Joint Session (Area 4&12)

A-5: Nonvolatile Memory and Storage Devices
9:30-11:10 Meeting Room 1
Session Chair: T. Kondo (Toshiba Corp.)
H. Sato (Tohoku Univ.)

9:30 A-5-01 (Invited)
Accumulative Magnetic Switching of Ultrahigh-Density Recording Media by Circularly Polarized Light
°*Y. K. Takahashi[1], R. Medapalli[2], S. Kasai[1], J. Wang[1], K. Ishioka[1], S. H. Wee[3], O. Hellwig[4], K. Hono[1], E. E. Fullerton[2], [1.]NIMS (Japan), [2.]UCSD (USA), [3.]HGST (USA), [4.]Institut für Ionenstrahlphysik und Materialforschung (Germany)*

10:00 A-5-02
Switching Mechanism Design for High-speed Voltage-Control Spintronics Memory (VoCSM) Considering the Operation Window
°*K. Koi[1], H. Yoda[1], N. Shimomura[1], T. Inokuchi[1], Y. Kato[1], B. Altansargai[1], S. Shirotori[1], Y. Kamiguchi[1], K. Ikegami[1], S. Oikawa[1], H. Sugiyama[1], M. Shimizu[1], M. Ishikawa[1], T. Ajay[1], Y. Ohsawa[1], Y. Saito[1], A. Kurobe[1], [1.]Toshiba Corp. (Japan)*

10:20 A-5-03
Cross Point Type 1T-1MTJ STT-MRAM Cell with 60 nm Multi-pillar Vertical Body Channel MOSFET under 55 nm p-MTJ and Its Beyond for High Density STT-MRAM
°*T. Sasaki[1,2,3], T. Endoh[1,2,3], [1.]Tohoku Univ. (Japan), [2.]ACCEL, JST (Japan), [3.]OPERA, JST (Japan)*

10:40 A-5-04 (Invited)
Key advanced technology for eMRAM development
°*J. Lee[1], H. Jung[1], K. Lee[1], Y. Song[1], G. -H. Koh[1], G. -T. Jeong, [1.]Samsung Electronics Co., Ltd. (Korea)*

11:10-11:15 Coffee Break

A-6: Novel Memory
11:15-12:15 Meeting Room 1
Session Chair: T. Ono (Kyoto Univ.)
K. Kinoshita (Tokyo Univ. of Science)

11:15 A-6-01
Voltage-Control Spintronics Memory (VoCSM) having a potential of high write-efficiency
°*M. Shimizu[1], H. Yoda[1], S. Shirotori[1], N. Shimomura[1], Y. Ohsawa[1], T. Inokuchi[1], K. Koui[1], Y. Kato[1], S. Oikawa[1], H. Sugiyama[1], A. Buyandalai[1], M. Ishikawa[1], K. Ikegami[1], Y. Kamiguchi[1], Y. Saito[1], A. Kurobe[1], [1.]Toshiba Corp. (Japan)*

11:35 A-6-02
Sub 1 V 60 nm Vertical Body Channel MOSFET Based 6T SRAM Array with Wide Noise Margin and Excellent Power Delay Product
°*R. Ogasawara[1,2,3], T. Endoh[1,2,3], [1.]Tohoku Univ. (Japan), [2.]ACCEL, JST (Japan), [3.]OPERA, JST (Japan)*

11:55 A-6-03
In-situ Observation of Cu Residuals in Resistance Switching Failure of MoO_x/Al_2O_3 CBRAM
°*M. Arita[1], R. Ishikawa[1], S. Hirata[1], A. Turumaki-Fukuchi[1], Y. Takahashi[1], [1.]Hokkaido Univ. (Japan)*

12:15-13:40 Lunch

04: Advanced Memory Technology

A-7: ReRAM Applications
13:40-15:00 Meeting Room 1
Session Chair: Y. Jono (Micron Memory Japan Inc.)
Y. Hikosaka (Fujitsu Semiconductor Ltd.)

13:40 A-7-01
The Experimental Observations of a New Dielectric-fuse Breakdown in a Bilayer-RRAM to Realize the OTP Functionality
°*E. R. Hsieh[1], H. W. Cheng[1], Z. H. Huang[1], C. H. Chuang[1], C. H. Chen[1], S. Chung[1], [1.]National Chiao Tung Univ. (Taiwan)*

14:00 A-7-02
A Novel Ternary Content Addressable Memory Design Based on RRAM with High Intensity and Low Search Energy
°*R. Han[1], W. Shen[1], P. Huang[1], Z. Zhou[1], L. Liu[1], X. Liu[1], J. Kang[1], [1.]Peking Univ. (China)*

14:20 A-7-03
Error Free Physically Unclonable Function (PUF) with Programmed ReRAM using Reliable Resistance States by Novel ID-Generation Method
°*P. H. Tseng[1], [1.]Macronix International Co., Ltd. (Taiwan)*

14:40 A-7-04
Highly Reliable Logic-Compatible MTP Memory for Automotive Applications
°*C. Y. Lo[1], S. C. Wang[1], [1.]eMemory Technology Inc. (Taiwan)*

15:00-15:10 Coffee Break

A-8: PCRAM
15:10-16:55 Meeting Room 1
Session Chair: S. Jeon (Korea Univ.)
Y. Hikosaka (Fujitsu Semiconductor Ltd.)

15:10 A-8-01 (Invited)
Transition Metal-Ge-Te Chalcogenides for PCRAM Material
°*Y. Sutou[1], S. Shindo[1], S. Hatayama[1], Y. Saito[2], J. Koike[1], [1.]Tohoku Univ. (Japan), [2.]AIST (Japan)*

15:40 A-8-02
Origin of the difference between high resistive and low resistive structures for interfacial phase change memories based on $GeTe/Sb_2Te_3$ superlattice
°*H. Shirakawa[1], M. Araidai[1], K. Shiraishi[1], [1.]Nagoya Univ. (Japan)*

16:00 A-8-03
Thermal Stability and Switching Performance of iPCM at Elevated Temperature

°*K. V. Mitrofanov[1], Y. Saito[1], N. Miyata[1], P. Fons[1], A. V. Kolobov[1], J. Tominaga[1], [1.]AIST (Japan)*

16:20 A-8-04
Continuous Multilevel Compact Model of Subthreshold Conduction and Threshold Switching in Phase-Change Memory
°*C. Pigot[1,2,3], F. Gilibert[1], M. Reyboz[2], M. Bocquet[3], P. Zuliani[4], J. -M. Portal[3], [1.]STMicroelectronics, Crolles (France), [2.]CEA-Leti (France), [3.]IM2NP, Aix-Marseille Univ. (France), [4.]STMicroelectronics, Agrate (Italy)*

16:40 A-8-05 (Late News)
Programming Current Reduction in GeS_2+Sb_2Te_3 Based Phase-Change Memory
°*J. Kluge[1,2,3], A. Verdy[2], G. Navarro[2], S. Blonkowski[1], V. Sousa[2], P. Kowalczyk[2], M. Bernard[2], N. Bernier[2], G. Bourgeois[2], N. Castellani[2], P. Noé[2], E. Nowak[2], L. Perniola[2], [1.]STMicroelectronics (France), [2.]CEA-Leti (France), [3.]IMEP-LAHC (France)*

Joint Session (Area 10&15)

B-5: Quantum Dot/Organic Solar Cells
9:30-10:45 Meeting Room 2
Session Chair: M. Ikegami (Toin Univ. of Yokohama)
T. Kaji (Tokyo Univ. of Agri. & Tech.)

