

POSTER SESSION (13:00-14:45, Multi Purpose Hall)

P1
Advanced Gate Stack/Si
Processing Science
 (18 Papers)
P-1-1

Atomic-Scale Simulation of Si Etching by Energetic Br⁺ and Br₂⁺ Ions for the Analysis of Gate- or STI-Etching Processes
T. Nagaoka, H. Ohta, K. Eriguchi and K. Ono, *Kyoto Univ. (Japan)*

P-1-2

Thermal Stability and Scalability of Mictamict Ti-Si-N MOS Gate Electrodes
H. Kondo¹, K. Furumai¹, M. Sakashita¹, A. Sakai², M. Ogawa¹ and S. Zaima¹, ¹Nagoya Univ. and ²Osaka Univ. (Japan)

P-1-4

Low Temperature, Anisotropic, Lattice-Plane-Free and Damage-free Oxidation for 3 Dimensional Structure by Oxygen Neutral Beams
M. Yonemoto¹, K. Sano¹, K. Endo², T. Matsukawa², M. Masahara² and S. Samukawa¹, ¹Tohoku Univ. and ²AIST (Japan)

P-1-5

Improving Hf-based High-k/Metal Gate n-MOSFET Performances with Gadolinium Cap Layer
C. W. Hsu¹, Y. K. Fang¹, W. K. Yeh², J. Y. Chen², C. T. Lin³, C. H. Hsu³, L. W. Cheng³ and C. M. Lai³, ¹National Cheng Kung Univ., ²National Univ. of Kaohsiung and ³UMC (Taiwan)

P-1-6

Interfacial and Electrical Characterization of ALD HfSiON Gated MOSFETs with Different Compositions after Channel Hot-Carrier Stress
H. W. Chen¹, S. Y. Chen¹, C. C. Lu¹, C. H. Liu², F. C. Chiu², H. S. Huang¹, L. W. Cheng³, C. T. Lin³, G. H. Ma³ and S. W. Sun³, ¹National Taipei Univ. of Tech., ²Ming Chuan Univ. and ³UMC (Taiwan)

P-1-7

Low-Temperature Polycrystalline Silicon Thin-Film-Transistor with Fluorinated High-k HfO₂ Gate Dielectrics by HF Dip and CF₄ Plasma
C. W. Chen and C. S. Lai, *Chang Gung Univ. (Taiwan)*

P-1-8

Interfacial and Electrical Characterization in MOSFETs with CeO₂ Gate Dielectric
F. C. Chiu¹, H. W. Chen², C. H. Chen³, C. H. Liu¹, S. Y. Chen², B. S. Huang², H. S. Huang² and H. L. Hwang³, ¹Ming Chuan Univ., ²National Taipei Univ. of Tech. and ³National Tsing Hua Univ. (Taiwan)

P-1-9

Drain Bias Dependent Model of Si-H Bond Dissociation for NBTI Characteristics of pMOSFETs
J. Yang¹, L. Huang¹, J. Pan¹, X. Liu¹, R. Han¹, J. Kang¹, Z. H. Gan², M. Liao², C. C. Liao² and H. M. Wu², ¹Peking Univ. and ²Semiconductor Manufacturing International Corp. (China)

P-1-10

Implantation through HfO₂: Calibration of Simulation and Study on Hf Behavior during Implant
J. Bhandari^{1,2}, P. Rivallin¹, M. Vinet¹, T. Poiroux¹, J. P. Barnes¹, B. Previtali¹, S. Deleonibus¹ and A. M. Ionescu², ¹CEA-LETI/MINATEC and ²Ecole Polytechnique Fédérale de Lausanne (France)

P-1-11

Electrical Stress-Induced Degradation of HfAlO and HfO₂ Films of Equal EOT
P. Samanta^{1,2}, Y. J. Lee³, C. L. Cheng⁴ and M. Chan², ¹Vidyasagar College for Women, ²Hong Kong Univ. of Sci. and Tech., ³National Nano Device Labs. and ⁴National Formosa Univ. (India)

P-1-12

Trap-Related Carrier Transports in p-FET with Poly-Si/HfSiON Gate Stack
J. Chen¹, T. Sekiguchi¹, N. Fukata¹, M. Takase¹, T. Chikyo¹, R. Hasunuma², K. Yamabe², M. Sato³, Y. Nara³ and K. Yamada⁴, ¹NIMS, ²Univ. of Tsukuba, ³Selete and ⁴Waseda Univ. (Japan)

P-1-13

Significance of Interface Layer between Surface Layer and Si Substrate in Plasma-Exposed Structures and its Impacts on Plasma-Induced Damage Analysis
A. Matsuda, Y. Nakakubo, Y. Ueda, H. Ohta, K. Eriguchi and K. Ono, *Kyoto Univ. (Japan)*

P-1-14

Optimization of the First Reaction in ALD and its Impact to Electrical Film Quality of High-k/Si Direct-contact Gate Stacks
Y. Morita, S. Migita and H. Ota, *MIRAI-NIRC, AIST (Japan)*

P-1-15

Comparison of PECVD and RTCVD CESL Nitride Stressor in Reliability and Performance Improvement for High-k/Metal Gate CMOSFETs
K. T. Lee¹, C. Y. Kang², S. H. Hong¹, H. S. Choi¹, G. B. Choi¹, J. C. Kim¹, S. H. Song¹, R. H. Baek¹, M. S. Park¹, H. C. Sagong¹, S. H. Sakong³, S. W. Jung³, H. K. Park², H. S. Hwang⁴, B. H. Lee² and Y. H. Jeong¹, ¹Pohang Univ. of Sci. and Tech., ²SEMATECH, ³NCNT and ⁴GIST (Korea)

P-1-16

Low Temperature and Rapid Oxidation of GaN Surface by Saturated Water Vapor in High Pressure
T. Futatsuki^{1,2}, T. Oe¹, H. Aoki², N. Komatsu², C. Kimura² and T. Sugino², ¹Organo Corp. and ²Osaka Univ. (Japan)

P-1-17

Thermal Stability of High-k Dielectrics - A Nanocharacterization Perspective
Y. C. Ong¹, D. S. Ang¹, S. J. O'shea², K. L. Pey¹, T. Kawanago⁴, S. J. Wang², C. H. Tung³, K. Kakushima⁴ and H. Iwai⁴, ¹Nanyang Tech. Univ., ²Inst. of Materials Res. and Eng., ³Inst. of Microelectronics and ⁴Tokyo Tech. (Singapore)

