

Wednesday, September 6

Opening and Plenary Sessions (Shirotori Hall)

Session Chairs: Osamu Nakatsuka, Chair, Steering Committee
Jun Suda, Chair, Program Committee

9:00 Welcome Address

Seiichi Miyazaki, General Chair, Organizing Committee

9:05 Welcome Address

Toshiro Hiramoto, President, The Japan Society of Applied Physics

9:10 SSDM Award/SSDM Paper Award Ceremony

Plenary Sessions

9:25 PL-01 (Plenary)

Unique physics and applications in III-nitride semiconductors and heterostructures

Huili Grace Xing, Cornell Univ. (USA)

10:10 Break

10:25 PL-02 (Plenary)

Challenges in Advanced Semiconductor Industry: Technology, Design and Talents

Meng-Fan (Marvin) Chang, Taiwan Semiconductor Manufacturing Company, Ltd. (Taiwan)

11:10 PL-03 (Plenary)

Limitless Quest - Exploring true prosperity of human beings through semiconductor technology and manufacturing innovation

Atsuyoshi Koike, Rapidus Corp. (Japan)

11:55 PL-04 (Plenary)

From a Grain of Sand to a <Quantum> Bit of Information

James S. Clarke, Intel Corp. (USA)

Lunch

Room A (131+132, Bldg. 1)	Room B (133+134, Bldg. 1)	Room C (221, Bldg. 2)	Room D (222, Bldg. 2)	Room E (223, Bldg. 2)	Room F (224, Bldg. 2)
Area 8:Low Dimensional Devices and Materials A-1:Characterization I: Low Dimensional Devices and Materials (14:00-15:15) Session Chair: Takayuki Arie (Osaka Metropolitan Univ.), Yusuke Hoshi (Tokyo City Univ.)	Focus Session (Area 1&2&9) B-1:Quantum and cold computing 1 (14:00-15:45) Session Chair: Hidehiro Asai (AIST), Takafumi Fujita (Osaka Univ.)		Joint Session (Area 6&7) D-1:Perovskite solar cells (14:00-15:30) Session Chair: Ludmila Cojocar (Univ. of Bordeaux), Toshinori Matsushima (Kyushu Univ.)		Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-1:Modeling, Simulation and Characterization (14:00-15:45) Session Chair: Satofumi Souma (Kobe Univ.), Hidetoshi Oishi (Sony Semiconductor Solutions Corp.)
14:00 A-1-01 (Invited) Synthesis and Electronic Applications of Wafer-Scale 2.5D Materials ^o Hiroki Ago ^o , ¹ Kyushu Univ. (Japan)	14:00 B-1-01 (Invited) Si Platform for Implementing High-fidelity Quantum Gates and Quantum Error Correction ^o Seigo Tarucha ^o , ¹ RIKEN (Japan)		14:00 D-1-01 (Invited) Imaging and Quantifying non-Radiative Losses at Perovskite Solar Cells Interfaces ^o Stefania Cacovich ^o , ¹ CNRS-IPVF (France)		14:00 F-1-01 Gate-Length Dependent Variability of nMOSFET at Cryogenic Temperatures Toshitsugu Sakamoto ^o , Makoto Miyamura ^o , ^o Kazunori Funahashi ^o , Munehiro Tada ^o , Ken Uchida ^o , Hiroki Ishikuro ^o , ¹ NanoBridge Semiconductor, Inc. (Japan), ² Univ. of Tokyo (Japan), ³ Keio Univ. (Japan)
					14:15 F-1-02 Sub-20nm gate length p-FinFETs device performance improvement using TEM/EDX and NBD based TCAD calibrations. ^o Pierre EYBEN ^o , Pierre De Keersgieter ^o , Philippe Matagne ^o , Thomas Chiarella ^o , Clément Porret ^o , Andriy Hikavyi ^o , Yong Kong Stew ^o , Ludovic Goux ^o , Jérôme Mitard ^o , Naoto Horiguchi ^o , ¹ Imec (Belgium)