9:30 B-5-01 (Invited)
Solution-processed solar cells with nanostructured hybrid materials
°*T. Kubo[1], H. Wang[1], H. Segawa[1], [1.]Univ. of Tokyo (Japan)*

10:00 B-5-02
0-dimensional Carbon Dot as Efficient Cathode Interfacial Layers for Organic Photovoltaics Providing Power Conversion Efficiencies up to 9.5%
°*J. -C. Kao[1], C. -P. Chen[1], [1.]Ming Chi Univ. of Tech. (Taiwan)*

10:15 B-5-03
The research on the principle of high V_{OC} in Schottky type organic photovoltaic cells with low concentrated donors
°*F. Enokido[1], M. Yogo[1], M. Katayama[1], T. Kaji[1], [1.]Tokyo Univ. of Agri. & Tech. (Japan)*

10:30 B-5-04
Highly stable organic-inorganic perovskite solar cells
C. Qin[1,2], °T. Matsushima[1,2], T. Fujihara[3], C. Adachi[1,2], [1.]Kyushu Univ. (Japan), [2.]JST, ERATO (Japan), [3.]ISIT (Japan)

10:45-11:15 Coffee Break

15: Photovoltaic Materials and Devices

B-6: Perovskite Solar Cells
11:15-12:30 Meeting Room 2
Session Chair: M. Chikamatsu (AIST)
T. Taima (Kanazawa Univ.)

11:15 B-6-01
The Influence of O_2 Plasma Treatment to NiO_x Layer for Perovskite Solar Cells
°*Y. Nishihara[1,2], M. Chikamatsu[1], S. Kazaoui[1], T. Miyadera[1], Y. Yoshida[1,2], [1.]AIST (Japan), [2.]Univ. of Tsukuba (Japan)*

11:30 B-6-02
Low Temperature Processed Atomically Thin Perovskite Oxide as Electron Transporting Layer in Perovskite Solar Cells
°*Y. -H. Tsai[1], S. -S. Li[1], K. Tsukagoshi[2], T. Sasaki[2], M. Osada[2], C. -W. Chen[1], [1.]National Taiwan Univ. (Taiwan), [2.]NIMS (Japan)*

11:45 B-6-03
High Mobility Fullerene Derivative as Interface Engineering of Amorphous Compact-TiO_x for Planar Perovskite Solar Cells
°*M. Shahiduzzaman[1], M. Karakawa[1], K. Yamamoto[1], K. Yonezawa[1], T. Kuwabara[1], K. Takahashi [1], T. Taima[1],*

[1.]*Kanazawa Univ. (Japan)*

12:00 B-6-04
Semitransparent Perovskite Solar Cells With Thin Metal Electrodes
°*H. Chintam[1,2], K. M. Boopathi[1], C. S. Lai[2], C. W. Chu[1], [1.]Academia Sinica (Taiwan), [2.]Chang Gung Univ. (Taiwan)*

12:15 B-6-05
Simple Structured Polyetheramines, as Electron Transporting Modified Layers for Efficient Organic Photovoltaics
°*Y. -Y. Tsai[1], B. -H. Jiang[1], C. -P. Chen[1], [1.]Ming Chi Univ. of Tech. (Taiwan)*

07: Photonic Devices and Related Technologies

C-5: Silicon Photonics I
9:30-10:45 Meeting Room 3
Session Chair: M. Shirao (Mitubishi Electric Corp.)
S. Sekiguchi (Fujitsu Labs.)

9:30 C-5-01 (Invited)
Integration of Photonics with Digital Processing Units
°*L. Alloatti[1], [1.]ETH Zürich (Switzerland)*

10:00 C-5-02
High-Performance Surface Illumination-type Ge Photodetector for Optical Interconnection on 300mm-diameter of SOI substrate
°*J. Fujikata[1], K. Kinoshita[1], S. Takahashi[1], T. Horikawa[1,2], M. Noguchi[1], K. Takemura[1], D. Okamoto[1], Y. Suzuki[1], M. Kurihara[1], Y. Hagihara[1], T. Nakamura[1], K. Kurata[1], T. Mogami[1], [1.]PETRA (Japan), [2.]AIST (Japan)*

10:15 C-5-03
O-Band CWDM Echelle Grating Demultiplexers on SiNOI Exhibiting Quasi-Absolute Thermal Insensitiveness
°*C. Sciancalepore[1], Q. Wilmart[1], D. Robin-Brosse[1], L. Adelmini[1], S. Malhouitre[1], S. Olivier[1], [1.]CEA-Leti (France)*

10:30 C-5-04
CMOS Compatible 200mm Silicon Photonic Platform Suitable For High Bandwidth Applications
°*B. Szelag[1], B. Charbonnier[1], S. Brision[1], B. Karakus[1], D. Fowler[1], O. Lemonnier[1], J. -M. Hartmann[1], P. Brianceau[1], D. Marris-Morini[2], E. Cassan[2], L. Vivien[2], S. Menezo[1], C. Kopp[1], [1.]CEA-Leti (France), [2.]C2N-Univ. Paris Sud (France)*

10:45-11:15 Coffee Break

09: Physics and Applications of Novel Functional Devices and Materials

C-6: Quantum Transport
11:15-12:30 Meeting Room 3
Session Chair: R. Moriya (Univ. of Tokyo)
T. Kodera (Tokyo Tech)

11:15 C-6-01 (Invited)
1D van der Waals Materials in 2D Form
°*P. Ye[1], [1.]Purdue Univ. (USA)*

11:45 C-6-02
Interplay between Kondo effect and superconductivity in a carbon nanotube quantum dot
°*T. Hata[1], M. Ferrier[2], S. Lee[1], T. Arakawa[1], R. Delagrange[2], R. Deblock[2], H. Bouchiat[2], K. Kobayashi[1], [1.]Osaka Univ. (Japan), [2.]Univ. Paris Sud (France)*