P-1-18

Negative Bias Temperature Instability (NBTI) of pMOSFETs with Novel Hf₂Mo₂N₂ Metal Gate Electrodes
H. K. Peng¹, C. S. Lai¹, K. M. Fan¹ and S. J. Lin², ¹Chang Gung Univ. and ²Nanya Tech. Corp. (Taiwan)

P-1-19

Investigation of Schottky Diodes on Germanium using Mercury Probe
M. Koike and M. Koyama, *Toshiba Corp. (Japan)*

P2
Characterization and
Materials Engineering for
Interconnect Integration
 (14 Papers)
P-2-1

Stress Depth Profiling of Silicon from Nickel / Silicon Interface before and after Silicidation using Polychromator-based Multi-wavelength Raman Spectroscopy
W. S. Yoo, T. Ueda and K. Kang, *WaferMasters, Inc. (USA)*

P-2-2

Raman Spectroscopic Stress Analysis of Single Crystal Silicon (001) Specimen Tensioned along the [100] Direction over 1000 Mpa
M. Komatsubara¹, Y. Nagai¹, T. Namazu¹, N. Naka², S. Kashiwagi², K. Ohtsuki² and S. Inoue¹, ¹Univ. of Hyogo and ²HORIBA, Ltd. (Japan)

P-2-3

Direct Observation of Tensile Stress in Silicon Oxide Films using Cathodoluminescence Spectroscopy
S. Kakinuma¹, K. Nishikata¹, N. Yamashita², N. Naka¹, S. Kashiwagi¹, K. Matsumoto¹, T. Namazu² and S. Inoue², ¹HORIBA, Ltd. and ²Univ. of Hyogo (Japan)

P-2-4

Si-H Group Elimination Effect on the Properties of SiOCH Films: Theoretical Investigation
N. Tajima¹, M. Shinriki², Y. Xu³ and T. Ohno¹, ¹NIMS, ²Taiyo Nippon Sanso Corp. and ³Tri Chemical Labs. Inc. (Japan)

P-2-5

A Molecular Dynamics Method for Atomic Models for Amorphous Material: an Example with SiO₂
M. Gao, J. Zhang, J. Lu, Y. Wang and Z. Yu, *Tsinghua Univ. (China)*

P-2-6

Vapor Phase Silylation Hardening Process for Porous Silica Low-k Films
Y. Nakata¹, Y. Kayaba¹, T. Hirota² and T. Kikkawa¹, ¹Hiroshima Univ. and ²TAZMO, Inc. (Japan)

P-2-7

Cu Electroplating Process with Magnetic Field for Flexible Device
N. Ooi, H. Aoki, D. Watanabe, J. Jong-Hyeon, C. Kimura and T. Sugino, *Osaka Univ. (Japan)*

P-2-8

Copper Plug Barrier Process Optimization for Reliable Transistor Performance
S. M. Manhas, M. Chen, K. D. Buddharaju, H. Y. Li, R. Murthy, S. Balakumar, N. Singh, G. Q. Lo and D. L. Kwong, *Inst. of Microelectronics (Singapore)*

P-2-9

Experiments and Simulation of Stress Induced Voiding Dependence on Upper Metal Cap Layer in Cu/Low K Interconnects
M. Lin, J. W. Liang and K. C. Su, *UMC (Taiwan)*

P-2-10

Wireless Inter-Chip Signal Transmission by Electromagnetic Coupling of Open-Ring Resonators
Y. Okuyama¹, J. P. Ao¹, I. Awai² and Y. Ohno¹, ¹Univ. of Tokushima and ²Ryukoku Univ. (Japan)

P-2-11

Impact of Dimension of Orthogonal Floating Shielding Lines beneath Coplanar Waveguide Transmission Line on Suppressing Substrate Effect
M. C. Tang¹, Y. K. Fang¹, T. Cheng², W. S. Liao², D. C. Chen², C. S. Yeh² and S. C. Chien², ¹National Cheng Kung Univ. and ²UMC (Taiwan)

P-2-12

Anodic Alumina Substrate using Via in Pad for Memory Package Applications
J. Jo¹, J. M. Yook¹ and M. Kim², ¹KAIST and ²Kongju National Univ. (Korea)

P-2-13

Design of High-Q MIS-Variators with Layout Modification
T. L. Li, S. Huang, B. Hung, C. Y. Tzeng, V. Liang and S. C. Chien, *UMC (Taiwan)*

P-2-14

Enhancement of Wafer Test Yield of CIS Device with MicroLens Formed by the Optimized LTO Film
K. Park, S. Ryu, J. Yang, S. Lee, M. Han, H. Choi, H. Lee and J. Han, *Dongbu HiTek Co., Ltd. (Korea)*

**P3
CMOS Devices/Device
Physics**

(25 Papers)

P-3-1

Novel Asymmetric SiGe/Strained-Silicon Heterojunction Channel MOSFET
G. Gupta and J. Woo, *UCLA (USA)*

P-3-2

Calculation of Strain Effects on the I-V Characteristics of Ultra Small MOSFETs based on NEGF Approach
H. Fitriawan, S. Souma and M. Ogawa, *Kobe Univ. (Japan)*

P-3-3

The Impact of Pre-Ion Implantation (PII) on the Characteristics of Nickel Germanide Films and NiGe/Ge Schottky Diodes
X. An, C. Fan, R. Huang and X. Zhang, *Peking Univ. (China)*

P-3-4

Minority Carrier Response Characteristics in Germanium MOS Capacitor
C. C. Cheng¹, C. H. Chien^{1,2}, G. L. Luo², H. C. Chiang¹, H. S. Chen¹, C. L. Lin¹, C. C. Kei³, C. N. Hsiao³ and C. Y. Chang¹,
¹National Chiao Tung Univ., ²National Nano Device Labs. and ³National Applied Res. Labs. (Taiwan)

P-3-5

Improved Analytic I-V Model of the Long-Channel Undoped Surrounding-Gate MOSFET
A. Son¹, J. Kim¹, N. Jeong¹, J. Choi² and H. Shin¹,
¹Ewha Womans Univ. and ²Hynix Semiconductor Inc. (Korea)

P-3-6

RF Small-Signal and Noise Modeling for SOI Dynamic Threshold Voltage MOSFETs
S. C. Wang^{1,2}, P. Su¹, K. M. Chen², S. Y. Huang³, C. C. Hung³, V. Liang³, C. Y. Tzeng³ and G. W. Huang², ¹National Chiao Tung Univ., ²National Nano Device Labs. and ³UMC (Taiwan)

P-3-7

Origin of Enhanced Impact Ionization in Strained-SiGe pMOSFETs
P. C. Huang¹, T. K. Kang², Y. H. Sa², S. L. Wu² and S. J. Chang¹,
¹National Cheng Kung Univ. and ²Cheng Shiu Univ. (Taiwan)