Lunch

Room G (231, Bldg. 2)	Room H (232, Bldg. 2)	Room J (233, Bldg. 2)	Room K (234, Bldg. 2)	Room M (431, Bldg. 4)	Room N (432, Bldg. 4)
Area 3:Interconnect / 3D Integrations / MEMS G-1:Advanced Metallization I	Area 5:Photonics: Devices / Integration / Related Technology H-1:Advanced Materials for Photonics		Area 2:Advanced and Emerging Memories / New Applications K-1:Ferroelectric Devices	Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-1:Wide Bandgap Materials	Area 4:Power / High-speed Devices and Materials N-1:GaN-based Power Devices
(14:00-15:30) Session Chair: Christian Dussarrat (Air Liquide), Jenn-Ming Song (National Chung Hsing Univ.)	(14:00-14:45) Session Chair: Xuejun Xu (Nippon Telegraph and Telephone Corp.), Satoshi Iwamoto (Univ. of Tokyo)		(14:00-15:30) Session Chair: Halid Mulaosmanovic (GlobalFoundries., Germany), E Ray Hsieh (National Central Univ.)	(14:00-15:30) Session Chair: Shingo Ogawa (Toray Research Center, Inc.), Takuya Hoshi (NTT Device Technology Lab.)	(14:00-15:30) Session Chair: Toru Sugiyama (Toshiba Device & Strage Corporation), Heiji Watanabe (Osaka Univ.)
14:00 G-1-01 (Invited) Considerations for post-Cu Alternative Metal BEOL Interconnects ~ Challenges and Solutions ~ °Koichi Motoyama ¹ , ¹ IBM Res. (United States of America)	14:00 H-1-01 Optical Amplification in SiN Half-Etch Horizontal Slot Waveguides Incorporating Al₂O₃:Er Layer °Eva Kempf ^{1,2} , Sébastien Cueff ² , Jimmy John ² , Arnaud Taut ^{1,2} , Ali Belarouci ² , Stéphane Monfray ³ , Frédéric Boeuf ¹ , Paul G. Chavette ³ , Régis Orabchouk ² , ¹ STMicroelectronics (France), ² Univ. of Lyon (France), ³ Univ. of Sherbrooke (Canada) 14:15 H-1-02 Optical Detection of Trace Amounts of Er Ions in Silicon-based Rare Earth Oxide Thin Film Waveguides °Shoichiro Yasui ^{1,2} , Tomohiro Inaba ¹ , Kenichi Hitachi ¹ , Atsushi Ishizawa ³ , Reina Kaji ² , Takehiko Tawara ¹ , Satoru Adachi ² , Xuejun Xu ¹ , Haruki Sanada ¹ , ¹ NTT Basic Res. Lab., NTT Corp. (Japan), ² Graduate School of Eng., Hokkaido Univ. (Japan), ³ College of Indus. Tech., Nihon Univ. (Japan), ⁴ College of Eng., Nihon Univ. (Japan)		14:00 K-1-01 (Invited) A Deep Look into the Endurance Degradation in Silicon Ferroelectric FET °Kai Ni ¹ , ¹ Univ. of Notre Dame (United States of America)	14:00 M-1-01 (Invited) Effect of Basal Plane Dislocation Structure on ISSF Expansion Rate in 4H-SiC °Johji Nishio ¹ , Chiharu Ota ¹ , Ryosuke Iijima ¹ , ¹ Corporate R&D Center, Toshiba Corp. (Japan)	14:00 N-1-01 (Invited) Vertical GaN devices - Performance and Availability °Dinesh Ramanathan ¹ , ¹ NexGen powersystems (United States of America)