12:00 C-6-03
Dissipative Landau-Zener transition in capacitance measurement on a double quantum dot
°*T. Ota[1], K. Hitachi[1], K. Muraki[1], T. Fujisawa[2], [1.]NTT Basic Res. Labs. (Japan), [2.]Tokyo Tech (Japan)*

12:15 C-6-04 (Late News)
Micro Channel Based Heat Sink with Integrated Thin-Film Temperature Sensors
°*J. Wang[1], T. Wang[1], J. He[1], Y. Yang[1], Y. Li[1], H. Jiao[1], C. Wu[1], W. Luo[1], Y. Shuai[1], W. Zhang[1], [1.]Univ. of Electronic Sci. and Tech. of China (China)*

12:30-13:40 Lunch

C-7: Quantum Optoelectronics
13:40-14:55 Meeting Room 3
Session Chair: T. Miyazawa (Fujitsu Labs. Ltd.)
T. Ota (NTT Basic Res. Labs.)

13:40 C-7-01
Telecom-Wavelength Quantum Relay using a Semiconductor Entangled Light Source
J. Huwer[1], M. Felle[1,2], °M. Stevenson[1], J. Skiba-Szymanska[1], M. Ward[1], I. Farrer[2], R. Penty[2], D. Ritchie[2], A. Shields[1], [1.]Toshiba Research Europe Ltd. (UK), [2.]Univ. of Cambridge (UK)

13:55 C-7-02
Generation and Detection of Edge Magnetoplasmons in a Quantum Hall Edge Channel Using a Photoconductive Switch
°C. Lin[1], K. Morita[1], K. Muraki[2], T. Fujisawa[1], [1.]Tokyo Tech (Japan), [2.]NTT Basic Res. Labs. (Japan)

14:10 C-7-03
Electrically Tunable Coupling of a Ge/Si Core/Shell Nanowire Double Quantum to a Superconducting Transmission Line Cavity
°R. Wang[1], R. S. Deacon[1,2], J. Yao[3], C. M. Lieber[3], K. Ishibashi[1,2], [1.]RIKEN (Japan), [2.]CEMS, RIKEN (Japan), [3.]Harvard Univ. (USA)

14:25 C-7-04
Terahertz response in the quantum Hall effect regime of a quantum-well based charge sensitive phototransistor
D. Nakagawa[1], K. Takizawa[1], °K. Ikushima[1], S. Kim[2], M. Patrashin[3], I. Hosako[3], S. Komiyama[2], [1.]Tokyo Univ. of Agri. & Tech. (Japan), [2.]Univ. of Tokyo (Japan), [3.]NICT (Japan)

14:40 C-7-05
Acoustic characteristics of a surface-acoustic-wave resonator made of two Bragg reflectors with periodic metallization of GaAs

°*R. Takasu[1], Y. Sato[1], T. Fujisawa[1], [1.]Tokyo Tech (Japan)*

03: CMOS Devices / Device Physics

E-5: Steep Slope Transistor and Device Physics
9:30-10:50 Tachibana Conference Room
Session Chair: K. Maekawa (Renesas Electronics Corp.)
R. Huang (Peking Univ.)

9:30 E-5-01 (Invited)
Improvement of Device and Circuit Performance of Si-based Tunnel Field-Effect Transistors by Utilizing Isoelectronic Trap Technology
°*T. Mori[1], H. Asai[1], T. Matsukawa[1], [1.]AIST (Japan)*

10:00 E-5-02
Investigation of Thermal Effects on FinFETs in the Quasi-Ballistic Regime
°*L. Yin[1], L. Shen[1], S. Y. Di[1], G. Du[1], X. Y. Liu[1], [1.]Peking Univ. (China)*

10:20 E-5-03 (Late News)
Optimizing MOS-Gated Thyristor using Voltage-based Equivalent Circuit Model for Designing Steep Subthreshold Slope PN-Body Tied SOI FET
°*D. Ueda[1], K. Takeuchi[1], M. Kobayashi[1], T. Hiramoto[1], [1.]Univ. of Tokyo (Japan)*

10:35 E-5-04 (Late News)
Lowering Minimum Operation Voltage (V_{min}) in SRAM Array by Post-Fabrication Self-Improvement of Cell Stability by Multiple Stress Application
°*T. Mizutani[1], K. Takeuchi[1], T. Saraya[1], M. Kobayashi[1], T. Hiramoto[1], [1.]Univ. of Tokyo (Japan)*

10:50-11:15 Coffee Break

E-6: 3D Technology
11:15-12:25 Tachibana Conference Room
Session Chair: K. Sukegawa (Socionext Inc.)
F. L. Yang (Academia Sinica)

11:15 E-6-01 (Invited)
Achieving BEOL Footprint-Efficient and Low Cost Monolithic 3D^{+} IoT Chip Using Low Thermal Budget Laser Technology
°C. -C. Yang[1], T. -Y. Hsieh[1], W. -H. Huang[1], J. -M. Shieh[1], H. -H. Wang[1], C. -H. Shen[1], F. -K. Hsueh[1], W. -K. Yeh[1], [1.]National Nano Device Labs. (Taiwan)

11:45 E-6-02
Analysis of Inter-and Intra-Grain Defects in Electrically Characterized Poly-Si Nanowire TFTs by Multicomponent DF Imaging Based on NBD-2DI
°T. Asano[1], R. Takaishi[1], M. Oda[1], K. Sakuma[1], M. Saitoh[1], H. Tanaka[1], [1.]Toshiba Corp. (Japan)

12:05 E-6-03
Investigation of the Optimum Stacking Number of Stacked Nanowires for Logic Applications
°W. -C. Huang[1], P. Su[1], [1.]National Chiao Tung Univ. (Taiwan)

11: Sensors and Materials for Biology, Chemistry and Medicine

F-5: Nano Devices for Chemical & Biosensing
9:30-10:30 Meeting Room 4
Session Chair: M. Sasaki (Toyota Technological Inst.)
T. Sakata (Univ. of Tokyo)

9:30 F-5-01
The Super-Nernstian pH-sensitivity of CeY_xO_y Sensing Membrane Electrolyte–Insulator–Semiconductor Sensors
T. -M. Pan[1], C. -L. Chan[1], °Y. -H. Huang[1], C. -W. Wang[1], [1.]Chang Gung Univ. (Taiwan)

9:45 F-5-02
A Super-Nernstian pH Sensor using WO_3 Nanosheets Sensing Electrode
°C. -Y. Kuo[1], R. -M. Ko[1], H. -H. Tseng[1], S. -J. Wang[1], [1.]National Cheng Kung Univ. (Taiwan)

