

Thursday, September 21

POSTER SESSION

15:30-17:30 Exhibition Hall 1, 2

01: Advanced LSI Processing & Materials Science

(6 Papers)

PS-1-01

Schottky Barrier Heights of Metal Silicides on Si and Ge

°J. Robertson¹, H. Li¹, ¹Cambridge Univ. (UK)

PS-1-02

Characterization of Deep Trapping States in Chemical Vapor Deposited Silicon Nitride by Deep Level Transient Spectroscopy

°N. Shinoda¹, T. Kikuchi¹, ¹Toshiba Corp. (Japan)

PS-1-03

First Study of High-Ge-Content Si_{0.16}Ge_{0.84} Gate Stack by Low Pressure Oxidation

°J. -L. Zhang¹, W. -L. Lee¹, M. -L. Tsai¹, G. -L. Luo², C. -H. Chien¹, ¹National Chiao Tung Univ. (Taiwan), ²National Nano Device Labs. (Taiwan)

PS-1-04

Oxidation Enhancement Characteristics of SrTi_xMg_{1-x}O_{3-δ} Catalyst for Low Temperature Gate Oxide Formation

°H. F. Sun¹, A. Ikeda¹, T. Asano¹, ¹Kyushu Univ. (Japan)

PS-1-05

Effect of High Pressure Annealing on the Reliability of FDSOI Tunneling FET

°S. C. Kang¹, D. Lim², S. K. Lim¹, J. Noh¹, S. -M. Kim¹, S. K. Lee¹, C. Choi², B. H. Lee¹, ¹Gwangju Inst. of Sci. and Tech. (Korea), ²Hanyang Univ. (Korea)

PS-1-06 (Late News)

High-hole mobility GeSn on glass formed by solid-phase crystallization using an atomic density controlled precursor

°K. Moto^{1,2}, K. Toko¹, R. Yoshimine¹, T. Suemasu¹, ¹Univ. of Tsukuba (Japan), ²JSPS Res. Fellow (Japan)

02: Interconnect Technologies, MEMS, and Reliability
(7 Papers)

PS-2-01

Performance of WCN Diffusion Barrier for Cu Through Silicon Vias

Y. T. Kim¹, °S. Lee^{2,1}, B. Ju², ¹Korea Inst. of Sci. and Tech. (Korea), ²Korea Univ. (Korea)

PS-2-02

Optimization of Narrow Width Effect on Titanium Thermistor in Uncooled Antenna-Coupled Terahertz Microbolometer

°A. Banerjee¹, H. Satoh¹, Y. Sharma¹, N. Hiromoto¹, H. Inokawa¹, ¹Shizuoka Univ. (Japan)

PS-2-03

Fatigue Testing of Poly-SiGe Film Using Microresonator

°A. Uesugi¹, T. Namazu¹, ¹Aichi Inst. of Tech. (Japan)

PS-2-04

Characterization of TiHfN ternary alloy films as a new barrier

°M. B. Takeyama¹, M. Sato¹, ¹Kitami Inst. of Tech. (Japan)

PS-2-05

Effect of the crystallinity on the grain boundary diffusion of copper atoms in electroplated copper thin-film interconnections

°K. Suzuki¹, H. Sakamoto¹, H. Miura¹, ¹Tohoku Univ. (Japan)

PS-2-06

Facile approach of enhanced heat mitigation between 3D stacked layers by Introducing a sub micron thick heat spreading materials

°C. H. Kumar¹, A. K. Panigrahi¹, P. Supraja¹, N. Paul¹, S. G. Singh¹, ¹Indian Inst. of Tech. -Hyderabad (India)

PS-2-07 (Late News)

Investigation of Transient Thermal Dissipation in Three-Dimensional Stacked ICs

°Y. Araga¹, H. Shimamoto¹, S. Melamed¹, K. Kikuchi¹, M. Aoyagi¹, ¹AIST (Japan)

03: CMOS Devices / Device Physics

(16 Papers)

PS-3-01

Ge-on-insulator tunneling FET with abrupt source junction by snowplow effect of NiGe

°R. Matsumura^{1,2}, T. Katoh¹, R. Takaguchi¹, M. Takenaka¹, S. Takagi¹, ¹Univ. of Tokyo (Japan), ²JSPS Res. Fellow (Japan)

PS-3-02

Performance enhancement of GOI tunneling FETs with source junctions formed by low energy BF₂ ion implantation

T. Katoh¹, °R. Matsumura¹, R. Takaguchi¹, M. Takenaka¹, S. Takagi¹, ¹Univ. of Tokyo (Japan)

PS-3-03

Switching Time Analysis of Negative Capacitance UTB GeOI MOSFETs

°P. -C. Chiu¹, V. P. -H. Hu¹, ¹National Central Univ. (Taiwan)

PS-3-04

III-V Heterojunction TFET with Bandgap Engineering for Performance Enhancement and Ambipolar Leakage Suppression

°C. -T. Wang¹, V. P. -H. Hu¹, ¹National Central Univ. (Taiwan)

PS-3-05

Short Channel Modeling of Tunnel FET's

°K. Fukuda¹, H. Asai¹, J. Hattori¹, T. Mori¹, Y. Morita¹, W. Mizubayashi¹, M. Masahara¹, S. Migita¹, H. Ota¹, K. Endo¹, T. Matsukawa¹, ¹AIST (Japan)

PS-3-06

Enhancement of Capacitance Benefit by Drain Offset

Structure in TFET Circuit Speed Associated with Tunneling Probability Increase

^o*H. Asai¹, T. Mori¹, T. Matsukawa¹, J. Hattori¹, K. Endo¹, K. Fukuda¹, ¹AIST (Japan)*

PS-3-07

Benchmarking the Impact of Work Function Variations on Cell Stability of Low-Voltage 6T SRAMs with Non-planar and Planar TMDFETs

^o*C. -T. Zheng¹, P. Su¹, C. -T. Chuang¹, ¹National Chiao Tung Univ. (Taiwan)*

PS-3-08

Improved Hetero-Gate-Dielectric Tunnel Field-Effect Transistors

W. Y. Choi¹, ^oJ. W. Lee¹, ¹Sogang Univ. (Korea)

PS-3-09

Numerical Design for Power Integrity Analysis of Tunnel Field Effect Transistors

^o*C. Tanaka¹, T. Tanamoto¹, M. Koyama¹, ¹Toshiba Corp. (Japan)*

PS-3-10

Effects of Si Recess Structure on Performance and Reliability in High Voltage n-MOSFETs

C. -Y. Chen¹, J. F. Chen¹, ^oY. -L. Tsai¹, H. -T. Hsu², H. -P. Hwang², ¹National Cheng Kung Univ. (Taiwan), ²Powerchip Tech. Corp. (Taiwan)

PS-3-11

Theoretical Investigation of the Performance Improvement in GeSn/SiGeSn hetero Line Tunneling FET (HL-TFET)

^o*H. Wang¹, G. Han¹, Y. Liu¹, C. Zhang¹, J. Zhang¹, Y. Hao¹, ¹Xidian Univ. (China)*

PS-3-12

Ge-cap Quantum Well Bulk FinFET for 5nm node CMOS Integration

^o*E. D. Kurniawan^{1,2}, S. -Y. Yang¹, Y. -Y. Yang¹, K. -H. Peng¹, V. Thirunavukkarasu^{1,2}, Y. -H. Lin³, Y. -C. Wu¹, ¹National*

Tsing Hua Univ. (Taiwan), ²*Academia Sinica (Taiwan)*,
³*National United Univ. (Taiwan)*

PS-3-13 (Late News)

Hot-carrier Induced Drastic Off-state Leakage Current Degradation in STI-based N-channel LDMOS

°*K. Takahashi¹, K. Komatsu¹, T. Sakamoto¹, K. Kimura¹, F. Matsuoka¹, ¹Toshiba Electronic Devices & Storage Corp. (Japan)*

PS-3-14 (Late News)

TCAD simulation of planar single-gate Si tunnel FET with average subthreshold swing less than 60 mV/dec for 0.3 V operation