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Area 8:Low Dimensional Devices and Materials A-1:Characterization I: Low Dimensional Devices and Materials	Focus Session (Area 1&2&9) B-1:Quantum and cold computing 1		Joint Session (Area 6&7) D-1:Perovskite solar cells		Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-1:Modeling, Simulation and Characterization
14:30 A-1-02 Growth and Characterization of SnS Ferroelectric Phase for BPVE Measurement <i>°Ryo Nanae¹, Satsuki Kitamura¹, Yih-Ren Chang^{1,2}, Tomonori Nishimura¹, Keisuke Shinokita³, Kazunari Matsuda³, Kosuke Nagashio¹, ¹the Univ. of Tokyo (Japan), ²RIKEN (Japan), ³Kyoto Univ. (Japan)</i>	14:30 B-1-02 Cryogenic Inter-chip Connection for Silicon Qubit Devices <i>°Tokio Futaya¹, Raisei Mizokuchi¹, Misato Taguchi², Takuji Miki², Makoto Nagata², Jun Yoneda¹, Tetsuo Kodera¹, ¹Tokyo Tech. (Japan), ²Kobe Univ. (Japan)</i>		14:30 D-1-02 (Invited) Perovskite Solar Cells Consisting of Sn and All-perovskite Tandem Solar Cells <i>°Shuzi Hayase¹, ¹The Univ. of Electro-Communications (Japan)</i>		14:30 F-1-03 Demonstration of Cavity Capacitor for Advanced Nanosheet Gate Stack Study <i>°Camila Cavalcante¹, H. Arimura¹, Y. Oniki¹, F. Sebaai¹, E. Capogreco¹, L.-A. Ragnarsson¹, B.T. Chan¹, A. Hikavy¹, H. Mertens¹, K. Vandersmissen¹, E. Dentoni Litta¹, S. Subramanian¹, S. Biesemans¹, N. Horiguchi¹, ¹imec (Belgium)</i>
14:45 A-1-03 In-plane polarization domain of ferroelectric SnS thin film by PFM measurement <i>°Satsuki Kitamura¹, Ryo Nanae¹, Yih Ren Chang^{1,2}, Tomonori Nishimura¹, Kosuke Nagashio¹, ¹The Univ. of Tokyo (Japan), ²RIKEN (Japan)</i>	14:45 B-1-03 Construction of an Environment Model for Auto-tuning Quantum Dot Devices Using Model-based Reinforcement Learning <i>°Chihiro Kondo¹, Raisei Mizokuchi¹, Jun Yoneda¹, Tetsuo Kodera¹, ¹Tokyo Inst. of Tech. (Japan)</i>				14:45 F-1-04 The Frequency Response Properties of Interface Traps at the HfO₂/Si Interface Using an Ultrafast DLTS Method <i>°Luping Wang¹, Junkang Li¹, Rui Zhang¹, ¹Zhejiang Univ. (China)</i>
15:00 A-1-04 Polarization-controlled single-photon emitter combining a colloidal quantum dot and an elliptical split-ring metamaterial element <i>°Issei Pribyl¹, Taiki Nakagawa¹, Kyosuke Uchiyama¹, Kohki Mukai¹, ¹Yokohama National Univ. (Japan)</i>	15:00 B-1-04 Device and Technology Codesign of Germanium Quantum-Dots Qubits with Optimal Charge Stability <i>°Ting Tsai¹, I-Hsiang Wang¹, Chi-Cheng Lai¹, David M.T. Kuo², Pei-Wen Li¹, ¹National Yang Ming Chiao Tung University (Taiwan), ²National Central University (Taiwan)</i>		15:00 D-1-03 Clarification of the charge transfer mechanism at the HTL/PVK interface of RP tin-based perovskite solar cells using Operando ESR measurements <i>°YIZHOU CHEN¹, Seira Yamaguchi¹, Atsushi Sato¹, Dong Xue¹, Kazuhiro Marumoto^{1,2}, ¹Univ. of Tsukuba (Japan), ²TREMS, Univ. of Tsukuba (Japan)</i>		15:00 F-1-05 The Impact of Back Bias on The Random Telegraph Noise in the Co-integrated Strained CMOS on Ultra-Thin Body and BOX SOI Platform <i>°Xinze Li¹, Sebastien Loubriat², Guillaume Besnard³, Christophe Maleville², Olivier Weber⁴, Ran Cheng¹, ¹Zhejiang Univ. (China), ²CEA-LETI Corp. (France), ³SOITEC Corp. (France), ⁴STMicroelectronics Corp. (France)</i>
	15:15 B-1-05 (Invited) Role of Si-UlSI Technology in Realizing Scalable Quantum Computer <i>°Ryuta Tsuchiya¹, ¹Hitachi, Ltd. (Japan)</i>		15:15 D-1-04 (Late News) Optimization of spin-coating conditions of the SnO₂ electron transporting layer for higher-performance perovskite solar cells <i>°Dai Semba¹, Yuki Fujita², Toshinori Matsushima³, ¹Kyushu Univ. (Japan), ²Kyushu Univ. (Japan), ³Kyushu Univ. (Japan)</i>		15:15 F-1-06 Assessment of Traps-induced Noise in FDSOI MOSFETs <i>°Jinghan Xu¹, Mengqi Fan¹, Zixuan Sun¹, Fei Liu¹, Xiaoyan Liu¹, ¹Peking University (China)</i>
					15:30 F-1-07 (Late News) Relationship between Electron Velocity Overshoot and Quantum Confinement in Si Nanosheet Gate-All-Around Field-Effect Transistors <i>°Junichi Hattori¹, Koichi Fukuda¹, Tsutomu Ikegami¹, Yoshihiro Hayashi¹, ¹AIST (Japan)</i>