10:00 F-5-03
Ag/SiO_2 surface-enhanced Raman scattering substrate detection in plasticizer
°T. -H. Lin[1], M. -P. Lin[2], W. -F. Su[2], M. -C. Wu[1], [1.]Chang Gung Univ. (Taiwan), [2.]National Taiwan Univ. (Taiwan)

10:15 F-5-04 (Late News)
From single phase to multiphase: single cell encapsulation in a droplet
°G. Pendharkar[1], D. Mukherjee[2], C. -M. Chang[3], Y. -T. Lu[3], S. Chakraborty[2], C. -H. Liu[1], [1.]National Tsing Hua Univ. (Taiwan), [2.]Indian Inst. of Tech. (India), [3.]Mackay Memorial Hospital (Taiwan)

10:30-11:15 Coffee Break

Joint Session (Area 10&11)

F-6: Organic and Bio Devices
11:15-12:30 Meeting Room 4
Session Chair: S. Nakajima (Japan Aviation Electronics Ind., Ltd.)
R. Tero (Toyohashi Tech)

11:15 F-6-01 (Invited)
Bioorganic Hybrid Nanomaterials in Optics, Electronics and Sensing
I. Mames[1], J. W. Wood[1], J. P. Pursey[1], L. L. Sargisson[1], °E. Stulz[1], [1.]Univ. of Southampton (UK)

11:45 F-6-02
Performance Analysis of Multi-metallic Sensor Chip for the Real-time Quantification of EV 71 Virus with SPR Biosensor
°A. Alom[1], B. A. Prabowo[1], P. Pal[1], M. K. Secario[1], P. -T. Ou[1], J. -J. Liu[1], R. Y. L. Wang[1,2], K. C. Liu[1,2], [1.]Chang Gung Univ. (Taiwan), [2.]Chang Gung Memorial Hospital (Taiwan)

12:00 F-6-03
Adhesive Conductive Polymer for Wearable Electrocardiogram Monitoring
°D. Yamamoto[1], Y. Yamamoto[1], M. Takada[1], H. Naito[1], T. Arie[1], S. Akita[1], K. Takei[1], [1.]Osaka Pref. Univ. (Japan)

12:15 F-6-04 (Late News)
Highly efficient deep-blue OLED with a novel carbazole based florescent emitter
°*S. Sahoo[1], M. Singh[1], V. Joseph[2], K. R. J. Thomas[2], J. H. Jou[1], [1]National Tsing Hua Univ. (Taiwan), [2]Indian Inst. of Tech. Roorkee (India)*

05: Advanced Circuits and Systems

G-5: Advanced Imager and Characterization
9:30-10:40 Meeting Room 5
Session Chair: R. Kuroda (Tohoku Univ.)
H. Majima (Toshiba Corp.)

9:30 G-5-01 (Invited)
Advanced Stacked CMOS Image Sensor Technology
°*Y. Nitta[1], [1]Sony Semiconductor Solutions Corp. (Japan)*

10:00 G-5-02
Impact of Drain Current to Appearance Probability and Amplitude of Random Telegraph Noise in Low Noise CMOS Image Sensors
°*S. Ichino[1], T. Mawaki[1], A. Teramoto[1], R. Kuroda[1], H. Park[1], T. Maeda[1], S. Wakashima[1], T. Goto[1], T. Suwa[1], S. Sugawa[1], [1]Tohoku Univ. (Japan)*

10:20 G-5-03
Analysis of Random Telegraph Noise Behaviers of nMOS and pMOS toward Back Bias Voltage Changing
°*T. Mawaki[1], A. Teramoto[1], R. Kuroda[1], S. Ichino[1], S. Sugawa[1], [1]Tohoku Univ. (Japan)*

10:40-11:15 Coffee Break

G-6: Advanced Computing and Memories for Smart Data Processing
11:15-12:25 Meeting Room 5
Session Chair: I. Akita (Toyohashi Tech)
K. Johguchi (Shinshu Univ.)

11:15 G-6-01 (Invited)
HPP: A Noval Architecture for High Performace Processing
D. Wang[1], °Z. Zhang[1], Z. Liu[1], X. Du[1], S. Xie[1], H. Ma[1], G. Ding[1], W. Ren[1], F. Zhou[1], W. Sun[1], H. Wang[1], [1.]Inst. of Automation, Chinese Academy of Sci. (China)

11:45 G-6-02
A 28nm High-*k*/Metal-gate Symmetric 10T 2RW Dual-port SRAM bitcell design
T. Y. Lu[1], C. H. Huang[1], S. S. Chen[1], Y. T. Kuo[1], C. C. Lung[1], O. Cheng[1], Y. Ishii[2], M. Tanaka[2], M. Yabuuchi[2], Y. Sawada[2], S. Tanaka[2], °K. Nii[2], [1.]United Microelectronics Corp. (Taiwan), [2.]Renesas Electronics Corp. (Japan)

12:05 G-6-03
Fully Digital Ternary Content Addressable Memory using Ratio-less SRAM Cells and Hierarchical-AND Matching Comparator for Ultra-low-voltage Operation
°D. Nishikata[1], M. A. Bin Mohd Ali[1], K. Hosoda[1], H. Matsumoto[1], K. Nakamura[1], [1.]Kyushu Inst. of Tech. (Japan)

12:25-13:40	**Lunch**

G-7: Advanced Sensing and Connectivity
13:40-14:50 Meeting Room 5
Session Chair: H. Majima (Toshiba Corp.)
T. Minotani (NTT Device Technology Lab.)

13:40 G-7-01 (Invited)
QZSS Short Message Synchronized SS-CDMA Communication
°S. Kameda[1], K. Ohya[1], H. Oguma[2], N. Suematsu[1], [1.]Tohoku Univ. (Japan), [2.]National Inst. of Tech., Toyama College (Japan)

14:10 G-7-02
High Volume Testing and Calibration Technique of CMOS Analog Circuits for System-on-Chips and Microprocessors
°T. Oshita[1], J. Douglas[1], A. Krishnamoorthy[1], [1.]Intel Corp. (USA)

14:30 G-7-03
A Temperature Monitor Circuit with Small Voltage Sensitivity using a Topology Reconfigurable Ring Oscillator
°*T. Kishimoto[1], T. Ishihara[1], H. Onodera[1], [1]Kyoto Univ. (Japan)*

14:50-15:10 Coffee Break

G-8: Advanced MEMS Sensors and Analog Front End
15:10-16:20 Meeting Room 5
Session Chair: K. Johguchi (Shinshu Univ.)
J. C. Guo (NCTU)

15:10 G-8-01 (Invited)
Open Innovation of CMOS-MEMS Integrated Devices by Open Facility
°*Y. Mita[1], [1]Univ. of Tokyo (Japan)*