°*K. Kukita¹, T. Uechi¹, J. Shimokawa¹, M. Goto¹, Y. Yokota¹, S. Kawanaka¹, T. Tanamoto², M. Koyama², H. Tanimoto¹, S. Takagi³, ¹Toshiba Memory Corp. (Japan), ²Toshiba Corp. (Japan), ³Univ. of Tokyo (Japan)*

PS-3-15 (Late News)

Multi- V_T with Metal Gate Work-function Modulation by PLAD Implants for Ge FinFET Applications

°*S. D. Kothari¹, H. Nejad², N. Variam², S. Lodha¹, ¹Indian Inst. of Tech. Bombay (India), ²Applied Materials Inc. (USA)*

PS-3-16 (Late News)

Low-Temperature Microwave Annealing Process for $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$ MOSFETs

°*J. W. Lin¹, Q. -H. Luc¹, K. S. Yang¹, C. -C. Chang¹, C. -C. Fan Chiang¹, H. B. Do¹, H. M. T. Ha¹, S. H. Huynh¹, Y. D. Jin¹, T. A. Nguyen¹, Y. -C. Lin¹, E. Y. Chang¹, ¹National Chiao Tung Univ. (Taiwan)*

04: Advanced Memory Technology

(15 Papers)

PS-4-01

Resistive Switching in V_2O_3 Thin Films Induced by Current Sweeps and Voltage Pulses

°*M. Menghini¹, P. Homm¹, C. Vets¹, B. Van Bilzen¹, J. P.*

Locquet¹, ¹KU Leuven (Belgium)

PS-4-02

Non-Destructive Observation of Chemical State in ReRAM by Laser-excited Photoemission Electron Microscopy

°J. Kawakita^{1,2}, H. Shima^{2,3}, Y. Naitoh^{2,3}, H. Akinaga^{2,3}, T. Taniuchi^{1,2}, S. Shin^{1,2}, ¹Univ. of Tokyo (Japan), ²AIST-UTokyo Advanced Operando-Measurement Tech. Open Innovation Lab. (OPERANDO-OIL) (Japan), ³AIST (Japan)

PS-4-03

Role of Al₂O₃ Thin Layer to Improve The Switching Properties in Ta₅Si₃ Based CBRAM Device

°D. Kumar¹, R. Aluguri¹, U. Chand¹, S. Chandrasekaran¹, T. -Y. Tseng¹, ¹National Chiao Tung Univ. (Taiwan)

PS-4-04

The effect of TiW thickness on non-polar to bipolar switching transformation in ZrO₂-based CBRAM

°S. Chandrasekaran¹, F. M. Simanjuntak², T. Y. Tseng¹, ¹National Chiao Tung Univ. (Taiwan), ²National Dong Hwa Univ. (Taiwan)

PS-4-05

An Investigation of Light Triggering Effect on the Programming of Gate-less Anti-fuse Cells

Z. -H. Chen¹, °Y. Yeh¹, P. Cheng¹, C. J. Lin¹, Y. King¹, ¹National Tsing Hua Univ. (Taiwan)

PS-4-06

Error-Correction & Set/Reset Verify Strategy of Storage Class Memory (SCM) for SCM/NAND Flash Hybrid and All-SCM Storage

°C. Matsui¹, K. Takeuchi¹, ¹Chuo Univ. (Japan)

PS-4-07

Experimental Investigation of Localized Stress Induced Leakage Current Distribution in Gate Dielectrics Using Array Test Circuit

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°H. Park¹, T. Suwa¹, R. Kuroda¹, A. Teramoto¹, S. Sugawa¹,
¹Tohoku Univ. (Japan)

PS-4-08

Impact of Mechanical Stress to Cell Characteristics in Vertically Stacked NAND Flash Structure

°Y. Oh¹, T. Ono², Y. Song¹, ¹Hanyang Univ. (Korea),
²Tohoku Univ. (Japan)

PS-4-09

Impacts of Low Temperature formed SiO₂ Tunneling and Si₃N₄/HfO₂ Trapping Layers on Gate-All-Around Charge-Trapping Flash Memory Devices

°P. -Y. Lin¹, K. -S. Chang-Liao¹, H. -K. Fang¹, C. -H. Cheng¹, W. -H. Huang², C. -H. Shen², J. -M. Shieh²,
¹National Tsing Hua Univ. (Taiwan), ²National Nano Device Labs. (Taiwan)

PS-4-10

New Tunnel FET Charge-Trapping Memory with Large Memory Window for Ultra Low Power Operation

°H. Kino¹, T. Fukushima¹, T. Tanaka¹, ¹Tohoku Univ. (Japan)

PS-4-11

V_{th} variation of string SONOS NAND Flash depending on single grain boundary and stored electron charges in an adjacent cell

°H. Oh¹, J. Kim¹, R. -H. Baek¹, J. -S. Lee¹, ¹POSTECH (Korea)

PS-4-12

Poly-Ge Tri-gate Nanowire Junctionless Charge-Trapping Flash Devices Formed with Low-Temperature Processes for 3D Memory Applications

°Y. -C. Lu¹, K. -S. Chang-Liao¹, H. -K. Fang¹, K. -Y. Li¹, W. -H. Huang², C. -H. Shen², J. -M. Shieh², ¹National Tsing Hua Univ. (Taiwan), ²National Nano Device Labs. (Taiwan)

PS-4-13

Spin orbit torque magnetization switching of a tungsten

based three terminal perpendicular magnetic tunnel junction for low power Spin Orbit Torque MRAM application

°Y. Guerfi¹, T. Brächer², O. Boulle², J. Langer³, B. Ocker³, P. Gambardella⁴, M. -C. Cyrille¹, G. Gaudin², ¹CEA-Leti (France), ²Univ. Grenoble Alpes, CNRS, CEA, Grenoble INP, INAC, SPINTEC (France), ³Singulus Tech. (Germany), ⁴ETH Zurich (Switzerland)

PS-4-14

Investigation of bias polarity dependence on set operation in phase change memory using GeCu₂Te₃

°J. An¹, K. Kim¹, C. Choi¹, S. Shindo², Y. Sutou², Y. Song¹, ¹Hanyang Univ. (Korea), ²Tohoku Univ. (Japan)

PS-4-15 (Late News)

Strain-Enhanced Ferroelectric Aluminum-Doped Hafnium Oxides for Volatile and Nonvolatile Memories Applications

°C. Liu¹, C. -C. Fan¹, Y. -R. Chen¹, G. -L. Liou², Y. -C. Chiu¹, C. -Y. Chang², C. -H. Cheng¹, H. -H. Hsu³, ¹National Chiao Tung Univ. (Taiwan), ²National Taiwan Normal Univ. (Taiwan), ³National Taipei Univ. of Tech. (Taiwan)

05: Advanced Circuits and Systems

(10 Papers)

PS-5-01

Octagonal MOSFET for Simultaneous Sensing of Temperature and Magnetic Field

°T. Harada¹, K. Kaiwa¹, ¹Yamagata Univ. (Japan)

PS-5-02

Sensor assembly method using Si-interposer with trenches for 3-D binocular range sensors

°K. Nakajima¹, ¹Kyushu Inst. of Tech. (Japan)

PS-5-03

Temperature Sensors with Negative and Positive Temperature Coefficients by Using Cascoded Diode-connected Sub-threshold NMOSFETs and PMOSFETs

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R. -L. Wang¹, °K. -B. Lee¹, C. -S. Tsai¹, L. -W. Wang¹, Y. -Y. Lin¹, H. -Y. Chen¹, Y. -T. Chuang², H. -H. Liao², H. -H. Tsai², Y. -Z. Juang², ¹National Kaohsiung Normal Univ. (Taiwan), ²National Applied Research Lab., National Chip Implementation Center (Taiwan)

PS-5-04

Analysis of Dynamic Characteristics of SiC SBD at High Switching Frequency Based on Junction Capacitance

°R. Maeda¹, T. Okuda¹, T. Hikihara¹, ¹Kyoto Univ. (Japan)

PS-5-05

A Cyclic Switched-Capacitor Step-Down DC-DC Regulator with Enhanced Output Current