P-3-8

A Vertical-Channel Metal-Oxide-Semiconductor Field-Effect Transistor with Fully-Oxidized Silicon Beam Isolation
A. Sugimura, K. Okuyama and H. Sunami, *Hiroshima Univ. (Japan)*

P-3-9

Layout Dependence of SiGe Strain Effect and STI Induced Defects in 45nm p-PMOSFETs with Strain SiGe Source/Drain
C. Y. Cheng¹, Y. K. Fang¹, J. C. Hsieh², Y. M. Sheu², H. Hsia², W. M. Chen², S. S. Lin² and C. S. Hou²,
¹National Cheng Kung Univ. and ²Taiwan Semiconductor Manufacturing Co., Ltd. (Taiwan)

P-3-10

Impact of Ge Content on Flicker Noise Behavior in Strained-SiGe pMOSFETs
C. W. Kuo¹, S. L. Wu², H. Y. Lin¹, S. H. Chen¹, C. Y. Wu², C. H. Lin² and S. J. Chang¹, ¹National Cheng Kung Univ. and ²Cheng Shiu Univ. (Taiwan)

P-3-11

Demonstration of High Mobility Holes in a Strained Ge Channel Grown on a Novel Thin and Relaxed SiGe/LT-SiGe/Si(001) Virtual Substrate
M. Myronov¹, D. R. Leadley¹ and Y. Shiraki², ¹Univ. of Warwick and ²Musashi Inst. of Tech. (UK)

P-3-12

Analysis of Threshold Voltage Variations of FinFETs : Separation of Short Channel Effects and Space Charge Effects
Y. Kobayashi¹, K. Tsutsui¹, K. Kakushima¹, P. Ahmet¹, V. R. Rao² and H. Iwai¹,
¹Tokyo Tech. and ²Indian Inst. of Tech. Bombay (Japan)

P-3-13

Extraction of Vertical, Lateral Locations and Energies of Hot-Electrons-Induced Traps through the Random Telegraph Noise
D. Kang¹, S. Yang¹, J. Kim², D. Lee², B. G. Park¹, Y. Son¹, J. D. Lee¹ and H. Shin¹,
¹Seoul National Univ. and ²Samsung Electronics Co., Ltd. (Korea)

P-3-14

Hot-Carrier-Induced Degradation in P-type High-Voltage DEMOS Transistors
J. F. Chen¹, J. R. Lee¹, S. Y. Chen¹, K. S. Tian¹, K. M. Wu² and C. M. Liu²,
¹National Cheng Kung Univ. and ²Taiwan Semiconductor Manufacturing Co., Ltd. (Taiwan)

P-3-15

Modeling of Substrate Current of MOSFETs under Different Gate Biases and Temperatures
S. Y. Chen¹, C. H. Tu¹, M. C. Wang^{1,2}, S. H. Wu³, Z. W. Jhou³, C. J. Chang³, J. Ko³ and H. S. Haung¹,
¹National Taipei Univ. of Tech., ²Minghsin Univ. of Sci. and Tech. and ³UMC (Taiwan)

P-3-16

Optimization of Source/Drain Overlap to Gate for 16 nm Gate Last MOSFETs
J. Jang, T. Lim, H. Kim and Y. Kim, *Hongik Univ. (Korea)*

P-3-17

Effect of Nickel Silicide Intrusion on Schottky Barrier Nanowire MOSFET Fabricated using Top-down Technology
Y. K. Chin^{1,2,3}, K. L. Pey¹, N. Singh², G. Q. Lo², L. Chan³, L. H. Tan² and E. J. Tan^{1,2}, ¹Nanyang Technological Univ., ²Inst. of Microelectronics and ³Chartered Semiconductor Manufacturing Ltd. (Singapore)

P-3-18

Electrical and Structural Evaluations of Ultrathin SiGe- and Ge-on-insulator Fabricated using Ge Condensation by Dry Oxidation
H. Yang, D. Wang, H. Gao, K. Hirayama, K. Ikeda, S. Hata, H. Nakashima and H. Nakashima, *Kyushu Univ. (Japan)*

P-3-19

Triple-gate FinFETs with Fin-thickness Optimization to Reduce the Impact of Fin Line Edge Roughness
S. Yu, Y. Zhao, G. Du, J. Kang, R. Han and X. Liu, *Peking Univ. (China)*

P-3-20

Analysis of Fowler-Nordheim Stress Induced Trap Generation on Random Telegraph Signal Noise
Y. Son and H. Shin, *Seoul National Univ. (Korea)*

P-3-21

Effect of Hot-Carrier-Induced Hole Trapping on n-Type LDMOS Transistors
K. S. Tian¹, J. F. Chen¹, S. Y. Chen¹, J. R. Lee¹, K. M. Wu² and C. M. Liu²,
¹National Cheng Kung Univ. and ²Taiwan Semiconductor Manufacturing Co., Ltd. (Taiwan)

P-3-22

Impact of Tungsten Capping Layer on Yttrium Silicide for Low Resistance Source/Drain Contacts
T. Isogai, H. Tanaka, T. Goto, A. Teramoto, S. Sugawa and T. Ohmi, *Tohoku Univ. (Japan)*

P-3-23

Multiple-gated Poly-Si Nanowire Thin-Film Transistors
T. W. Liu¹, H. H. Hsu¹, Z. M. Lin¹, C. D. Lin², T. Y. Huang¹ and H. C. Lin^{1,2}, ¹National Chiao Tung Univ. and ²National Nano Device Labs. (Taiwan)

P-3-24

Subthreshold Current Model of Cylindrical Gate-All-Around Nanowire MOSFETs using Analytical Solutions of Poisson's Equation
Y. S. Wu and P. Su, *National Chiao Tung Univ. (Taiwan)*

P-3-25

Low-frequency Noise Characteristics of SiGe-channel PMOSFETs with High-compressive ILD-SiNx Stressing Layer
Y. T. Chen¹, K. M. Chen², W. S. Liao³, G. W. Huang² and F. S. Yeh¹, ¹National Tsing Hua Univ., ²National Nano Device Labs. and ³UMC (Taiwan)

P4**Advanced Memory
Technology**

(7 Papers)

P-4-1

NROM Retention with Distributive Cycling Stresses
S. W. Fang¹, A. C. Kang¹, J. R. Shih², K. Wu², Y. C. King¹ and C. J. Lin¹,
¹National Tsing Hua Univ. and ²Taiwan Semiconductor Manufacturing Co., Ltd. (Taiwan)