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14:30 G-1-02 Impact of Ru Deposition Method and Adhesion Layer on Electrical Performance of Semi-damascene Interconnects °Gilles Delie ¹ , Elisabeth Camerotto ² , Giulio Marti ¹ , Ankit Pokhrel ¹ , Gayle Murdoch ¹ , Anshul Gupta ¹ , Stefan Decoster ¹ , Souvik Kundu ¹ , Seongho Park ¹ , Zsolt Tokei ¹ , ¹ imec (Belgium), ² Lam Research Belgium (Belgium)	14:30 H-1-03 Visualization of THz electromagnetic near field distributions using highly sensitive polarization CMOS image sensor °Ryoma Okada ^{1,2} , Maya Mizuno ² , Tomoaki Nagaoka ² , Hironari Takehara ¹ , Makito Haruta ^{1,3} , Hiroyuki Tashiro ^{1,4} , Jun Ohta ¹ , Kiyotaka Sasagawa ^{1,2} , ¹ Nara Institute of Science Technology (Japan), ² National Institute of Information and Communications Technology (Japan), ³ Chitose Institute of Science and Technology (Japan), ⁴ Kyushu Univ. (Japan)		14:30 K-1-02 Understanding Memory Window of FeFETs under Coexistence of Charge Trapping and Ferroelectric Polarization: Violation of Linear Superposition °Kasidit Toprasertpong ^{1,2} , Mitsuru Takenaka ¹ , Shinichi Takagi ¹ , ¹ Univ. of Tokyo (Japan), ² Stanford U. (United States of America)	14:30 M-1-02 (Invited) DLTS studies of Deep Level Defects in GaN °Yutaka Tokuda ¹ , ¹ Aichi Inst. of Tech. (Japan)	14:30 N-1-02 Mobility enhancement in GaN-MOSFETs by surface Al doping °Katsunori Ueno ¹ , Turugi Kondo ¹ , Ryo Tanaka ¹ , Shinya Takashima ¹ , Masaharu Edo ¹ , Tomoyuki Suwa ² , ¹ Fuji Electric Co., Ltd. (Japan), ² Tohoku Univ. (Japan)
14:45 G-1-03 Metal Pitch 18nm Semi-Damascene Spacer-is-Dielectric SADP Process Integration for Beyond A10 Technology Node °Chen Wu ¹ , Vincent Renaud ¹ , Stephane Lariviere ¹ , Stefan Decoster ¹ , Yannick Hermans ¹ , Quoc Toan Le ¹ , Hanne DeCoster ¹ , Bart Kenens ¹ , Diana Tsvetanova ¹ , Alfonso Sepulveda Marquez ¹ , Gayle Murdoch ¹ , Seongho Park ¹ , Zsolt Tokei ¹ , ¹ imec (Belgium)			14:45 K-1-03 Recovery of Cycling-Induced Degradation of Interfacial SiO₂ in HfO₂-FeFET and its Impact on Retention Characteristics °Viktoria Schlykova ¹ , Kunifumi Suzuki ¹ , Yoko Yoshimura ¹ , Takamasa Hamai ¹ , Kiwamu Sakuma ¹ , Kazuhiro Matsuo ¹ , Kota Takahashi ¹ , Masamichi Suzuki ¹ , Masumi Saitoh ¹ , Reika Ichihara ¹ , ¹ KIOXIA Corporation (Japan)		14:45 N-1-03 Suppression of Threshold Voltage Instability due to Positive Bias Stress in GaN Planer MOSFETs by Post-Deposition Anneal °Yuki Ichikawa ¹ , Katsunori Ueno ² , Tsurugi Kondo ² , Ryo Tanaka ² , Shinya Takashima ² , Jun Suda ¹ , ¹ Univ. of Nagoya (Japan), ² Corp. of Fuji Electric (Japan)