W. -L. Wang¹, °H. Lin¹, C. -L. Yu¹, ¹National Chung Hsing Univ. (Taiwan)

PS-5-06

A 2.4 – 3.2 GHz Robust Self-Injecting Injection-Locked PLL

°J. Yang¹, Z. Zhang¹, L. Liu¹, J. Liu¹, N. Wu¹, ¹State Key Laboratory of Super Lattice and Microstructures Institute of Semiconductors, Chinese Academy of Sciences, Univ. of Chinese Academy of Sciences (China)

PS-5-07

A 0.45-to-1.8 GHz Fully Synthesized Injection Locked Bang-Bang PLL with OFDAC to Enhance DCO resolution

°J. Yang¹, Z. Zhang¹, L. Liu¹, J. Liu¹, N. Wu¹, ¹State Key Laboratory of Super Lattice and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Univ. of Chinese Academy of Sciences (China)

PS-5-08

Low Power UWB CMOS LNA using Resistive Feedback and Current-Reused Techniques

°J. -C. Guo¹, C. -S. Lin¹, ¹National Chiao Tung Univ. (Taiwan)

PS-5-09

Reconfigurable Block-based Normalization Circuit for

On-chip Object Detection

°A. Luo¹, F. An¹, X. Zhang¹, L. Chen, H. J. Mattausch¹,
¹Hiroshima Univ. (Japan)

PS-5-10 (Late News)

A High-Efficiency Wide-Input-Voltage-Range CMOS
Voltage Doubler Rectifier for RF Wireless Power Transfer
Systems

T. -H. Tsai¹, °W. -M. Cheng¹, Y. -L. Lo¹, W. -B. Yang²,
¹National Kaohsiung Normal Univ. (Taiwan), ²Tamkang
Univ. (Taiwan)

**06: Compound Semiconductor Electron Devices &
Related Technologies**

(14 Papers)

PS-6-01

Impact of Substrate off-angle on the *m*-plane GaN Schottky
Diodes

°H. Yamada¹, H. Chonan¹, T. Takahashi¹, M. Shimizu¹,
¹AIST (Japan)

PS-6-02

RF Power Characteristics of the AlGaIn/GaN HEMTs with
Molecular Beam Deposition CeO₂ as Gate Insulator

Y. -S. Chiu¹, °Y. Lin¹, Y. C. Lin¹, J. C. Huang¹, H. Iwai², K.
Kakushima², E. Y. Chang¹, ¹National Chiao Tung Univ.
(Taiwan), ²Tokyo Tech (Japan)

PS-6-03

Electron Mobility of Two-dimensional Electron Gas in
InGaIn Heterostructures: Effects of Alloy Disorder and
Random Dipole Scatterings

°T. Hoshino¹, N. Mori¹, ¹Osaka Univ. (Japan)

PS-6-04

Electrical Characteristics of n-GaN Schottky Contacts on
Cleaved Surfaces of Free-Standing Substrates -- Metal
Work-Function Dependence of Schottky Barrier Height --

°H. Imadate¹, T. Mishima², K. Shiojima¹, ¹Univ. of Fukui
(Japan), ²Hosei Univ. (Japan)

PS-6-05

Investigation of the Interface Stability of the Metal/HfO₂/AlN/InGaAs MOS Devices

H. Binh Do¹, Q. H. Luc¹, M. T. H. Ha¹, S. H. Huynh¹, T. A. Nguyen¹, J. W. Lin¹, K. S. Yang¹, °C. -C. F. Chiang¹, Y. -D. Jin¹, Y. C. Lin¹, E. Y. Chang¹, ¹National Chiao Tung Univ. (Taiwan)

PS-6-06

AlGa_n/Ga_nN Schottky Gate Fin-HEMT Fabricated on 8-inch Silicon (111) Substrate with Thin Buffer Layer

°L. -C. Chang¹, C. -J. Dai¹, M. Yang¹, Y. -H. Jiang¹, C. -H. Wu¹, ¹National Taiwan Univ. (Taiwan)

PS-6-07

Effects of Channel Profile and Source/Drain Resistance on P-type SnO TFTs

°M. -H. Wu¹, H. -C. Lin¹, P. -W. Li¹, ¹National Chiao Tung Univ. (Taiwan)

PS-6-08

Improved Electrical Stability of Thin-Film Transistors with Co-sputtered Ti-IGZO Channel and Zr_{0.85}Si_{0.15}O₂ Gate Dielectric

H. -P. Yan¹, °Z. -K. Zhuang¹, ¹National Cheng Kung Univ. (Taiwan)

PS-6-09

An improved normally-off Al₂O₃/Ga_nN MOSFET based on self-terminating gate-recess etching technique

°H. Wang¹, J. Wang¹, J. Liu¹, M. Yu¹, B. Xie¹, W. Wu¹, ¹Peking Univ. (China)

PS-6-10

Fabrication of a Pt/Mg_xZn_{1-x}O/ZnO Schottky barrier photodiode utilizing a field plate structure

°H. Endo¹, K. Takahashi¹, Y. Kashiwaba², ¹Iwate Indus. Res. Inst. (Japan), ²Iwate Univ. (Japan)

PS-6-11

Electrical Performances of 1T-DRAM based on PNP

Tunneling FET with asymmetric Double-Gate Structure

°Y. J. Yoon¹, J. H. Seo¹, M. S. Cho¹, B. G. Kim¹, I. M. Kang¹, ¹Kyungpook National Univ. (Korea)

PS-6-12

Transient-mode Simulation of MOS C-V Characteristics for GaN

°K. Fukuda¹, H. Asai¹, J. Hattori¹, M. Shimizu¹, T. Hashizume², ¹AIST (Japan), ²Hokkaido Univ. (Japan)

PS-6-13

Defect Observations of Ni/AlGaIn/GaN Schottky Contacts on Si Substrates Using Scanning Internal Photoemission Microscopy

°K. Shiojima¹, H. Konishi¹, H. Imadate¹, Y. Yamaoka^{2,3}, K. Matsumoto², T. Egawa³, ¹Univ. of Fukui (Japan), ²Taiyo Nippon Sanso Corp. (Japan), ³Nagoya Inst. of Tech. (Japan)

PS-6-14

In-Situ Mapping of Degradation of AlGaIn/GaN MIS-HEMTs Using Video-Mode Scanning Internal Photoemission Microscopy

°K. Shiojima¹, S. Murase¹, Y. Watamura², T. Suemitsu², ¹Univ. of Fukui (Japan), ²Tohoku Univ. (Japan)

07: Photonic Devices and Related Technologies

(11 Papers)

PS-7-01

Dewetting-Induced Formation and Optical Properties of Arrays of Low-Ge-Content SiGe Mie-Resonators on Si (100) Surface

°V. Poborchii¹, A. Shklyaev², L. Bolotov¹, N. Uchida¹, T. Tada¹, ¹AIST (Japan), ²A.V. Rzhanov Inst. of Semiconductor Physics, SB RAS, (Russia)

PS-7-02

Low-Crosstalk Optical Switch with InGaAsP/Si Hybrid MOS Optical Phase Shifter

°Q. Li¹, S. Takagi¹, M. Takenaka¹, ¹Univ. of Tokyo (Japan)

PS-7-03

Low-optical-loss graphene-based phase modulator operating at mid-infrared wavelength

°*Y. Yamaguchi¹, S. Takagi¹, M. Takenaka¹, ¹Univ. of Tokyo (Japan)*

PS-7-04

Withdrawn

PS-7-05

Design THz Quantum Cascade Lasers Toward High Output Power Near Liquid Nitrogen Temperature Operation

°*T. -T. Lin¹, H. Hirayama¹, ¹RIKEN (Japan)*

PS-7-06

InGaN/GaN μ LEDS for display applications Optical and electrical characteristics spread comprehension

°*A. Daami^{1,2}, F. Olivier^{1,2}, D. Sarrasin^{1,2}, L. Dupré^{1,2}, F. Templier^{1,2}, ¹Univ. Grenoble Alpes (France), ²CEA-Leti, MINATEC Campus (France)*

PS-7-07

EQE Enhancement Dependency on Reflective p-type Electrode of Ni/Mg and Rh in AlGaIn UVC LED with Transparent p-AlGaIn Contact Layer.