15:40 G-8-02
A Capacitive Sensor Circuit Based on Relaxation Oscillator for Sub-1mG MEMS Inertial Sensors
°*M. Takayasu[1], S. Dosho[1], H. Ito[1], D. Yamane[1], T. Konishi[1,2], K. Machida[1], N. Ishihara[1], K. Masu[1], [1]Tokyo Tech (Japan), [2]NTT Adv. Tech. Corp. (Japan)*

16:00 G-8-03
A 120dBΩ 16MHz Pseudo Differential CMOS Analog Front End Circuit for Optical Probe Current Sensor
°*T. Uekura[1], K. Oyanagi, M. Sonehara[1], T. Sato[1], K. Miyaji[1], [1]Shinshu Univ. (Japan)*

02: Interconnect Technologies, MEMS, and Reliability

H-5: TSV & 3D Integration
9:30-11:00 Meeting Room 6
Session Chair: M. Mariappan (Tohoku Univ.)
S. Ogawa (AIST)

9:30 H-5-01 (Invited)
Advanced Packaging Technology to Address Micro-bump

Solder Bonding and Warpage in Large-die 3D IC using 22nm ULK Dielectrics
°*K. Sakuma[1], J. Knickerbocker[1], [1]IBM T. J. Watson Research Center (USA)*

10:00 H-5-02
Evaluation of Substrate Noise Suppression Method to Mitigate Crosstalk among TSVs
°*Y. Araga[1], K. Kikuchi[1], M. Aoyagi[1], [1]AIST (Japan)*

10:20 H-5-03
The large-area backside etching method by changing backside layout using loading effect and ARDE for foundry-based fabrication
°*Y. Okamoto[1], Y. Tohyama[1], N. Usami[1], Y. Mita[1], [1]Univ. of Tokyo (Japan)*

10:40 H-5-04
Characterization of Cu-TSVs Fabricated by a New All-Wet Process
°*M. Xiong[1,2], Y. Yan[2], Y. Ding[2], H. Kino[1], T. Fukushima[1], T. Tanaka[1], [1]Tohoku Univ. (Japan), [2]Beijing Inst. of Tech. (China)*

11:00-11:15 Coffee Break

Joint Session (Area 2&7)

H-6: Optical Interconnects and Sensors
11:15-12:30 Meeting Room 6
Session Chair: M. Fujino (Univ. of Tokyo)
F. Boeuf (STMicroelectronics)

11:15 H-6-01 (Invited)
Heterogeneous Integration Based on Low-Temperature Bonding for Advanced Optoelectronic Devices
°*E. Higurashi[1,2], [1]AIST (Japan), [2]Univ. of Tokyo (Japan)*

11:45 H-6-02
Membrane-based GaInAs/InP waveguide-type p-i-n photodetector fabricated on Si substrate using Benzocyclobutene bonding

°*Z. Gu[1], T. Uryu[1], D. Inoue[1], T. Amemiya[1], N. Nishiyama[1], S. Arai[1], [1.]Tokyo Tech (Japan)*

12:00 H-6-03
Fabrication of VTPC-TG Pixels for 3D Structure CMOS Image Sensor Applications
S.-K. Park[1], °D. Woo[1], M.-K. Na[1], P.-S. Kwag[1], H.-R. Lee[1], K.-W. Ro[1], K.-H. Kim[1], D.-K. Lee[1], C. Hong[1], I.-W. Cho[1], J.-H. Park[2], K.-D. Yoo[2], [1.]SK Hynix (Korea), [2.]Hanyang Univ. (Korea)

12:15 H-6-04 (Late News)
Influence of different plasma treatments on low-temperature Au-Au bonding and its application to hermetic packaging
°*M. Yamamoto[1], E. Higurashi[1,2], T. Suga[1], R. Sawada[3], T. Itoh[1], [1.]Univ. of Tokyo (Japan), [2.]AIST (Japan), [3.]Kyushu Univ. (Japan)*

12:30-13:40 Lunch

07: Photonic Devices and Related Technologies

H-7: Silicon Photonics II
13:40-14:55 Meeting Room 6
Session Chair: T. Shimizu (PETRA)
T. Amano (AIST)

13:40 H-7-01 (Invited)
High power Silicon laser based on the dressed photon technology
°*T. Kawazoe[1], [1.]Tokyo Denki Univ. (Japan)*

14:10 H-7-02
1.7 μm Wavelength Tunable Laser Diode Using Silicon External Cavity
°*S. Takei[1], T. Kita[1], H. Yamada[1], [1.]Tohoku Univ. (Japan)*

14:25 H-7-03
Demonstration of Distributed Feedback Silicon Evanescent Quantum Dot Laser
°*B. Jang[1], T. Tsuchizawa[2,3], H. Nishi[2,3], T. Nakamura[3], S.*

Iwamoto[1], Y. Arakawa[1], [1.]Univ. of Tokyo (Japan), [2.]NTT Device Tech. Labs. (Japan), [3.]Photonics Electronics Tech. Res. Association (Japan)

14:40 H-7-04 (Late News)
Silicon on Insulator Nanowire Photodiode with Nanoscale Bow-Tie Surface Plasmon Antenna for Light Detection Applications
°*Y. Sharma[1], H. Satoh[1], H. Inokawa[1], [1.]Shizuoka Univ. (Japan)*

14:55-15:10 Coffee Break

H-8: Silicon Photonics III
15:10-16:25 Meeting Room 6
Session Chair: S. Saito (Univ. of Southampton)
K. Ohira (Toshiba Corp.)

15:10 H-8-01
High Speed and Low Power Consumption Silicon Thermo-optical Phase Shifter
°*Y. Chiba[1], T. Kita[1], H. Yamada[1], [1.]Tohoku Univ. (Japan)*

15:25 H-8-02
Performance Benchmarking of InGaAsP, $Si_{0.8}Ge_{0.2}$ and Si-based Photonics Homojunction and Heterojunction PN Modulators
°*F. Boeuf[1,2], N. Sekine[2], S. Takagi[2], M. Takenaka[2], [1.]STMicroelectronics (France), [2.]Univ. of Tokyo (Japan)*

15:40 H-8-03
Mid-Infrared Si-photonic Devices Based on 340 nm SOI Platform
°*H. Wang[1], [1.]Nanyang Technological Univ. (Singapore)*

15:55 H-8-04 (Invited)
Line Beam Scanner using Slow-Light Waveguides in Si Photonics
°*T. Baba[1], K. Kondo[2] , [1.]Yokohama National Univ. (Japan), [2.]Tokyo Tech (Japan)*

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

J-5: Advanced Functional Nanowire Devices
9:30-10:45 Meeting Room 7
Session Chair: M. Arita (Univ. of Tokyo)
S. Hara (Hokkaido Univ.)