P-4-2

Nanoscale (EOT= 5.6 nm) Nonvolatile Memory Capacitors using Atomic Layer Deposited High-k HfAlO Nanocrystals
S. Z. Rahaman, A. Das and S. Maikap, *Chang Gung Univ. (Taiwan)*

P-4-3

A Dual-Gate Memory Cell with Two Inter-poly Oxides
J. R. Raguette^{1,2}, P. Calenzo^{1,2}, R. Laffont¹, D. Deleruyelle¹, R. Bouchakour¹, V. Bidal², A. Regnier² and J. M. Mirabel², ¹Université Aix-Marseille 1 and ²STMicroelectronics (France)

P-4-4

Fast Speed Bipolar Operation of Ge-Sb-Te based Phase Change Bridge Devices
Y. Y. Lin¹, Y. C. Chen¹, C. T. Rettner², S. Raoux², H. Y. Cheng¹, S. H. Chen¹, S. L. Lung¹, C. Lam² and R. Liu¹, ¹Macronix International Co., Ltd. and ²IBM (Taiwan)

P-4-5

Nanoscaling of Phase Change Memory Cells for High Speed Memory Applications
W. J. Wang¹, L. P. Shi¹, D. Loke², R. Zhao¹, K. G. Lim¹, H. K. Lee¹ and T. C. Chong^{1,2}, ¹A*STAR and ²National Univ. of Singapore (Singapore)

P-4-6

Thermal Deformation and Failure Analysis of Phase Change Random Access Memory
H. X. Yang^{1,2}, L. P. Shi¹, H. K. Lee¹, R. Zhao¹, J. M. Li¹, K. G. Lim¹ and T. C. Chong^{1,2}, ¹A*STAR and ²National Univ. of Singapore (Singapore)

P-4-7

A Dynamic Adaptive Reference Generation Scheme for 1T1C FeRAM
Z. Zou, Z. Jia, L. Liu, T. Ren and H. Chen, *Tsinghua Univ. (China)*

**P5
Advanced Circuits and
Systems**

(10 Papers)

P-5-1

The Formation of Lateral Interconnections Extending over 100- μ m-Thick Chips
M. Mariappan, J. Bea, T. Konno, H. Kino, Y. Ohara, T. Fukushima, T. Tanaka and M. Koyanagi, *Tohoku Univ. (Japan)*

P-5-2

Low-Power Image-Segmentation VLSI Design based on a Pixel-Block Scanning Architecture
K. Okazaki, K. Awane, N. Nagaoka, T. Sugahara, T. Koide and H. J. Mattausch, *Hiroshima Univ. (Japan)*

P-5-3

A Digital-Pixel-Sensor-Based Global Feature Extraction VLSI for Real-Time Image Recognition
H. Zhu and T. Shibata, *Univ. of Tokyo (Japan)*

P-5-4

Analytic Parameter Extraction of On-chip Spiral Inductors using a Modified Skin Effect Model
S. Lee, H. Jhon, I. Song and H. Shin, *Seoul National Univ. (Korea)*

P-5-5

An Optimal Design Method for Even-Stage Ring Oscillators with a CMOS Latch
K. Nakamura¹, M. Asano¹, Y. Kohara¹ and H. Koike², ¹*Kyushu Inst. of Tech. and* ²*Fukuoka Industry, Sci. and Tech. Foundation (Japan)*

P-5-6

Additional 12% Power Reduction in Practical Digital Chips of Low-Power Design using Post-Fabrication Clock-Timing Adjustment
E. Takahashi¹, T. Susa², M. Murakawa¹, T. Furuya², T. Higuchi¹, S. Furuichi³, Y. Ueda³ and A. Wada³, ¹*AIST*, ²*Toho Univ. and* ³*Sanyo Electric Co., Ltd. (Japan)*

P-5-7

Battery-less Telemetry System with a Closed-loop Power Control for Bio-Implantable Applications
K. Kiyoyama¹, Y. Tanaka², M. Onoda³, T. Fukushima¹, T. Tanaka¹ and M. Koyanagi¹, ¹*Tohoku Univ.*, ²*Nagasaki Inst. of Applied Sci. and* ³*Terumo Corp. (Japan)*

P-5-8

Low Gate Charge Power VDMOSFETs with Dual-Gate Floating NP Well Design
C. N. Liao¹, F. T. Chien² and Y. T. Tsai¹, ¹*National Central Univ. and* ²*Feng Chia Univ. (Taiwan)*

P-5-9

A Novel Match-line Charging Control Scheme with a New Sense Amplifier for High-Speed and Low-Power Content-Addressable Memory
M. Hasan¹, T. Rahman¹, N. Hasan¹, A. B. M. H. Rashid¹ and A. R. Patwary², ¹*Bangladesh Univ. of Eng. And Tech. and* ²*Oregon State Univ. (Bangladesh)*

P-5-10

A Novel Inductance Evaluation Method for Clip-Type Inductors and Meander Inductors Under the Impedance Matched Condition
S. Shimizu, Y. Aoki and K. Honjo, *Univ. of Electro-Communications (Japan)*

**P6
Compound
Semiconductor Circuits,
Electron Devices and
Device Physics**

(11 Papers)

P-6-1

High Mobility Transparent SnO₂ and ZnO-SnO₂ Thin-film Transistors with Double-layered Gate Insulators
W. S. Cheong, S. M. Yoon, C. S. Hwang and H. Y. Chu, *ETRI (Korea)*

P-6-2

Improvement in Rectifying Properties of Magnetron Sputtered-Zinc Oxide-based Schottky Diodes
D. S. Liu¹, C. W. Sheu¹, F. C. Tsai¹, B. T. Lai¹ and C. T. Lee², ¹*National Formosa Univ. and* ²*National Cheng Kung Univ. (Taiwan)*

P-6-3

Novel MOBILE Circuit and Literal Gates using 4 RTDs
H. Kim, Y. Kim, K. Lee and K. Seo, *Seoul National Univ. (Korea)*

P-6-4

Low Damage SiNx Surface Passivation using Remote ICP-CVD for AlGaIn/GaN HEMTs
H. J. Cho¹, J. C. Her¹, K. I. Lee¹, H. Y. Cha² and K. S. Seo¹, ¹*Seoul National Univ. and* ²*Hong-ik Univ. (Korea)*

P-6-5

GaN-Based Schottky Varactors for High-Power RF Applications
Y. S. Lin, J. Y. Wu, S. S. H. Hsu, C. Y. Chan and Y. W. Lian, *National Tsing Hua Univ. (Taiwan)*