°*N. Maeda¹, J. Yun¹, M. Jo¹, H. Hirayama¹, ¹RIKEN (Japan)*

PS-7-08

Size Expansion of PbS Quantum Dots by Silica Coating for Position Control with Si Template Fabricated by SPM Lithography

°*I. Okumura¹, Y. Nishizaki¹, S. Yamashita¹, K. Niwa¹, K. Mukai¹, ¹Yokohama National Univ. (Japan)*

PS-7-09

Transversal Symmetry Breaking in Novel Photonic Crystal Waveguide: Innovative Manner to Master Defect Band Dispersion Relation

°*M. Sotto¹, K. Debnath¹, M. K. Hussain¹, Z. Li¹, F. Liu¹, A. Z. Khokar¹, S. Saito¹, ¹Univ. of Southampton (UK)*

PS-7-10

Controlling Circular Polarized Localized Surface Plasmon Resonance in Nanorod Based Metasurface

°H. -T. Lin¹, C. -Y. Chang¹, P. -J. Cheng¹, M. -S. Lai^{1,2}, Y. -Y. Hsu^{1,2}, S. -W. Chang^{1,2}, P. -K. Wei¹, M. -H. Shih^{1,2,3},
¹RCAS, Academia Sinica (Taiwan), ²National Chiao Tung Univ. (Taiwan), ³National Sun Yat-sen Univ. (Taiwan)

PS-7-11

The Resonant Phenomenon in the PL Spectra Measured in the Tensile-Strained Ge Microbridges

°P. Zhou¹, X. Xu¹, Y. Kanda¹, S. Matsushita¹, K. Sawano¹, T. Maruizumi¹, ¹Tokyo City Univ. (Japan)

08: Advanced Material Synthesis and Crystal Growth Technology

(15 Papers)

PS-8-01

High-Quality InSb Nanostructures Grown by Molecular-Beam Epitaxy

°D. Pan¹, X. Yu¹, J. Zhao¹, ¹Ins. of Semiconductors, Chinese Academy of Sciences (China)

PS-8-02

Magnetic Domain Characterizations of MnAs Nanoclusters on Si (111) Substrate

°M. Iida¹, R. Horiguchi¹, K. Morita¹, S. Hara¹, ¹Hokkaido Univ. (Japan)

PS-8-03

Low-Temperature Sb-Induced Layer Exchange Crystallization for Slef-Limiting Formation of n-Type Ge/Insulator

°H. Gao¹, R. Aoki¹, M. Miyao¹, T. Sadoh¹, ¹Kyushu Univ. (Japan)

PS-8-04

In situ investigation of self-catalyzed purity Copper nanowire growth through seed-mediated synthesis

°T. -Y. Lin¹, Y. -L. Chen¹, C. -W. Huang¹, C. -F. Chang¹, C.

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-H. Chiu¹, G. -M. Huang¹, Y. -C. Lo¹, W. -W. Wu¹, ¹National Chiao Tung Univ. (Taiwan)

PS-8-05

Self-catalyst growth of InAs and InAs/GaSb
Heterostructure Nanowires on Si substrate by MOCVD

°R. K. Kakkerla¹, H. W. Yu¹, D. Anandan¹, C. J. Hsiao², S. K. Singh¹, E. Y. Chang¹, ¹National Chiao Tung Univ. (Taiwan), ²National Cheng Kung Univ. (Taiwan)

PS-8-06

Boron Nitride Thin Films Grown on (0001) Sapphire
Substrates by Molecular Beam Epitaxy

°Y. Kobayashi¹, T. Kimura¹, H. Nakazawa¹, H. Okamoto¹, M. Hiroki², K. Kumakura², ¹Hirosaki Univ. (Japan), ²NTT Basic Res. Lab. (Japan)

PS-8-07

Compositional Pulling Effect in Epitaxial Growth of
GaInN by RF-MBE

°T. Yamaguchi¹, T. Sasaki², M. Takahashi², T. Araki³, T. Onuma¹, T. Honda¹, Y. Nanishi³, ¹Kogakuin Univ. (Japan), ²QST (Japan), ³Ritsumeikan Univ. (Japan)

PS-8-08

Epitaxial Growth of Non-polar ZnS on Sapphire Substrate
by Mist Chemical Vapor Deposition

°K. Okita¹, T. Goto¹, Y. Tanaka¹, M. Takenouchi¹, Z. Yatabe², Y. Nakamura^{1,3}, ¹Kumamoto Univ. GSST (Japan), ²Kumamoto Univ. POIE (Japan), ³Phoenics (Japan)

PS-8-09

Study on Fabrication of Yttrium Oxide Thin Films Using
Mist CVD

°L. Liu¹, M. Nishi¹, S. Sato¹, P. Rutthongjan¹, M. Sakamoto¹, Y. Kobayashi¹, G. T. Dang¹, E. K. C. Pradeep¹, T. Kawaharamura¹, ¹Kochi Univ. of Tech. (Japan)

PS-8-10

Study on the Influence Factors of Antimony Doped Tin
Oxide Thin Films With High Conductivity Deposited *via*

Mist CVD

°L. Liu¹, T. Kawaharamura¹, T. Uchida², S. Fujita², H. Orita³, H. Kobayashi³, ¹Kochi Univ. of Tech. (Japan), ²Kyoto Univ. (Japan), ³TMEIC (Japan)

PS-8-11

Electronic states in the neutral-beam-formed Ta₂O₅ film measured by thermally stimulated current method

°T. Ohno^{1,2}, H. Shima³, H. Akinaga³, S. Samukawa¹, ¹Tohoku Univ. (Japan), ²PRESTO-JST (Japan), ³AIST (Japan)

PS-8-12

Thermal solid-phase crystallization of amorphous V-doped ZnO film stacked on highly oriented ZnO

°K. Shito¹, H. Chiba^{1,2}, T. Kawashima¹, K. Washio¹, ¹Tohoku Univ. (Japan), ²Japan Society for the Promotion of Sci. Res. Fellowships for Young Scientists (Japan)

PS-8-13

Thermal stability of high-pressure phase of SrO:Ce phosphor

°K. Komatsu¹, A. Nakamura^{1,2}, H. Saitoh¹, ¹Nagaoka Univ. of Tech. (Japan), ²Chubu Chelest Co.Ltd. (Japan)

PS-8-14

Single crystal growth of Mg, Ce co-doped Lu₂Gd₁(Ga,Al)₅O₁₂ by micro-pulling down method and their luminescence properties

°K. Kamada^{1,2}, H. Yamaguchi¹, S. Kurosawa¹, Y. Shoji^{1,2}, Y. Yokota¹, Y. Ohashi¹, A. Yoshikawa^{1,2}, ¹Tohoku Univ. (Japan), ²C&A Corp. (Japan)

PS-8-15 (Late News)

Study of Sn and Mg Doping Effects on TiO₂/Ge Stack Structure by Combinatorial Synthesis

Y. Suzuki^{1,2}, °T. Nagata^{2,3}, Y. Yamashita², A. Ogura¹, T. Chikyow², ¹Meiji Univ. (Japan), ²NIMS (Japan), ³PRESTO-JST (Japan)

09: Physics and Applications of Novel Functional Devices and Materials

(11 Papers)

PS-9-01

Observation of current-injected Landau-level emission in graphene using a quantum-well based infrared phototransistor

°K. Takizawa¹, A. Nishimura¹, H. Murano¹, D. Nakagawa¹, K. Ikushima¹, S. Kim², M. Patrashin³, I. Hosako³, S. Komiyama², ¹Tokyo Univ. of Agri. & Tech. (Japan), ²Univ. of Tokyo (Japan), ³NICT (Japan)

PS-9-02

Boron-doped Diamond Superconducting Quantum Interference Devices with Two Step-Edge Josephson Junctions

°I. Tsuyuzaki¹, T. Kageura¹, M. Hideko¹, Y. Sasama², T. Yamaguchi², Y. Takano², M. Tachiki², K. Hirata², S. Ooi², S. Arisawa², H. Kawarada¹, ¹Waseda Univ. (Japan), ²MANA NIMS (Japan)

PS-9-03

Electroluminescence of Super-atom-like Si-Ge based Quantum Dots Floating Gate

°K. Makihara¹, M. Ikeda¹, N. Fujimura¹, A. Ohta¹, Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan)

PS-9-04

Charge Stability of Shallow Nitrogen Vacancy Center in Diamond with Radical Exposure Nitridation Surface for DNA Detection