9:30 J-5-01 (Invited)
Flexible Optoelectronic Devices Based on Nitride Nanowires Embedded in Polymer Films
°*M. Tchernycheva[1], N. Guan[1], X. Dai[1], H. Zhang[1], V. Piazza[1], A. Kapoor[2,3], C. Bougerol[2,4], L. Mancini[1], F. H. Julien[1], L. Lu[1], M. Morassi[1], N. Gogneau[1], J. -C. Harmand[1], L. Largeau[1], M. Foldyna[5], J. Eymery[2,3], C. Durand[2,3], [1.]CNRS, Univ. Paris Saclay (France), [2.]Univ. Grenoble Alpes (France), [3.]CEA-CNRS "Nanophysique et Semiconducteurs" group, CEA-INAC-PHELIQS (France), [4.]CEA-CNRS "Nanophysique et Semiconducteurs" group, CNRS, Institut Néel (France), [5.]LPICM-CNRS, Ecole Polytechnique (France)*

10:00 J-5-02
Efficient Coupling of Lateral Force in GaN Nanorod Piezoelectric Nanogenerators by Vertically Integrated Pyramided Si Substrate
°*C. -L. Wu[1], S. -J. Tsai[1], C. -Y. Lin[1], C. -L. Wang[1], J. -W. Chen[1], C. -H. Chen[2], [1.]National Cheng Kung Univ. (Taiwan), [2.]National Synchrotron Radiation Research Center (Taiwan)*

10:15 J-5-03
Highly Stable Heavily-Doped Oxide Contacts on Oxide Nanowires: Reliable Low Contact Resistance and Enhancement of Long-term Sensor Response
H. Zeng[1], °T. Takahashi[1], K. Nagashima[1], T. Yanagida[1], [1.]Kyushu Univ. (Japan)

10:30 J-5-04
Al-catalyzed Silicon Nanowire Formation and its Application for Photovoltaic Device

°*W. Jevasuwan[1], T. Subramani[1], C. Junyi[1], K. C. Pradel[1], T. Takei[1], N. Fukata[1], [1]NIMS (Japan)*

10:45-11:15 Coffee Break

J-6: Characterization & Properties of Nanowires
11:15-12:30 Meeting Room 7
Session Chair: K. Kawaguchi (Fujitsu Labs. Ltd.)
S. Hara (Hokkaido Univ.)

11:15 J-6-01 (Invited)
Synchrotron-based Characterization of Nanowires and Nanowire Devices
°*A. Mikkelsen[1], [1]Lund Univ. (Sweden)*

11:45 J-6-02
Analysis of Bending Mechanism in MnAs/InAs Heterojunction Nanowires
°*T. Kadowaki[1], R. Kodaira[1], S. Hara[1], [1]Hokkaido Univ. (Japan)*

12:00 J-6-03
Enhancement of Thermoelectric Performance of p-type Short Silicon Nanowires
°*Y. Himeda[1], S. Hashimoto[1], S. Ohba[1], R. Yamato[1], T. Matsukawa[2], T. Watanabe[1], [1]Waseda Univ. (Japan), [2]AIST (Japan)*

12:15 J-6-04 (Late News)
InAs Nanotube FETs with Atomic-Layer-Deposited Al_2O_3/ZnO Gate-Stack
°*S. Sasaki[1], K. Tateno[1], G. Zhang[1], [1]NTT Basic Res. Labs. (Japan)*

12:30-13:40 Lunch

02: Interconnect Technologies, MEMS, and Reliability

J-7: Latest Research for Interconnect Technologies, MEMS, and Reliability
13:40-14:40 Meeting Room 7
Session Chair: M. Fujino (Univ. of Tokyo)
S. Ogawa (AIST)

13:40 J-7-01 (Late News)
New Characterization Technique for Detection of Atomic-sized Crystalline Defects and Strain Using Moiré Method
°M. Kodera[1], Q. Wang[2], S. Ri[2], H. Tsuda[2], A. Yoshioka[1], T. Sugiyama[1], T. Hamamoto[1], N. Miyashita[1], [1.]Toshiba Electronic Devices & Storage Corp. (Japan), [2.]AIST (Japan)

13:55 J-7-02 (Late News)
Enlarging the Nanocylinder Size for Through-Si-Via Applications
°M. Mariappan[1], T. Fukushima[1], K. Mori[1], J. Bea[1], H. Hashimoto[1], M. Koyanagi[1], [1.]Tohoku Univ. (Japan)

14:10 J-7-03 (Late News)
Al-foil-based low-loss coplanar waveguides directly bonded to sapphire substrates
°K. Matsuura[1], J. Liang[1], K. Maezawa[2], N. Shigekawa[1], [1.]Osaka City Univ. (Japan), [2.]Univ. of Toyama (Japan)

14:25 J-7-04 (Late News)
A Tri-axis MEMS Accelerometer with a Gold Electroplated Single-proof-mass and Segmented Electrodes
°S. Otobe[1], D. Yamane[1], T. Konishi[1,2], T. Safu[2], H. Ito[1], S. Dosho[1], N. Ishihara[1], K. Machida[1], K. Masu[1], [1.]Tokyo Tech (Japan), [2.]NTT Advanced Tech. Corp. (Japan)

01: Advanced LSI Processing & Materials Science

K-5: Ferroelectric Material
9:30-10:55 Meeting Room 8
Session Chair: K. Kakushima (Tokyo Tech)
O. Nakatsuka (Nagoya Univ.)

9:30 K-5-01 (Invited)
CMOS Compatible Ferroelectric Devices for Beyond 1X nm Technology Nodes
°*S. Müller[1], [1.]Ferroelectric Memory GmbH (Germany)*

10:00 K-5-02
Polarization Switching Behavior of HfO_2-based Ferroelectric Ultrathin Films Studied through Coercive Field Characteristics
°*S. Migita[1], H. Ota[1], H. Yamada[1], K. Shibuya[1], A. Sawa[1], A. Toriumi[2], [1.]AIST (Japan), [2.]Univ. of Tokyo (Japan)*

10:20 K-5-03
Thickness-dependent ferroelectric phase evolution in doped HfO_2
°*L. Xu[1], T. Nishimura[1], S. Shibayama[1], T. Yajima[1], S. Migita[2], A. Toriumi[1], [1.]Univ. of Tokyo (Japan), [2.]AIST (Japan)*

10:40 K-5-04 (Late News)
Direct Evidence of 3-nm-thick Ferroelectric HfO_2
°*X. Tian[1], S. Shibayama[1], T. Nishimura[1], T. Yajima[1], S. Migita[2], A. Toriumi[1], [1.]Univ. of Tokyo (Japan), [2.]AIST (Japan)*