P-6-6

Theoretical Investigation of GaN-based Diodes with a Recessed composite Schottky-barrier Structure
H. Makino, N. Ishikawa, K. Shiojima and M. Kuzuhara, *Univ. of Fukui (Japan)*

P-6-7

Improved 70 nm In_{0.52}AlAs/In_{0.65}GaAs High Electron Mobility Transistor with Additional Ohmic Contacts
S. J. Yeon, J. Kim, S. Lee, M. Park and K. Seo, *Seoul National Univ. (Korea)*

P-6-8

A New Dual Field-Plates GaN HEMTs Structure with Improved Break Down and Noise Performance
B. S. Hong, C. W. Lin, M. Y. Chen and H. C. Chiu, *Chang Gung Univ. (Taiwan)*

P-6-9

Electrical Characteristics of AZO/GaN and AZO/ZnO/GaN HBTs with P₂S₅ / (NH₄)₂S Treatments
C. T. Pan¹, R. J. Hou¹, C. W. Lin², H. C. Chiu² and Y. M. Hsin¹, ¹*National Central Univ. and* ²*Chang Gung Univ. (Taiwan)*

P-6-10

Below-Gap Levels in InGaAs High-Electron-Mobility Transistors Observed by Two-Wavelength Excited Photoluminescence
T. Yamaguchi¹, A. Okamoto¹, T. Fukuda¹, T. Takada², T. Itatani³ and N. Kamata¹, ¹*Saitama Univ.*, ²*Sumitomo Chemical Co., Ltd. and* ³*AIST (Japan)*

P-6-12

Device Structure- and Trap Parameter-Dependence of Current Collapse and Lag Phenomena in AlGaIn/GaN HEMTs
A. Nakajima, K. Itagaki, H. Nara and K. Horio, *Shibaura Inst. of Tech. (Japan)*

**P7
Photonic Devices and
Device Physics**

(15 Papers)

P-7-1

Light Output Enhancement of GaN-based Light-emitting Diodes with Oblique Indium-Tin Oxide Nanorod Array
C. C. Lin, H. Y. Lee and C. T. Lee, *National Cheng Kung Univ. (Taiwan)*

P-7-2

Analysis of Thermo-optic Switch with Si Photonic-wire Waveguide
M. T. Nguyen and H. Yamada, *Tohoku Univ. (Japan)*

P-7-3

Analysis of Optical Coupling for Si Photonic-wire Waveguide
M. Abe and H. Yamada, *Tohoku Univ. (Japan)*

P-7-4

Vertical-Injection Ultraviolet Light-Emitting Diodes with GaN-Free Structures
C. E. Lee, B. S. Cheng, Y. C. Lee, C. H. Chiu, H. C. Kuo, T. C. Lu and S. C. Wang, *National Chiao Tung Univ. (Taiwan)*

P-7-5

A Maskless Method of Patterned Porous Silicon Formation by a Localized Electrical Field
J. C. Lin¹, W. C. Tsai², H. T. Hou¹ and S. J. Wang², ¹*St. John's Univ. and* ²*National Cheng Kung Univ. (Taiwan)*

P-7-6

Improved Light-output of Thin-GaN Light-emitting Diode with Micro-reflector and Roughened Surface
B. S. Cheng, C. H. Chiu, H. C. Kuo, T. C. Lu and S. C. Wang, *National Chiao Tung Univ. (Taiwan)*

P-7-7

Mechanoluminescence of Europium-doped SrAMgSi₂O₇ (A=Ca, Sr, Ba)
H. Zhang¹, N. Terasaki¹, H. Yamada¹ and C. N. Xu^{1,2}, ¹*AIST and* ²*CREST-JST (Japan)*

P-7-8

Enhancement of Nitride-Based Near-Ultraviolet Vertical-Injection Light-Emitting Diodes with Roughened Mesh-Surface by Adopting Pattern Sapphire Substrate
C. E. Lee, B. S. Cheng, Y. C. Lee, C. H. Chiu, H. C. Kuo, T. C. Lu and S. C. Wang, *National Chiao Tung Univ. (Taiwan)*

P-7-9

Influence of the Si Cap on Electroluminescence of Ge Quantum-dot Diodes
H. M. Chen¹, Y. C. Lai¹, Y. H. Peng² and C. H. Kuan¹, ¹*National Taiwan Univ. and* ²*Lan Yang Inst. of Tech. (Taiwan)*

P-7-10

A Fast Sapphire Substrate Surface Roughening Technology using CO₂ Laser for Enhancing Light Extraction of GaN-Based Flip-Chip Light-Emitting Diodes
P. R. Wang¹, S. J. Wang¹, K. M. Uang², T. M. Chen², F. T. Tang¹, H. Y. Kuo¹ and H. Kuan³, ¹*National Cheng Kung Univ.*, ²*WuFeng Inst. of Tech. and* ³*Southern Taiwan Univ. of Tech. (Taiwan)*

P-7-11

Alternating-Current a-C:
H White Thin-Film Light-
Emitting Diodes with
Composition-Graded
Carrier Injection Layers
S. Y. Lo, T. K. Wang,
R. H. Yeh and J. W. Hong,
National Central Univ.
(Taiwan)

P-7-12

Power Enhancement of
GaN-Based Flip-Chip
Light-Emitting Diodes with
Triple Roughened Surfaces
B. S. Cheng, C. E. Lee,
H. C. Kuo, T. C. Lu and
S. C. Wang, *National
Chiao Tung Univ.* (Taiwan)

P-7-13

Use of Current-Blocking
Layer to Enhance
Performance of Vertical
GaN-Based Light-Emitting
Diodes with a Ni-Plating
Substrate
K. M. Uang¹, T. M. Chen¹,
W. C. Lee², P. R. Wang²,
D. M. Kuo², Y. Y. Wang²,
S. J. Wang² and H. Kuan³,
¹*WuFeng Inst. of Tech.*,
²*National Cheng Kung
Univ. and* ³*Southern Taiwan
Univ. of Tech.* (Taiwan)

P-7-14

ZnO Nanorods-on-GaN
Heterojunction Light-
Emitting Diode Grown
by Vapor Cooling
Condensation Method
J. T. Yan, L. R. Lou and
C. T. Lee, *National Cheng
Kung Univ.* (Taiwan)

P-7-15

Fiber Pump Semiconductor
Lasers with Optical
Antiguinding Layers for
Horizontal Transverse
Modes: Dependence on
Mesa Width
M. Fujimoto, N. Shomura
and T. Numai,
Ritsumeikan Univ. (Japan)