°S. Kawai¹, H. Yamano¹, M. Kajiyama¹, K. Kato¹, J. J. Buendia¹, T. Kageura¹, M. Inaba^{1,6}, R. Fukuda¹, T. Okada¹, I. Higashimata¹, M. Haruyama^{2,3}, T. Tani¹, S. Onoda², W. Kada³, O. Hanaizumi³, T. Teraji⁴, S. Kono¹, J. Isoya⁵, H. Kawarada¹, ¹Waseda Univ. (Japan), ²National Inst. for Quantum and Radiological Sci. and Tech. (Japan), ³Gunma Univ. (Japan), ⁴NIMS (Japan), ⁵Univ. of Tsukuba (Japan), ⁶Nagoya Univ. (Japan), ⁷Waseda Univ. (Japan)

PS-9-05

A Simple Efficient Method of Nanofilm-on-Bulk-Substrate Thermal Conductivity Measurement Using Raman Thermometry

°V. Poborchii¹, N. Uchida¹, Y. Miyazaki¹, T. Tada¹, P. Geshev², ¹AIST (Japan), ²Inst. of Thermophysics of the Russian Academy of Sciences, Novosibirsk (Russia)

PS-9-06

A Vertical Ge Tunneling FET With Tapered Source/Drain Structures

K. Wu¹, °G. -L. Luo¹, C. -L. Chu¹, S. -H. Chen¹, B. -Y. Chen¹, W. -F. Wu¹, W. -K. Yeh^{1,2}, C. -H. Chien³, ¹National Nano Device Labs. (Taiwan), ²National Univ. of Kaohsiung (Taiwan), ³National Chiao Tung Univ. (Taiwan)

PS-9-07

Device Performance and Characteristics of Nano Scale n-type Junctionless FET (nJLFET) with Raised Source and Drain Structure

C. -L. Lin¹, Y. -J. Lu¹, J. -D. Lee¹, °W. -T. Hong¹, K. -P. Chen¹, S. -H. Ong¹, W. -C. Chen¹, J. -S. Wu¹, Y. -S. Jhu¹, P. -C. Juan², T. -K. Kang¹, P. -C. Yang¹, ¹Feng Chia Univ. (Taiwan), ²Mingchi Univ. of Tech. (Taiwan)

PS-9-08

Low-power, Forming-free and Analog-type Resistive Switching in Pt/SiO_x/ZnO/Pt Oxide Heterostructures as an Electronic Synapse

°A. S. Sokolov¹, D. Lim¹, H. Han¹, Y. Jeon¹, Y. Abbas¹, S. Son, C. Choi¹, ¹Hanyang Univ. (Korea)

PS-9-9 (Late News)

Fabrication and characterization of p-type heavily doped silicon quantum dots

°S. Mizoguchi¹, N. Shimatani¹, T. Makino¹, Y. Yamaoka¹, T. Koderu¹, ¹Tokyo Tech (Japan)

PS-9-10 (Late News)

Effect of PMN-PT Morphology on the Energy Harvesting Properties of PMN-PT/P[VDF-TrFE] Piezoelectric

Nanogenerator

°C. G. Wu¹, ¹Univ. of Electronic Science and Technology of China (China)

PS-9-11 (Late News)

Fabrication of Y128-cut and Y36-cut lithium niobate single crystalline thin films by crystal-ion-slicing technique

°Y. Shuai¹, C. Gong¹, X. Bai¹, C. Wu¹, W. Luo¹, R. Böttger², S. Zhou², W. Zhang¹, ¹Univ. of Electronic Sci. and Tech. of China (China), ²Inst. of Ion Beam Physics and Materials Research (Germany)

10: Organic Materials Science, Device Physics, Applications and Printed Technologies

(10 Papers)

PS-10-01

Fabrication of Single-Crystalline Thin-Film Utilizing Liquid-Crystalline Alkyl-Substituted Phthalocyanine

°A. Fujii¹, T. Kitagawa¹, Y. Anzai¹, M. Nakatani¹, M. Ohmori¹, H. Kajii¹, M. Ozaki¹, ¹Osaka Univ. (Japan)

PS-10-02

Growth of Alkyl-Monosubstituted Thiophene/Phenylene Co-Oligomer Crystals and Their Device Application

°K. Sugahara¹, T. Nakagawa¹, R. Hirase², T. Katagiri³, Y. Inada¹, T. Yamao¹, S. Hotta¹, ¹Kyoto Inst. of Tech. (Japan), ²Hyogo Prefectural Inst. of Tech. (Japan), ³Sumitomo Seika Chemicals Co., Ltd. (Japan)

PS-10-03

Oxygen plasma treatment for wettability improvement of alkyl terminal self-assembled monolayer as gate dielectrics

°K. Kuribara¹, Y. Tanaka², T. Nobeshima¹, T. Kazasa¹, M. Yoshida¹, ¹AIST (Japan), ²Ube Industries, Ltd. (Japan)

PS-10-04

Polymer light-emitting diodes operating in ultraviolet region containing carrier-transporting materials in active layers

M. Takahashi¹, °N. Ohtani¹, ¹Doshisha Univ. (Japan)

PS-10-05

Photoelectronic Properties of Thiophene-Vinylene Derivatives with Phthalimide Groups in Both Terminals

°H. Mochizuki¹, H. Tachibana¹, ¹AIST (Japan)

PS-10-06

Detection of Cu (I) in Copper Sulfate Plating Solution Using BCS Fluorescence

°T. Koga¹, C. Hirakawa¹, M. Takeshita², N. Terasaki¹,
¹AIST (Japan), ²Saga Univ. (Japan)

PS-10-07 (Late News)

Characterization of optical and photoelectric properties of a new boron-based organic semiconductor in the near-infrared regions

°R. Fujioka¹, T. Fukushima¹, Y. Koshiba¹, K. Ishida¹, ¹Kobe Univ. (Japan)

PS-10-08 (Late News)

Structural and Piezoelectric Characterization of P (VDF-TrFE)/Ionic Liquid Gels

°M. Fukagawa¹, Y. Koshiba¹, M. Morimoto², T. Fukushima¹, K. Ishida¹, ¹Kobe Univ. (Japan), ²Univ. of Toyama (Japan)

PS-10-09 (Late News)

High Voltage Sensitivity of Organic Pyroelectric Sensors with Polarization Treatment during Evaporation Process

°Y. Sutani¹, S. Horike¹, T. Fukushima¹, Y. Koshiba¹, M. Morimoto^{1,2}, T. Kodani³, T. Kanemura³, K. Ishida¹, ¹Kobe Univ. (Japan), ²Univ. of Toyama (Japan), ³Daikin Indus. Ltd. (Japan)

PS-10-10 (Late News)

The influence of optical absorbing layer thickness on measurement accuracy in inverted structure organic position-sensitive detectors

°T. Morimune¹, H. Kajii², A. Kida¹, M. Miyoshi¹, K. Fukuda¹, K. Tanaka³, H. Fujita⁴, ¹National Inst. of Tech. Kagawa College (Japan), ²Osaka Univ. (Japan), ³Nagaoka Univ. of Tech. (Japan), ⁴National Inst. of Tech. Kochi College (Japan)

11: Sensors and Materials for Biology, Chemistry and Medicine

(13 Papers)

PS-11-01

Enhancing Nitric Oxide Gas Sensitivity of p-Si NWs FETs with Antioxidant Surface Modification

°P. -W. Chiu¹, H. -M. P. Chen¹, ¹National Chiao Tung Univ. (Taiwan)

PS-11-02

High Resolution Multiplexing for DNA Arrays using a Multi-Electrode Chip

°K. Levrie^{1,2}, K. Jans¹, G. Schepers², R. Vos¹, P. Van Dorpe^{1,2}, L. Lagae^{1,2}, C. Van Hoof^{1,2}, A. Van Aerschoot², T. Stakenborg¹, ¹IMEC (Belgium), ²KU Leuven (Belgium)

PS-11-03

Valve-less Microfluidic Device for Sequential Exchange of Solutions for Fluorescence Immunoassay

°S. K. Pramanik¹, H. Suzuki¹, ¹Univ. of Tsukuba (Japan)