10:55-11:15 Coffee Break

K-6: Theory and Modeling
11:15-12:15 Meeting Room 8
Session Chair: T. Nakayama (Chiba Univ.)
H. Arimura (IMEC)

11:15 K-6-01
Acceleration of Metal-atom Diffusion under Electric Field at Metal/Insulator Interfaces; First-principles Study
°*R. Nagasawa[1], Y. Asayama[1], T. Nakayama[1], [1.]Chiba Univ. (Japan)*

11:35 K-6-02
Guiding principles for the fabrication of V-MOSFETs based on a Si emission model
°*T. Nagura[1], K. Chokawa[1], H. Shirakawa[1], M. Araidai[1,4], H.*

Kageshima[2,4], T. Endoh[3,4], K. Shiraishi[1,4], [1.]Nagoya Univ. (Japan), [2.]Shimane Univ. (Japan), [3.]Tohoku Univ. (Japan), [4.]JST-ACCEL (Japan)

11:55 K-6-03
Development of Interatomic Potential of $Ge_{(1-x-y)}Si_xSn_y$ Ternary Alloy Semiconductors for Classical Lattice Dynamics Simulation
°*M. Tomita[1,2], T. Watanabe[1], [1.]Waseda Univ. (Japan), [2.]JSPS Res. Fellow PD (Japan)*

12:15-13:40 Lunch

12: Spintronics Materials and Devices

K-7: Magnetic Tunnel Junctions
13:40-14:55 Meeting Room 8
Session Chair: T. Fukumura (Tohoku Univ.)
S. Ohya (Univ. of Tokyo)

13:40 K-7-01
Magnetic phase transition induced tunneling anisotropic magnetoresistance in FeRh-based junctions
°*C. Song[1], X. Chen[1], F. Pan[1], [1.]Tsinghua Univ. (China)*

13:55 K-7-02
Epitaxy and Magneto-Transport Properties in Fully Epitaxial Fe/GaO_x/Fe Magnetic Tunnel Junctions
°*S. K. Narayananellore[1], N. Doko[1,2], N. Matsuo[1,2], H. Saito[1], S. Yuasa[1], [1.]AIST (Japan), [2.]Chiba Inst. of Tech. (Japan)*

14:10 K-7-03
Evaluation of energy barrier of CoFeB/MgO magnetic tunnel junctions with perpendicular easy axis using retention time measurement
E. C. I. Enobio[1], °H. Sato[1], S. Fukami[1], H. Ohno[1], [1.]Tohoku Univ. (Japan)

14:25 K-7-04
Magnetic tunnel junctions with poly-crystalline Heusler alloy films

°*M. Oogane[1], A. Ono[1], Y. Ando[1], [1.]Tohoku Univ. (Japan)*

14:40 K-7-05
$L1_0$-MnGa based magnetic tunnel junction for high magnetic field sensor
X. P. Zhao[1], °J. Lu[1], S. W. Mao[1], J. H. Zhao[1], [1.]Chinese Academy of Sciences (China)

14:55-15:10	**Coffee Break**

K-8: Spintronics Devices
15:10-16:25 Meeting Room 8
Session Chair: C. Song (Tsinghua Univ.)
T. Uemura (Hokkaido Univ.)

15:10 K-8-01
Integration of Interconnected Magnetic Tunnel Junctions for Spin Torque Majority Gates
°*D. Wan[1], M. Manfrini[1], L. Souriau[1], S. Sayan[1], J. Jussot[1], J. Swerts[1], N. Rassoul[1], K. B. Gavan[1], L. Wouters[1], K. Paredis[1], C. Huyghebaert[1], A. Vaysset[1], A. Thiam[1], M. Ercken[1], C. J. Wilson[1], D. Mocuta[1], I. P. Radu[1], [1.]IMEC (Belgium)*

15:25 K-8-02
Asymmetric behavior of the planar Hall effect of perpendicularly magnetized Co on Pt epitaxial film
°*J. R. Ryu[1], C. O. Avci[2], M. Mann[2], M. Kohda[1], G. Beach[2], J. Nitta[1], [1.]Tohoku Univ. (Japan), [2.]Massachusetts Inst. of Tech. (USA)*

15:40 K-8-03
Current-induced switching in paramagnetic-CoGa buffer / L10 MnGa / MgO structure with a perpendicular magnetic anisotropy
°*M. Takikawa[1], K. Suzuki[1], R. Ranjbar[1], S. Mizukami[1], [1.]Tohoku Univ. (Japan)*

15:55 K-8-04
Ambipolar transport and modulation of electronic properties of Mn_2CoAl films by ionic liquid gating
°*K. Ueda[1], S. Hirose[1], M. Mori[1], H. Asano[1], [1.]Nagoya Univ.*

(Japan)

16:10 K-8-05 (Late News)
Voltage Controlled Magnetic Anisotropy at $Fe_{1-x}Co_xPd$/MgO Interface
°*A. K. Shukla[1], M. Goto[1], K. Nawaoka[1], J. Suwardy[1], S. Miwa[1], Y. Suzuki[1], [1]Osaka Univ. (Japan)*

08: Advanced Material Synthesis and Crystal Growth Technology

M-5: Nanostructures: Synthesis and Properties
9:30-10:45 Meeting Room 2
Session Chair: T. Iwai (Fujitsu Labs. Ltd.)
T. Hoshi (NTT Device Tech. Labs.)

9:30 M-5-01 (Invited)
Nanospectroscopic investigation of individual free-standing semiconductor nanowires using nanoprobe-cathodoluminescence techniques
°*K. Watanabe[1,2], [1]Osaka Univ. (Japan), [2]NIMS (Japan)*

10:00 M-5-02
Improved optical properties of low density InAs/GaAs quantum dots by controlling partial capping process
°*M. Kakuda[1], Y. Ota[1], K. Kuruma[1], K. Watanabe[1], S. Iwamoto[1], Y. Arakawa[1], [1]Univ. of Tokyo (Japan)*

10:15 M-5-03
MOCVD Selective Growth of InAs Nanowires on Patterned Silicon Substrate by Optimizing Gas Flow Rate and Annealing Temperature
°*D. Anandan[1], H. W. Yu[1], H. L. Ko[1], R. K. Kakkerla[1], V. Nagarajan[1], S. K. Singh[1], E. Y. Chang[1], [1]National Chiao Tung Univ. (Taiwan)*

10:30 M-5-04
Materials growth and band offset parameters of the Al_2O_3/$In_{0.28}Ga_{0.72}Sb$/AlSb/GaSb/GaAs heterostructure
°*S. H. Huynh[1], M. T. H. Ha[1], H. B. Do[1], T. A. Nguyen[1], Y. D. Jin[1], J. W. Lin[1], K. S. Yang[1], C. -C. F. Chang[1], Q. H. Luc[1], E.*

Y. Chang[1], [1.]National Chiao Tung Univ. (Taiwan)

Joint Session (Area 6&14)

N-5: Advanced Power Device Technologies I
9:30-10:45 Meeting Room 3
Session Chair: T. Tanaka (Panasonic Corp.)
K. Kobayashi (Toshiba Electronic Devices & Storage Corp.)