15:00 G-1-04 Optimizations on resistivity of binary compounds for advanced interconnect metallization °Jean-Philippe Soulie ¹ , Nancy Heylen ¹ , Jeroen Scheerder ¹ , Claudia Fleischmann ^{1,2} , Zsolt Tökei ¹ , Christoph Adelmann ¹ , ¹ Inst. IMEC (Belgium), ² Univ. of Leuven (KUL) (Belgium)			15:00 K-1-04 3D Vertical Poly-Si FeFETs Toward Stackable High-Density Non-volatile Memory Applications °Zhao-Feng Lou ¹ , Zhi-Xian Li ² , Fu-Sheng Chang ³ , Chen-Ying Lin ³ , Jia-Hong Chen ³ , Zong-Han Li ² , Cheng-Hong Liu ¹ , Tim Chen ⁴ , Min-Hung Lee ¹ , ¹ Graduate School of Advance Tech., National Taiwan Univ. (Taiwan), ² Inst. and Undergraduate Program of Electro-Optical Eng., National Taiwan Normal Univ. (Taiwan), ³ Graduate Inst. of Electronics Eng., National Taiwan Univ. (Taiwan), ⁴ AUCMOS Tech. (United States of America)	15:00 M-1-03 Theoretical Study of Nitrogen Incorporation at the Steps on SiC(0001) Surface during CVD Growth °Souichiro - Yamauchi ¹ , Ichiro - Mizushima ² , Takashi - Yoda ^{2,3} , Atushi - Oshiyama ⁴ , Kenji - Shiraishi ^{1,4} , ¹ Graduate School of Engineering, Univ. of Nagoya (Japan), ² NuFlare Technology Inc. (Japan), ³ FIRST of Tokyo Tech. (Japan), ⁴ IMaSS, Univ. of Nagoya (Japan)	15:00 N-1-04 GaN Vertical p-n Junction Diode on GaN Substrate Grown by Na-Flux Method with Avalanche Capability and Demonstration of 100 A (pulsed) Operation °Seiya Kawasaki ¹ , Hirotaka Watanabe ¹ , Kentaro Nonaka ² , Tomohiko Sugiyama ² , Yoshitaka Kuraoka ² , Shugo Nitta ¹ , Atsushi Tanaka ¹ , Yoshio Honda ¹ , Hiroshi Amano ¹ , ¹ Nagoya Univ. (Japan), ² NGK Insulators, Ltd. (Japan)
15:15 G-1-05 Superconducting Hollow TSV for Quantum Computing °Jaber Derakhshandeh ¹ , Roy Li ¹ , Geraldine Jamieson ¹ , Gabriela dos Santos ¹ , Bogdan Govoreanu ¹ , Andy Miller ¹ , Eric Beyne ¹ , ¹ IMEC (Belgium), ² Beneg (Finland)			15:15 K-1-05 Novel Antiferroelectric Memoristor (AFERAM) Model for Four-state Memory Applications °Qixia Wu ¹ , Yue Peng ¹ , Wenwu Xiao ² , Yan Liu ¹ , Genquan Han ¹ , Yue Hao ¹ , ¹ Wide Bandgap Semiconductor Technology Disciplines State Key Laboratory, School of Microelectronics, Xidian University (China), ² Xi'an UnilC Semiconductors Company Ltd. (China)	15:15 M-1-04 Sputtered β-Ga₂O₃ Crystallization by High Temperature Annealing on AlN/Si °Akira Sagawa ¹ , Norikazu Ito ¹ , Taketoshi Tanaka ¹ , Ken Nakahara ¹ , ¹ ROHM Corp., Ltd. (Japan)	15:15 N-1-05 Impact of O₂ annealing on Chemical States of Mg doped GaN(0001) Surface °Zijun Zhou ¹ , Akio Ohta ² , Xiaoyu Tian ¹ , Noriyuki Taoka ³ , Katsunori Makihara ¹ , Seiichi Miyazaki ¹ , ¹ Nagoya Univ. (Japan), ² Fukuoka Univ. (Japan), ³ Aichi Inst. of Tech. (Japan)