PS-11-04

Molecular Dynamics Investigation of the Field-Effect at the Technologically Relevant Silica-Electrolyte Interface

°B. M. Lowe¹, Y. Maekawa¹, C. -K. Skylaris², N. Green², Y. Shibuta¹, T. Sakata¹, ¹Univ. of Tokyo (Japan), ²Univ. of Southampton (UK)

PS-11-05

CMOS Readout Circuit with an On-chip Offset Voltage for Temperature Compensation of pH-ISFET Sensor

R. -L. Wang¹, °C. -S. Tsai¹, K. -B. Lee¹, H. -Y. Chen¹, Y. -Y. Lin¹, J. -Y. Chen¹, Y. -T. Chuang², H. -H. Liao², H. -H. Tsai², Y. -Z. Juang², ¹National Kaohsiung Normal Univ. (Taiwan), ²National Applied Research Labs., National Chip Implementation Center (Taiwan)

PS-11-06

Formation of Lipid bilayer on Ion Image Sensor and Measurement of Ion Concentration Change

°K. Imai¹, T. Horio¹, T. Hattori¹, K. Sawada¹, R. Tero¹,

¹*Toyohashi Univ. of Tech. (Japan)*

PS-11-07

Processing design using mechanoluminescence on epiphysis plates

°*T. Toyomasu¹, M. Sonohata², N. Terasaki¹, ¹AIST (Japan), ²Saga Univ. (Japan)*

PS-11-08

Wafer-Scale Development of 0.36 mm² 228mV Open-Circuit-Voltage Solid-State CMOS-Compatible Glucose Fuel Cell for Healthcare IoT Application

°*S. Arata¹, K. Hayashi¹, Y. Nishio¹, A. Kobayashi¹, K. Nakazato¹, K. Niitsu¹, ¹Nagoya Univ. (Japan)*

PS-11-09

Using Aligned P3HT/PMMA Fibers to Detect Volatile Organic Compounds

°*S. -H. Chan¹, M. -C. Wu¹, S. -H. Chen¹, W. -F. Su², C. -S. Lai¹, ¹Chang Gung Univ. (Taiwan), ²National Taiwan Univ. (Taiwan)*

PS-11-10

A finger-powered microfluidic device for agglutination study

°*C. -H. Lu¹, G. Pendharkar¹, C. -Y. Chow¹, C. -H. Liu¹, ¹National Tsing Hua Univ. (Taiwan)*

PS-11-11

Improvement of spatial resolution for 2D chemical images in thin-Si substrate

°*Y. -P. Chen¹, W. -Y. Zeng¹, T. -C. Chen¹, C. -M. Yang^{1,2}, C. -S. Lai¹, ¹Chang Gung Univ. (Taiwan), ²Chang Gung Memorial Hospital (Taiwan)*

PS-11-12

Common-Gate Boron-Doped Diamond (BDD) Solution Gate FET Application for PH Sensor

°*S. F. Mohd Sukri¹, Y. Shintani², H. Kawarada^{1,3}, ¹Waseda Univ. (Japan), ²Yokogawa Corp. (Japan), ³Kagami Memorial Lab. (Japan)*

PS-11-13 (Late News)

Paper-based Potentiometric pH Sensor using Carbon Electrode Drawn by Pencil

[°]R. Kawahara¹, P. Sahatiya², S. Badhulika², S. Uno¹,
¹Ritsumeikan Univ. (Japan), ²Indian Inst. of Tech.
Hyderabad (India)

12: Spintronics Materials and Devices

(19 Papers)

PS-12-01

Spin-orbit Interaction Investigated by Weak Anti-Localization Analysis in III-VI Layered Semiconductor GaSe Thin Film

S. Takasuna¹, J. Shiogai¹, M. Kohda¹, Y. Oyama¹, [°]J. Nitta¹,
¹Tohoku Univ. (Japan)

PS-12-02

Superconducting proximity effect on a magnetic domain wall

[°]M. Ishitaki¹, K. Ohnishi¹, T. Kimura¹, ¹Kyushu Univ. (Japan)

PS-12-03

High Electronegativity Element Compounds as Way of Increasing Ferromagnetic Interface PMA and its Voltage Control

[°]M. Pankiev¹, K. Kita¹, ¹Univ. of Tokyo (Japan)

PS-12-04

Optimization of Figure of Merit in Magneto-Plasmonic Waveguides with Fe / Au Multilayer and Nonreciprocal Coupling on SOI substrate

[°]T. Shimodaira¹, H. Shimizu¹, ¹Tokyo Univ. of Agri. & Tech. (Japan)

PS-12-05

Energy-Efficient High-Performance Nonvolatile VLSI Processor with a Temporary-Data Reuse Technique

[°]M. Natsui¹, T. Hanyu¹, ¹Tohoku Univ. (Japan)

PS-12-06

Ultrafast switching in elliptical pMTJ via Voltage Control of Magnetic Anisotropy

°J. Deng¹, G. Liang¹, G. Gupta², ¹National Univ. of Singapore (Singapore), ²Spin Devices (India)

PS-12-07

Structural ordering and magnetism in equiatomic CoFeMnSi epitaxial films

°L. Bainsla¹, R. Yilgin¹, J. Okabayashi¹, A. Ono¹, K. Suzuki¹, S. Mizukami¹, ¹Tohoku Univ. (Japan)

PS-12-08

Inverse spin-valve effect in MBE-grown nanoscale Si spin-valve devices

°D. H. Duong¹, M. Tanaka², N. H. Pham^{1,2}, ¹Tokyo Tech (Japan), ²Univ. of Tokyo (Japan)

PS-12-09

Spin-Dependent Transport of Ferromagnetic-Semiconductor GaMnAs-Based Lateral Spin-Valve Devices

°H. Asahara¹, T. Kanaki¹, S. Ohya¹, M. Tanaka¹, ¹Univ. of Tokyo (Japan)

PS-12-10

Fabrication of Magnetic Tunnel Junctions with a Single-Crystalline LiF Tunnel Barrier

°S. K. Narayananellor¹, N. Doko², N. Matsuo², H. Saito¹, S. Yuasa¹, ¹AIST (Japan), ²Chiba Inst. of Tech. (Japan)

PS-12-11

Influence of Mn composition in Co₂MnSi films on magnetoresistance characteristics of Co₂MnSi-based current-perpendicular-to-plane spin valves

°M. Inoue¹, B. Hu¹, K. Moges¹, K. Inubushi², K. Nakada², M. Yamamoto¹, T. Uemura¹, ¹Hokkaido Univ. (Japan), ²TDK Corp. (Japan)

PS-12-12

Anomalous Nernst Effect of Ni-Al Alloys and Application

to Spin Seebeck Devices

^oT. Ono¹, S. Hirata¹, Y. Amemiya¹, T. Tabei¹, S. Yokoyama¹,
¹Hiroshima Univ. (Japan)

PS-12-13

Reliability Characteristics for Magnetic Tunnel Junctions
with MgO Tunnel Barrier in Low Voltage

B. So¹, ^oC. Choi¹, H. Sukegawa², S. Mitani², Y. Song¹,
¹Hanyang Univ. (Korea), ²NIMS (Japan)

PS-12-14

Fabrication of Fe_{1-x}Sn_x epitaxial films on MgO (001)
substrates

^oY. Goto¹, M. Araki¹, T. Yanase¹, T. Shimada¹, T.
Nagahama¹, ¹Hokkaido Univ. (Japan)

PS-12-15

Electric Field Effect on Exchange Interaction in Pt/Co Thin
Film

^oM. Ishibashi¹, K. T. Yamada¹, F. Ando¹, T. Koyama², H.
Kakizakai¹, H. Mizuno¹, K. Miwa³, S. Ono³, T. Moriyama¹,
D. Chiba², T. Ono¹, ¹Kyoto Univ. (Japan), ²Univ. of Tokyo
(Japan), ³Central Research Inst. of Electric Power
Industry (Japan)

PS-12-16

Spin Seebeck Devices Using Ce_xY_{3-x}Fe₅O₁₂ Deposited by
Metal Organic Decomposition -Influence of Composition
and Long Time Annealing-

^oT. Ono¹, S. Hirata¹, Y. Amemiya¹, T. Tabei¹, S. Yokoyama¹,
¹Hiroshima Univ. (Japan)

PS-12-17

Magnetic Properties of (Ga,Mn)As (110) Epitaxial Films

J. L. Ma¹, ^oH. Wang¹, Z. F. Yu¹, X. L. Wang¹, J. H. Zhao¹,
¹Inst. Semicond., Chinese Acad. Sci. (China)

PS-12-18

Electrical and Magnetic Properties of Neodymium
Monoxide Thin Film

^oD. Saito¹, K. Kaminaga^{1,2}, D. Oka¹, T. Hasegawa², T.