9:30 N-5-01 (Invited)
Recent achievements and pending challenges in Gallium Nitride vertical device development
°*S. Chowdhury[1], [1.]Univ. of California, Davis (USA)*

10:00 N-5-02
Suppression of Positive Bias Temperature Instability in GaN-MOSFETs
°*Y. Kajiwara[1], T. Yonehara[1], D. Kato[1], H. Saito[1], K. Uesugi[1], A. Shindome[1], M. Kuraguchi[1], A. Yoshioka[1], S. Nunoue[1], [1.]Toshiba Corp. (Japan)*

10:15 N-5-03
650 Volt GaN Quality and Reliability- Readiness for Automotive Applications
°*K. Shono[1], T. Hosoda[1], Y. Asai[1], R. Barr[2], K. Smith[2], Y. Wu[2], P. Parikh[2], [1.]Transphorm Japan, Inc. (Japan), [2.]Transphorm, Inc. (USA)*

10:30 N-5-04
Investigations on Electrical Characteristics of 1-kV pnp SiC BJTs Compared with npn SiC BJT
°*T. Okuda[1], T. Kimoto[1], J. Suda[1,2], [1.]Kyoto Univ. (Japan), [2.]Nagoya Univ. (Japan)*

10:45-11:15 Coffee Break

N-6: Advanced Power Device Technologies II
11:15-12:30 Meeting Room 3
Session Chair: K. Tsuda (Toshiba Infrastructure Systems & Solutions Corp.)
D. Hisamoto (Hitachi, Ltd.)

11:15 N-6-01 (Invited)
Demonstration of Reduction in Vce (sat) of IGBT based on a 3D Scaling Principle
°*K. Kakushima[1], T. Hoshii[1], K. Tsutsui[1], A. Nakajima[2], S. Nishizawa[3], H. Wakabayashi[1], I. Muneta[1], K. Sato[4], T. Matsudai[5], W. Saito[5], T. Saraya[6], K. Itou[6], M. Fukui[6], S. Suzuki[6], M. Kobayashi[6], T. Takakura[6], T. Hiramoto[6], A. Ogura[7], Y. Numasawa[7], I. Omura[8], H. Ohashi[1], H. Iwai[1], [1.]Tokyo Tech (Japan), [2.]AIST (Japan), [3.]Kyushu Univ. (Japan), [4.]Mitsubishi Electric Corp. (Japan), [5.]Toshiba Electronic Devices & Storage Corp. (Japan), [6.]Univ. of Tokyo (Japan), [7.]Meiji Univ. (Japan), [8.]Kyushu Inst. of Tech. (Japan)*

11:45 N-6-02
5.0 kV Breakdown-Voltage Vertical GaN p-n Junction Diodes
°*H. Ohta[1], K. Hayashi[1], F. Horikiri[2], T. Nakamura[1], T. Mishima[1], [1.]Hosei Univ. (Japan), [2.]Sciocs Company Ltd. (Japan)*

12:00 N-6-03
Potential of the 0.35 μm CMOS gate driver technology for the GaN power devices
°*S. Miyano[1], T. Akagi[1], S. Abe[1], S. Matsumoto[1], [1.]Kyushu Inst. of Tech. (Japan)*

12:15 N-6-04
Vertical-type 2DHG Diamond MOSFETs
°*N. Oi[1], T. Kudo[1], T. Muta[1], S. Okubo[1], I. Tsuyuzaki[1], T. Kageura[1], M. Inaba[1,2], S. Onoda[3], A. Hiraiwa[1], H. Kawarada[1], [1.]Waseda Univ. (Japan), [2.]Nagoya Univ. (Japan), [3.]National Inst for Quantum and Radiological Sci. and Tech. (Japan)*

12:30-13:40	**Lunch**

06: Compound Semiconductor Electron Devices & Related Technologies

N-7: Compound Semiconductor Device & Process
13:40-14:55 Meeting Room 3
Session Chair: A. Wakejima (Nagoya Inst. of Tech.)
T. Suzuki (JAIST)

13:40 N-7-01
Removal of reactive-ion-etching damage from n-GaN surface using a photoelectrochemical process
°*S. Matsumoto[1], M. Toguchi[1], T. Sato[1], [1.]Hokkaido Univ. (Japan)*

13:55 N-7-02
High Thermal Stability of Abrupt SiO_2/GaN Interface with Low Interface State Density
°*T. X. Nguyen[1,2], N. Taoka[2], A. Ohta[1], K. Makihara[1], H. Yamada[2], T. Takahashi[2], M. Ikeda[1], M. Shimizu[2], S. Miyazaki[1], [1.]Nagoya Univ. (Japan), [2.]AIST-NU GaN Advance Device Open Innovation Lab. (Japan)*

14:10 N-7-03
High-performance E-mode recessed GaN Power MIS-HEMT with La-silicate gate insulator
°*C. C. Hsu[1], J. H. Lee[1], Y. C. Lin[1], J. C. Lin[1], C. H. Wu[1], J. N. Yao[1], H. T. Hsu[1], K. Kakushima[2], H. Iwai[2], E. Y. Chang[1], [1.]National Chiao Yung Univ. (Taiwan), [2.]Tokyo Tech (Japan)*

14:25 N-7-04 (Late News)
Cryogenic DC and RF Characteristics of InGaAs/InAs/InGaAs Channel HEMTs
°*A. Endoh[1], I. Watanabe[1], A. Kasamatsu[1], T. Mimura[1,2], [1.]NICT (Japan), [2.]Fujitsu Labs. Ltd. (Japan)*

14:40 N-7-05 (Late News)
Enhancing the Performance of Ni-In0.53Ga0.47As MOSFETs Using Post Silicon Dopant Process
°*H. Q. Luc[1], W. J. Lin[1], S. K. Yang[1], C. C. Chang[1], C. -C. C. Fan[1], B. H. Do[1], M. T. H. Ha[1], H. S. Huynh[1], D. Y. Jin[1], A. T. Nguyen[1], C. Y. Lin[1], E. Y. Chang[1], [1.]National Chiao Tung Univ. (Taiwan)*