P8

**Advanced Material
Synthesis and Crystal
Growth Technology**
(11 Papers)

P-8-1

Synthesis and Field
Emission Characterizations
of Ag-Catalyzed ZnO
Nanostructures
S. H. Yang, P. C. Chen,
S. Y. Hong and C. H. Tsai,
*National Kaohsiung Univ.
of Applied Sci.* (Taiwan)

P-8-2

Temperature-induced
Morphological Evolution
of Indium Nitride
S. Y. Kuo¹, W. C. Chen²,
C. N. Hsiao² and F. I. Lai³,
¹*Chang Gung Univ.*,
²*National Applied Res.
Labs. and* ³*Yuan Ze Univ.*
(Taiwan)

P-8-3

Optical and Electrical
Characterizations of
ZnMnO Thin Films on
c-Al₂O₃
H. J. Lin¹, D. Y. Lin¹, J.
S. Wu¹, C. S. Yang², W.
C. Chou³, W. H. Lo⁴ and
J. S. Wang⁴, ¹*National
Changhua Univ. of
Education*, ²*Tatung Univ.*,
³*National Chiao Tung Univ.*
and ⁴*Chung Yuan Christian
Univ.* (Taiwan)

P-8-4

1.5 μm Photoluminescence
from Conductive Er-doped
SnO_x
K. Kisu¹, S. Soneda¹,
A. Kotake¹, Y. Naka¹,
N. Yamamoto²,
M. Tsuchiya² and
Y. Nakamura¹, ¹*Kumamoto
Univ. and* ²*NICT* (Japan)

P-8-5

A Theoretical Study on
Deposition Processes of
MgO Thin Films: Ultra-
Accelerated Quantum
Chemical Molecular
Dynamics Approach
A. Endou¹, K. Serizawa¹,
H. Onuma¹, H. Kikuchi¹,
A. Suzuki¹, M. Koyama¹,
H. Tsuboi¹,
N. Hatakeyama¹,
H. Takaba¹,
C. A. Del Carpio¹,
R. C. Deka², M. Kubo¹,
H. Kajiyama³ and
A. Miyamoto¹, ¹*Tohoku
Univ.*, ²*Tezpur Univ. and*
³*Hiroshima Univ.* (Japan)

P-8-6

Growth Mechanism of
One-Dimensional Nickel-
Silicide Nanowires
Z. Q. Sun, S. J. Whang,
W. F. Yang and S. J. Lee,
*National Univ. of
Singapore* (Singapore)

P-8-7

VO₂ and V₂O₃ Films
Fabricated on (1000) or
(10T0)Al₂O₃ by Reactive
RF-Magnetron Sputter
Deposition and Annealing
Processes
S. J. Yun, J. W. Lim,
J. S. Noh and H. T. Kim,
*Electronics and
Telecommunications Res.
Inst.* (Korea)

P-8-8

μc-Si_{1-x}Ge_x Deposition on
SiO₂ by RF Magnetron
Sputtering
A. Hiroe, T. Goto,
A. Teramoto and T. Ohmi,
Tohoku Univ. (Japan)

P-8-9

Structural, Electrical
Characterization
and Sharp-blue
Electroluminescence of
As-implanted Bulk ZnO
J. D. Ye¹, L. J. Tang¹,
S. F. Choy¹, C. H. Tung¹,
S. T. Tan¹, X. W. Sun¹,
G. Q. Lo¹, S. Tripathy¹
and K. L. Teo^{1,2}, ¹*A*STAR
and* ²*National Univ. of
Singapore* (Singapore)

P-8-11

Piezorefectance Study of
the Band-Edge Excitons of
ReS₂:Au
J. Y. Zheng¹, D. Y. Lin¹ and
Y. S. Huang², ¹*National
Changhua Univ. of Edu.*
and ²*National Taiwan Univ.
of Sci. and Tech.* (Taiwan)

P-8-12

Nonlinear Optical
Properties of Poly (3,
4-ethylenedioxythiophene)
Synthesized by
Electropolymerization
S. Mao, Y. Xu, X. Wang,
J. Niu and M. Wang,
Xi'an Jiaotong Univ.
(China)

P9

**Physics and Applications
of Novel Functional
Materials and Devices**
(9 Papers)

P-9-1

Characterization of
Anomalous Excitation-
dependence Luminescence
Phenomena in InGaN/GaN
Light-emitting Diodes with
Electron Blocking Layer
J. C. Wang¹, K. Y. Cheng¹,
H. T. Shen¹, T. E. Nee¹ and
Y. F. Wu², ¹*Chang Gung
Univ. and* ²*Tech. and Sci.
Inst. of Northern Taiwan*
(Taiwan)

P-9-2

Zn_{1-x}Cu_xO Films Grown by
Remote-plasma-enhanced
Metalorganic Chemical
Vapor Deposition with
Cu(dibm)₂
B. Hu, M. Adachi,
T. Aoshima, A. Nakamura
and J. Temmyo, *Shizuoka
Univ.* (Japan)

P-9-3

Improving Light Extraction
Efficiency of (Al_xGa_{1-x})_{0.5}
In_{0.5}P-Based Flip-Chip
Light-Emitting Diode with
a Geometric Sapphire
Shaping Structure
Y. C. Lee, C. E. Lee,
H. C. Kuo, T. C. Lu and
S. C. Wang, *National
Chiao Tung Univ.* (Taiwan)

P-9-4

Physical Characteristic of
UV Photodetectors based
on Sol-gel Derived ZnO
Thin Film
K. J. Chen, F. Y. Hung,
S. J. Chang and
S. J. Young, *National
Cheng Kung Univ.*
(Taiwan)

P-9-5

Avalanche Multiplication
Factor and Quantum
Efficiency of Te-doped
a-Se HARP Target
W. D. Park¹ and
K. Tanioka², ¹*Dongyang
Univ. and* ²*NHK Sci. and
Tech. Res. Labs.* (Korea)

P-9-6

Characterization of
Columnar-shaped InAs/
GaAs Quantum-dot
Structures using Grazing
Incidence X-ray Diffraction
Y. Kimura and K. Mukai,
Yokohama National Univ.
(Japan)

P-9-7

Tight-Binding Quantum
Chemical Study on
Absorption Spectrum of
Organic Dye on Anatase
Titanium Dioxide Surface
C. Lv¹, K. Ogiya¹,
A. Suzuki¹, R. Sahnoun¹,
M. Koyama¹, H. Tsuboi¹,
N. Hatakeyama¹,
A. Endou¹, H. Takaba¹,
C. A. Del Carpio¹,
R. C. Deka², M. Kubo¹ and
A. Miyamoto¹, ¹*Tohoku
Univ. and* ²*Tezpur Univ.*
(Japan)