Fukumura¹, ¹Tohoku Univ. (Japan), ²Univ. of Tokyo (Japan)

PS-12-19 (Late News)

X-ray magnetic circular dichroism and hard x-ray photoelectron spectroscopy of a perpendicularly magnetized D0₂₂-type Mn₇₂Ge₂₈ thin film

°J. Kim¹, M. Mizuguchi¹, N. Inami², T. Ueno³, S. Ueda³, K. Takanashi¹, ¹Tohoku Univ. (Japan), ²High Energy Accelerator Research Organization (Japan), ³NIMS (Japan)

13: Applications of Nanotubes, Nanowires, and Graphene and related 2D materials

(25 Papers)

PS-13-01

Possibility of Thermoelectric Property Improvement by Non-uniformly Doped Si

°K. Shima¹, M. Tomita^{1,2}, Y. Kamakura³, T. Watanabe¹, ¹Waseda Univ. (Japan), ²JSPS Res. Fellow PD (Japan), ³Osaka Univ. (Japan)

PS-13-02

Fabrication of a Si Nanowire MOS Capacitor for the Application to Energy Storage Devices

°R. Nezasa¹, Y. Kurokawa¹, N. Usami¹, ¹Nagoya Univ. (Japan)

PS-13-03

Fabrication of Gate-All-Around Poly-Si Tube-channel Junctionless Field-Effect Transistors

°Y. -T. Chang¹, K. -P. Peng¹, P. -W. Li¹, H. -C. Lin¹, ¹National Chiao Tung Univ. (Taiwan)

PS-13-04

Impact of Crystallinity of AlN Thermal Conductive Film on Thermoelectric Power of Silicon Nanowire Micro Thermoelectric Generator

°R. Yamato¹, S. Hashimoto¹, T. Zhan¹, S. Oba¹, Y. Himeda¹, T. Matsukawa², T. Watanabe¹, ¹Waseda Univ. (Japan),

²AIST (Japan)

PS-13-05

Highly Sensitive Double-Gate Thin-Film Transistor pH Sensors with Solution-Processed Carbon-Nanotube Networks Channel and AlO_x Gate Insulator

°J. -Y. Pyo¹, W. -J. Cho¹, ¹Kwangwoon Univ. (Korea)

PS-13-06

Adsorption of cesium from aqueous solution using graphene oxide grown on a porous substrate

°S. Entani¹, M. Honda², I. Shimoyama², S. Li¹, H. Naramoto¹, T. Yaita², S. Sakai¹, ¹QST (Japan), ²JAEA (Japan)

PS-13-07

Adsorption and Diffusion of Li Atom on Graphene Sheet with V₆ Vacancy: First Principles Calculations

°K. Shiota¹, T. Kawai^{1,2}, ¹Univ. of Tsukuba (Japan), ²NEC Corp. (Japan)

PS-13-08

Dynamic Observation of Reversible Lithium Storage Phenomenon in Co₃O₄/CNTs Hybrid Devices

°G. -M. Huang¹, T. -C. Tsai¹, C. -W. Huang¹, W. -W. Wu¹, ¹National Chiao Tung Univ. (Taiwan)

PS-13-09

Time Dependent Structural Analysis of CVD Grown MoS₂ Flakes with Different Configurations

°A. Ozden¹, H. Sar¹, C. Odaci¹, C. Sevik¹, F. Ay¹, N. K. Perkgoz¹, ¹Anadolu Univ. (Turkey)

PS-13-10

Theoretical Study of Supporting Effect on Vacancies in MoS₂

°H. Kageshima¹, S. Urasaki¹, ¹Shimane Univ. (Japan)

PS-13-11

Investigation Of Long Term Electrical Transport Stability Of Mos₂ Flakes

°H. Sar¹, A. Ozden¹, C. Odaci¹, C. Sevik¹, N. Kosku

Pergozl, F. Ay¹, ¹Anadolu Univ. (Turkey)

PS-13-12

Optical and Electrical Properties of Large-area MoS₂ Thin Film Photodetectors

°Y. J. Huang¹, D. -Y. Lin¹, T. -S. Ko¹, C. -F. Lin², B. -S. Hong², H. -Z. Chen³, ¹National Changhua Univ. of Edu. (Taiwan), ²National Chung Hsing Univ. (Taiwan), ³Hsiuping Univ. of Sci. and Tech. (Taiwan)

PS-13-13

Simulation Investigation of Strained Black Phosphorus p-n Photodetector for Middle Infrared Range

°S. Zhang¹, Y. Liu¹, ¹Xidian Univ. (China)

PS-13-14

Electronic structure of 2D InSe

Y. Guo¹, °J. Robertson¹, ¹Cambridge Univ. (UK)

PS-13-15

Fabrication of high performance solar cells with few-layered WSe₂

°Y. Yamaguchi¹, W. Okita¹, T. Akama¹, C. Li¹, T. Kaneko¹, T. Kato¹, ¹Tohoku Univ. (Japan)

PS-13-16

Optical and electric transport properties of undoped and niobium doped tungsten diselenide

°J. J. Jheng¹, D. -Y. Lin¹, T. -S. Ko¹, H. -P. Hsu², Y. Ye³, ¹National Changhua Univ. of Edu. (Taiwan), ²Ming Chi Univ. of Tech. (Taiwan), ³Peking Univ. (China)

PS-13-17

Two-dimensional titanium oxide-based electron transport layer for high performance perovskite solar cells

°T. -P. Chen^{1,2}, ¹National Taiwan Univ. (Taiwan), ²Nano Sci. and Tech. Program, Taiwan International Graduate Program, Academia Sinica and National Taiwan Univ. (Taiwan)

PS-13-18 (Late News)

Paramagnetic Property in Two-Dimensional Titanium

Carbides *via* Surface Modifications

°Y. Yoon¹, ¹KAIST (Korea)

PS-13-19 (Late News)

Graphene oxide/graphene layered electrode for electrochemical biosensor applications

°P. -Y. Chien¹, C. -H. Huang¹, Y. Li¹, C. -H. Chiang¹, ¹Ming Chi Uni. of Tech. (Taiwan)

PS-13-20 (Late News)

Experimental Investigation of the Contact Resistance of Graphene/MoS₂ Interface Treated with O₂ Plasma

°Q. Lu¹, Y. Liu¹, G. Han¹, C. Fang¹, Y. Shao², J. Zhang¹, Y. Hao¹, ¹Xi dian Univ. (China), ²Res. Inst. of China Electric Power (China)

PS-13-21 (Late News)

First-principles study on domain boundary of MoS₂: Origin of band bending

°T. Kaneko¹, R. Saito¹, ¹Tohoku Univ. (Japan)

PS-13-22 (Late News)

Detection of electron trapping/detrapping in MoS₂ FET by high time-resolved I-V measurement

°K. Taniguchi¹, K. Nagashio^{1,2}, ¹Univ. of Tokyo (Japan), ²PRESTO-JST (Japan)

PS-13-23 (Late News)

Graphene and Poly (Methyl Methacrylate) Composite Laminates on Flexible Substrates for Volatile Organic Compounds Detection

°C. Rattanabut¹, W. Muangrat², W. Bungjongpru³, M. Phonyiem¹, W. J. Wongwiryapan¹, Y. J. Song⁴, ¹King Mongkut's Inst. Tech. Ladkrabang (Thailand), ²Shinshu Univ. (Japan), ³Thai Microelectronics Center (Thailand), ⁴Sungkyunkwan Univ. (Korea)

PS-13-24 (Late News)

Sodium Dodecyl Sulfate-Functionalized Carbon Nanotube / Polydimethylsiloxane Composites for High Performance Triboelectric Nanogenerator

