breakdown Behavior of Diamond SBDs using Impact Ionization Coefficients
°K. Driche[1,2,3,4], H. Umezawa[1,2,4], G. Chicot[1,5], N. Rouger[1,5], E. Gheeraert[1,2,3], [1]Univ. Grenoble Alpes (France), [2]CNRS, Inst. Neel (France), [3]Univ. of Tsukuba (Japan), [4]AIST (Japan), [5]CNRS, G2Elab (France)

15: Photovoltaic Materials and Devices

(12 papers)

PS-15-01
Non-Sulfurized CZTS (Cu_2ZnSnS_4) Thin Film Developed by Chemical Bath Deposition
°S. Lin[1], S. Chang[1], T. Hsueh[2], C. Lin[1], S. Chen[3], [1]National Cheng Kung Univ. (Taiwan), [2]National Nano Device Labs. (Taiwan), [3]National Yunlin Univ. of Sci. and Tech. (Taiwan)

PS-15-02
First-principles Study of Defect Formation in Photovoltaic Semiconductor Cu_2GeS_3
°H. Nishihara[1], T. Maeda[1], A. Shigemi[1], T. Wada[1], [1]Ryukoku Univ. (Japan)

PS-15-03
Study of Post-growth Se-annealing on the Properties of $CuGaSe_2$ layers Grown by Three-stage Evaporation Process
°M. Islam[1], A. Uedono[1], T. Sakurai[1], C. Hugenschmidt[2], W. Egger[3], R. Scheer[4], A. Dalla[4], R. Krause-Rehberg[4], K. Akimoto[1], [1]Univ. of Tsukuba (Japan), [2]Tech. Univ. Munchen (Germany), [3]Univ. der Bundeswehr München (Germany), [4]Martin Luther Univ. Halle (Germany)

PS-15-04
Metalloporphyrin Doped Zinc Oxide Films for Flexible ZnO-based Dye-sensitized Solar Cell Application
°M. Haque Choudhury[1,2], A. Abuelwafa[1,3], N. Kishi[1], T. Soga[1], [1]Nagoya Inst. of Tech. (Japan), [2]International Islamic Univ. Chittagong (Bangladesh), [3]South Valley Univ. (Egypt)

PS-15-05
Withdrawn

PS-15-06
Fabrication, Characterization and Photovoltaic Properties of $CH_3NH_3PbI_3$ nanoparticles
°M. Shahiduzzaman[1], K. Yamamoto[1], Y. Furumoto[1], T. Kuwabara[1], K. Takahashi[1], T. Taima[1], [1]Kanazawa Univ. (Japan)

PS-15-07
Interfacial Layers for Thick Vacuum-deposited Crystalline Organic Photovoltaic Cells
°M. Katayama[1], T. Kaji[1], [1]Tokyo Univ. of Agri. & Tech. (Japan)

PS-15-08(Late News)
The Influence of Substrate Orientation on Localized Nitrogen State in GaAsN films Grown on Vicinal GaAs (001) Substrates
°M. Horikiri[1], W. Ding[1], Y. Yokoyama[1], H. Suzuki[1], T. Ikari[1], Y. Ohshita[2], M. Yamaguchi[2], A. Fukuyama[1], [1]Univ. of Miyazaki (Japan), [2]Toyota Tech. Inst. (Japan)

PS-15-09(Late News)
KF Addition to Cu_2SnS_3 Thin Films Prepared by Sulfurization Process
°M. Nakashima[1], J. Fujimoto[1], T. Yamaguchi[1], J. Sasano[2], M. Izaki[2], [1]National Inst. of Tech., Wakayama College (Japan), [2]Toyohashi Univ. of Tech. (Japan)

PS-15-10(Late News)
Effects of Se Flow Rates on Characteristics of CIGS Photovoltaics Devices Prepared by Two-step Process in Vacuum
°C. Huang[1], W. Chuang[1], C. Lin[1], [1]National Dong Hwa Univ. (Taiwan)

PS-15-11(Late News)
Stability and Performance Enhancement of Lead Iodide Perovskite Solar Cells using Salt Additives
°C. Chu[1], K. Karan[1], [1]Academia Sinica (Taiwan)

PS-15-12(Late News)
Microtextured Hybrid PEDOT:PSS-Silicon Solar Cells Employing Kirigami Graphene
°Z. Chen[1], Y. Lai[1], C. Huang[2], P. Yu[1], [1]NCTU (Taiwan), [2]Ming Chi Univ. of Tech. (Taiwan)