P-9-8

Ultra Accelerated QCMD
Study on Secondary
Electron Emission
Properties of MgO
Protecting Layer for
Plasma Display Panels
K. Serizawa¹, H. Onuma¹,
H. Kikuchi¹, M. Kitagaki²,
A. Suzuki¹, S. Riadh¹,
M. Koyama¹, H. Tsuboi¹,
N. Hatakeyama¹,
A. Endou¹, H. Takaba¹,
C. A. Del Carpio¹,
R. C. Deka³, M. Kubo¹,
H. Kajiyama² and
A. Miyamoto¹,
¹*Tohoku Univ.*, ²*Hiroshima
Univ. and* ³*Tezpur Univ.*
(Japan)

P-9-9

Mechanical Deformation
Processing of Nanometer-
Sized Silver Contacts
H. Masuda and T. Kizuka,
Univ. of Tsukuba (Japan)

P-9-10

Exciton Wavefunction
Coupled Surface Plasmon
Resonance on In-
rich InGaN Film with
Perforated Aluminum
Circle Hole Arrays
H. L. Lo¹, J. C. Wang¹,
H. T. Shen¹, T. E. Nee¹ and
Y. F. Wu², ¹*Chang Gung
Univ. and* ²*Tech. and Sci.
Inst. of Northern Taiwan*
(Taiwan)

P10

**Organic Materials
Science, Device Physics,
and Applications**
(19 Papers)

P-10-1

The Current Gain
Improvement of Organic
Base Modulation Triodes
S. S. Cheng¹,
Y. C. Chuang¹, M. C. Wu¹,
Dhananjay² and
C. W. Chu^{2,3}, ¹*National
Tsing Hua Univ.*,
²*Academia Sinica and*
³*National Chiao Tung Univ.*
(Taiwan)

P-10-2

Impedance Spectroscopy
of Metal-Insulator-Polymer
Semiconductor Diodes
Y. Miyagawa,
T. Yoshikawa, T. Nagase,
T. Kobayashi and H. Naito,
Osaka Prefecture Univ.
(Japan)

P-10-3

Fabrication of OTFTs
and Inverters by using
Ink-Jet Printing with
Polyvinylphenol Insulator
and TIPS-Pentacene
Semiconductor
R. W. Kang¹, Y. X. Xu² and
C. K. Song¹, ¹*Dong-A Univ.*
and ²*Kyungnam College of
Info. and Tech.* (Korea)

P-10-4

Electrical Characteristics
of Organic Field Effect
Transistor by Forming Gas
Treatment of High-k Al₂O₃
at Low Temperature
S. Lee, S. Yoon, I. S. Park
and J. Ahn, *Hanyang Univ.*
(Korea)

P-10-5

Localized-State
Distributions in Polymer
Transistors Studied by a
Field-Effect Method
T. Banno, K. Tomatsu,
T. Nagase, T. Kobayashi
and H. Naito, *Osaka
Prefecture Univ.* (Japan)

P-10-6

Fabrication of Printed Organic Thin-Film Transistors using Roll Printing
J. Jo, J. S. Yu, T. M. Lee and D. S. Kim, *KIMM (Korea)*

P-10-7

Low Contact Resistance of Source and Drain Electrodes of OTFTs with PEDOT-PSS Patterned by Ink-jet Printing
M. K. Kim, R. W. Kang and C. K. Song, *Dong-A Univ. (Korea)*

P-10-8

Effect of Surface Energy of Gate Insulators on Polymer Field-Effect Transistor Performance
K. Tomatsu¹, A. Kanehara¹, H. Uda¹, T. Hamada¹, T. Nagase¹, T. Kobayashi¹, S. Murakami², M. Watanabe³, K. Matsukawa³ and H. Naito¹, ¹Osaka Prefecture Univ., ²Tech. Res. Inst. of Osaka Prefecture and ³Osaka Municipal Technical Res. Inst. (Japan)

P-10-9

Extensive Leakage Current Reduction in Polymer Dielectric Thin Film by Metal Nanoparticles Incorporation for OTFT
T. H. Huang¹, Z. Pei¹, H. T. Lin², S. W. Tsai² and Y. J. Chan², ¹National Chung Hsing Univ. and ²National Central Univ. (Taiwan)

P-10-10

Air-stable Ambipolar Organic Heterostructure Transistors with Various Sexithiophene Alkyl-substituted Derivatives
R. Ye¹, M. Baba¹, T. Suzuki² and K. Mori¹, ¹Iwate Univ and ²Iwate Industrial Res. Inst. (Japan)

P-10-11

Reduction of Threshold Voltage in Organic Thin-Film Transistors by Treating ITO Gate Electrode with Phosphoric Acid Solution
J. Park¹, K. Kim², J. W. Lee², D. W. Kim², Y. Kim², Y. Chun² and J. S. Choi², ¹Hanyang Univ. and ²Hongik Univ. (Korea)

P-10-12

Comparison of the Use of Different Encapsulate Adhesion Glue to Enhance the Efficiency and Lifetime of Polymer Solar Cells
C. M. Chen¹, M. H. Chang¹, T. E. Hsieh¹, R. M. Tang², Y. S. Tsai², W. P. Chu², M. O. Liu³ and F. S. Juang², ¹National Chiao Tung Univ., ²National Formosa Univ. and ³Industrial Tech. Res. Inst. (Taiwan)

P-10-13

Fine Metal Patterning with a Mask-less Deposition Method for Organic Electronics
Y. Sesumi¹, R. Takagi¹, K. Masui¹, S. Yokojima², K. Uchida³, S. Nakamura² and T. Tsujioka¹, ¹Osaka Kyoiku Univ., ²Mitsubishi Chemical Group Sci. and Tech. Res. Center Inc. and ³Ryukoku Univ. (Japan)

P-10-14

Fabrication and Photocurrent Properties of Fullerene-Polyethylenedioxythiophene Composite Films
H. Yoneda¹, T. Fukuyama¹, K. Sugawa¹, T. Akiyama¹, S. Yamada¹, K. Takechi², T. Shiga², T. Motohiro², H. Nakayama³ and K. Kohama³, ¹Kyushu Univ., ²Toyota Central R&D Labs., Inc. and ³Toyota Motor Corp. (Japan)

P-10-15

Anomalous Temperature-dependent Behaviors of Electroluminescence Phenomena in the Disordered ITO/PEDOT/PFO/Ca/Al Polymer Light-emitting Diodes
J. W. Teng, J. C. Wang, Y. H. Lu, T. E. Nee and G. M. Wu, *Chang Gung Univ. (Taiwan)*