^oN. Ketama¹, W. Wongwiryapan^{1,2}, A. Klamchuen², S. Rattanamai¹, ¹King Mongkut's Inst. Tech. Ladkrabang (Thailand), ²National NanoTech. Center (Thailand)

PS-13-25 (Late News)

Contact Properties of SWNT TCEs via the Microwave Treatment

K. H. Kim^{1,2}, ^oM. Yun¹, H. -D. Kim¹, ¹Sejong Univ. (Korea), ²Univ. of Michigan (USA)

14: Power Devices and Materials

(11 Papers)

PS-14-01

Observations of Inhomogeneity of 3C-SiC Layers Grown on 6H-SiC Substrates Using Scanning Internal Photoemission Microscopy

^oK. Shiojima¹, N. Mishina¹, N. Ichikawa², M. Kato², ¹Univ. of Fukui (Japan), ²Nagoya Inst. of Tech. (Japan)

PS-14-02

Reaction mechanisms at 4H-SiC/SiO₂ interface during wet SiC oxidation

^oT. Akiyama¹, S. Hori¹, K. Nakamura¹, T. Ito¹, H. Kageshima², M. Uematsu³, K. Shiraishi⁴, ¹Mie Univ. (Japan), ²Shimane Univ. (Japan), ³Keio Univ. (Japan), ⁴Nagoya Univ. (Japan)

PS-14-03

Compact Modeling of SiC Schottky Barrier Diode (SBD) and Its Extension to Junction Barrier Schottky Diode (JBS)

^oD. Navarro¹, M. Miura-Mattausch¹, H. J. Mattausch¹, M. Takusagawa², J. Kobayashi², M. Hara², ¹Hiroshima Univ. (Japan), ²Toyota Motor Corp. (Japan)

PS-14-04

Determination of Temperature-Dependent Stress in SiC MOSFETs by Raman Spectroscopy

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PS-14-05

Interface Properties of Diamond MOS Diodes Studied by Capacitance-Voltage and Conductance Methods - NO₂ Hole Doping Effect -

°N. C. Saha¹, M. Kasu¹, ¹Saga Univ. (Japan)

PS-14-06

AC Hot carrier effect and PBTI of a thin-film SOI Power n-MOSFET at high temperature

°M. Nomura¹, A. Watanabe¹, S. Matsumoto¹, ¹Kyushu Inst. of Tech. (Japan)

PS-14-07

Highly Efficient and Compact CMOS DC-DC Converter with Novel Transistor Layout of 60 nm Multi-pillar Type Vertical Body Channel MOSFET

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PS-14-08

High Temperature SiC Power Module Enhanced with Transient Thermal Characteristic by Al-bump Technology

°H. Tanisawa^{1,2}, F. Kato¹, K. Koui^{1,3}, S. Sato¹, K. Watanabe¹, H. Takahashi^{1,4}, Y. Murakami^{1,5}, H. Sato¹, ¹AIST (Japan), ²Sanken electric Corp., Ltd. (Japan), ³Calsonic Kansei Corp. (Japan), ⁴Fuji Electric Co., Ltd. (Japan), ⁵NISSAN MOTOR Corp., Ltd. (Japan)

PS-14-09 (Late News)

Evaluation of Hall Effect Mobility for SiC MOSFETs with Increasing Nitrogen Implantation into Channel Region

°M. Noguchi¹, T. Iwamatsu¹, H. Amishiro¹, H. Watanabe¹, K. Kita², S. Yamakawa¹, ¹Mitsubishi Electric Corp. (Japan), ²Univ. of Tokyo (Japan)

PS-14-10 (Late News)

Normally-off MOSFET Properties Fabricated on Mg Implanted GaN Layers

°S. Takashima¹, K. Ueno¹, R. Tanaka¹, H. Matsuyama¹, M. Edo¹, K. Nakagawa², ¹Fuji Electric Co., Ltd. (Japan), ²Univ. of Yamanashi (Japan)

PS-14-11 (Late News)

A first principles study on the C=C defects near SiC/SiO₂ interface: Defect passivation by double bond saturation
°N. Tajima¹, T. Kaneko¹, T. Yamasaki¹, J. Nara¹, T. Schimizu², K. Kato³, T. Ohno¹, ¹NIMS (Japan), ²Toshiba Corp. (Japan), ³Univ. of Tokyo (Japan)

15: Photovoltaic Materials and Devices

(11 Papers)

PS-15-01

Contact Adhesion of Plated Ni/Cu Metallization for Si Solar Cells

°W. J. Chen¹, J. Y. Wu¹, S. H. Hsieh², ¹National Yunlin Univ. of Sci. and Tech. (Taiwan), ²National Formosa Univ. (Taiwan)

PS-15-02

Formation of Perfect Superlattice with Aligned Plane Orientation of Colloidal PbS Quantum Dots

°S. Fujimoto¹, F. Suetsugu¹, K. Mukai¹, ¹Yokohama National Univ. (Japan)

PS-15-03

Reactive Deposition Epitaxy of SrGe₂ Thin Films on Ge (111) and (001) Substrates

°T. Imajo¹, K. Toko¹, R. Takabe¹, T. Suemasu¹, ¹Univ. of Tsukuba (Japan)

PS-15-04

Characterization of Sputtered CdSe_xTe_{1-x} Films and Its Application in CdTe Solar Cells

°C. Li¹, L. Wu¹, F. Wang¹, Y. Chen¹, L. Feng¹, ¹Sichuan Univ. (China)

PS-15-05

Femtosecond Laser Crystallization for Boosting the Conversion Efficiency of Flexible Ink-Printing Cu (In,Ga) Se₂ Thin Film Solar Cells

°K. H. Wu¹, S. C. Chen¹, N. Z. She¹, J. X. Li¹, F. I. Lai², H. C. Kuo¹, ¹National Chiao Tung Univ. (Taiwan), ²Yuan Ze

Univ. (Taiwan)

PS-15-06

Investigation of Thermal Treatment Effects of PbI_2 Film Yielded Two-step Type Perovskite Solar Cells

°K. Yamamoto¹, K. Hamada², M. Shahiduzzaman¹, K. Yonezawa¹, M. Karakawa¹, T. Kuwabara¹, K. Takahashi¹, T. Taima¹, ¹Kanazawa Univ. (Japan), ²JAIST (Japan)

PS-15-07

High-performance and high-durability perovskite photovoltaic devices prepared using ethylammonium iodide as an additive

°C. -L. Chung¹, H. -L. Hsu¹, C. -C. Chang¹, C. -P. Chen¹, ¹Ming Chi Univ. of Tech. (Taiwan)

PS-15-08

New Electron Extraction Layer for Perovskite Solar Cells

°P. Karuppuswamy^{1,2,3}, C. Hanmandlu³, K. M. Boopathi³, C. -W. Chu³, ¹National Tsing Hua Univ., Hsinchu (Taiwan), ²Nano Sci. and Tech. Program Taiwan Int'l. Graduate Program, Academia Sinica and National Tsing Hua Univ. (Taiwan), ³RCAS, Academia Sinica (Taiwan)

PS-15-09

Antimony based Perovskite Materials for Photovoltaic Applications

°K. M. Boopathi¹, A. Singh¹, P. Karuppuswamy¹, C. -W. Chu¹, ¹RCAS, Academia Sinica (Taiwan)

PS-15-10

$\text{Cs}_3\text{Sb}_2\text{I}_9$ - All Inorganic Lead Free Perovskite Like Material for Solar Cell Application

°A. Singh^{1,2,3}, K. Mooorthy Boopathi³, C. -W. Chu³, ¹National Taiwan Univ., (Taiwan), ²Nano Sci. and Tech. Program Taiwan Int'l. Graduate Program Academia Sinica and National Taiwan Univ. (Taiwan), ³RCAS, Academia Sinica (Taiwan)

PS-15-11

Ultrafast Carrier Dynamics in Perovskite Solar Cells under

Thursday, September 21

Light Irradiation

°J. X. Li¹, A. P. Thilakan¹, C. W. Luo¹, A. Yabushita¹, Ka. H. Wu¹, T. P. Chen², S. S. Li², C. W. Chen², ¹National Chiao Tung Univ. (Taiwan), ²National Taiwan Univ. (Taiwan)