P-10-16

High Efficiency Property of White OLED Doped on Blue Material [Zn(HPB)₂] and Red Material [(POB)₂Ir(pic)]
D. E. Kim¹, G. C. Choi¹, B. S. Kim¹, B. J. Lee² and Y. S. Kwon¹, ¹Dong-A Univ. and ²Inje Univ. (Korea)

P-10-17

Improved Brightness and Operating Voltage of Organic Light-Emitting Diodes with NPB/LiF Superlattice Layer
C. H. Chen and H. J. Chien, *Cheng Shiu Univ. (Taiwan)*

P-10-18

A Study on Air Stability of Pentacene Based MOS Diode Structures
Md. Akhtaruzzaman, S. Ohmi, J. Nishida, Y. Yamashita and H. Ishiwara, *Tokyo Tech. (Japan)*

P-10-19

Transparent Organic Light-Emitting Diodes with Transparent Oxide Semiconductor of IZO for Cathode
T. Amemiya, S. Naka and H. Okada, *Univ. of Toyama (Japan)*

**P11
Micro/Nano
Electromechanical and
Bio-Systems (Devices)**
(9 Papers)

P-11-1

In-situ Monitoring of Leukemia Cell Death by Infrared Spectroscopy
R. Yamaguchi¹, A. Hirano-Iwata¹, Y. Kimura¹, K. Miyamoto¹, H. Miyazaki², H. Isoda² and M. Niwano¹, ¹Tohoku Univ. and ²Univ. of Tsukuba (Japan)

P-11-2

Speedy and Quantitative Analysis of Alpha Fetoprotein in Human Plasma with Surface Plasmon Field Enhanced Fluorescence Spectroscopy
H. Takiguchi^{1,2}, Y. Teramura³ and H. Iwata³, ¹Univ. of Tokyo, ²Advanced Software Tech. and ³Mechatronics Res. Inst. of Kyoto and ³Kyoto Univ. (Japan)

P-11-3

A Low-voltage and Low-power Consumption CMOS Image Sensor using Pulse-width-modulation Scheme for Biomedical Applications
S. Shishido¹, K. Kagawa², T. Tokuda¹ and J. Ohta¹, ¹NAIST and ²Osaka Univ. (Japan)

P-11-4

Bio-Thermochemical Sensor with Liposome Immobilized Intact for Protein Detection using their Interaction and Membrane Dynamics
M. Noda^{1,2}, T. Asai¹, K. Yamashita^{1,2}, T. Shimanouchi², M. Okuyama² and R. Kuboi², ¹Kyoto Inst. Of Tech. and ²Osaka Univ. (Japan)

P-11-5

Frequency Dependences of pH Sensitivity and Light Immunity for Single and Stacked HfO₂ EIS Structures
C. E. Lue¹, C. S. Lai¹, W. C. Lin¹ and C. M. Yang², ¹Chang Gung Univ. and ²Inotera memories Inc. (Taiwan)

P-11-6

Pulse Width Modulated Atmospheric Plasma Generation using Micro Electrode Array
J. Jin, K. Kim and Y. Kim, *Hongik Univ. (Korea)*

P-11-7

Selective Sensing of Multi-Inorganic Ions using Ion Exchange Fiber Film
S. Hotta¹, K. Miyano¹, H. Aoki¹, K. Kumeta², Y. Hata², M. Konishi², C. Kimura¹ and T. Sugino¹, ¹Osaka Univ. and ²Nitivy Co. (Japan)

P-11-8

Implementation of Surface Acoustic Wave Vapor Sensor using CMOS Amplifiers
C. S. Chiu^{1,3}, G. C. Chang², C. L. Gu², K. M. Peng², E. S. Jeng², W. L. Chen¹, G. W. Huang¹ and L. K. Wu³, ¹National Nano Device Labs., ²Chung Yuan Christian Univ. and ³National Chiao Tung Univ. (Taiwan)

P-11-9

MEMS-Based Multi-Sensors: Fabrication and Analysis
D. S. Eun¹, D. Y. Kong¹, H. J. Yoo¹, Y. M. Hong¹, T. W. Kang¹, S. J. Chang¹, I. S. Yu², J. K. Shin¹ and J. H. Lee¹, ¹Kyungpook National Univ. and ²Kyungdong College of Techno-Info. (Korea)

**P12
Spintronic Materials and
Devices**
(5 Papers)

P-12-1

XMCD and Photoemission Investigations of the Origin of Room Temperature Ferromagnetism in Fe-doped ZnO Nanoparticles
T. Kataoka¹, M. Kobayashi¹, G. S. Song¹, Y. Sakamoto¹, A. Fujimori^{1,2}, F. H. Chang³, H. J. Lin³, D. J. Huang³, C. T. Chen³, T. Ohkochi², Y. Takeda², T. Okane², Y. Saitoh², H. Yamagami^{2,4}, D. Karmakar⁵, S. K. Mandal⁶ and I. Dasgupta⁶, ¹Univ. of Tokyo, ²JAEA, ³NSRRC, ⁴Kyoto Sangyo Univ., ⁵Bhabha Atomic Res. Center and ⁶Indian Inst. of Tech. (Japan)

P-12-2

Observation of Out-of-Plane Spin Injection from MnSb/GaAs Spin-LED
W. Terui and H. MuneKata, *Tokyo Tech. (Japan)*

P-12-3

Exciton Spin Stability in InP Quantum Dots at the Elevated Temperatures
Y. Masumoto, T. Suzuki, K. Kawana and M. Ikezawa, *Univ. of Tsukuba (Japan)*

P-12-4

Effect of Growth Interruption on Electron Spin Relaxation in (110)-Oriented GaAs/AlGaAs Quantum Wells
S. Iba, H. Fujino, T. Fujimoto, S. Koh and H. Kawaguchi, *NAIST (Japan)*

P-12-5

Design of Logic Module based on Magnetic-Tunnel-Junction Elements for Nonvolatile FPGA
S. Lee, H. Lee, S. Kim, S. Lee and H. Shin, *Ewha Womans Univ. (Korea)*

**P13
Applications of Nanotubes
and Nanowires**
(2 Papers)

P-13-1

First Principle Calculation of Contact between Scandium and Semiconducting Carbon Nanotube
Y. He, J. Zhang, M. Gao, Q. Ran, Y. Wang and Z. Yu, *Tsinghua Univ. (China)*

P-13-2

Multi-backgate Control of Carbon Nanotube Double Quantum Dot
H. Maki¹, T. Mizuno¹, S. Suzuki², Y. Kobayashi² and T. Sato¹, ¹Keio Univ. and ²NTT Corp. (Japan)