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<p>Area 8:Low Dimensional Devices and Materials A-2:Device Application I: Low Dimensional Devices and Materials</p> <p>(16:00-17:30) Session Chair: Mahito Yamamoto (Kansai Univ.), Takeshi Yanagida (Univ. of Tokyo)</p>	<p>Focus Session (Area 1&2&9) B-2:Quantum and cold computing 2 / Quantum devices and technologies</p> <p>(16:00-17:30) Session Chair: Tokuro Hata (Tokyo Tech), Yasutomu Ota (Keio Univ.)</p>	<p>Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-2:Perovskite solar cells</p> <p>(16:00-17:00) Session Chair: Naoyuki Shibayama (Toin Univ. of Yokohama), Md. Shahiduzzaman (Kanazawa Univ.)</p>	<p>Area 7:Organic / Molecular / Bio-electronics D-2:Advanced organic and hybrid film devices</p> <p>(16:00-17:45) Session Chair: Masakazu Nakamura (NAIST), Toshinori Matsushima (Kyushu Univ.)</p>		
<p>16:00 A-2-01 Er₂O₃ top gate MoS₂ FET with EOT lower than 1 nm °Shuhong Li¹, Tomonori Nishimura¹, Kosuke Nagashio¹, ¹Univ. of Tokyo (Japan)</p>	<p>16:00 B-2-01 (Invited) Cryogenic InGaAs HEMTs for LNA and routing circuits in Quantum Computing °Sanghyeon Kim¹, Jaeyong Jeong¹, Seong Kwang Kim¹, Yoon-Je Suh¹, Jisung Lee², Joonyoung Choi³, Juhyuk Park¹, Joon Pyo Kim¹, Bong Ho Kim¹, Younjung Jo³, Dae-myeong Geum¹, Seung-Young Park², Jongmin Park³,¹KAIST (Korea),²KBRI (Korea),³KNU (Korea),⁴CBNU (Korea),⁵KANC (Korea)</p>	<p>16:00 C-2-01 Mitigation of Carrier Trapping Effects on Carrier Lifetime Measurements with Continuous-Wave Laser Illumination for Metal Halide Perovskite Materials °NTUMBA LOBO¹, Gebhard Josef Matz², Andres Osvet², Shreetu Shrestha², Levchuk Ievgen², Andrii Kanak³, Petro Fochuk², Christoph J Brabec², Masashi Kato¹,¹Nagoya Inst. of Tech (Japan),²Friedrich-Alexander Universität Erlangen-Nürnberg (Germany),³Yuriy Fedkovych Chernivtsi National Univ. (Ukraine)</p>	<p>16:00 D-2-01 (Invited) Development of high-performance Sn Based Halide Perovskite Transistors °Yong-Young Noh¹,¹Pohang Univ. of Sci. and Tech. (POSTECH) (Korea)</p>		
<p>16:15 A-2-02 Thermal-aware Design of Metal Nanosheet Sensors for Low-energy, Highly Sensitive Hydrogen Sulfide Nanoscale Sensors °Taro Kato¹, Takahisa Tanaka², Ken Uchida¹,¹Univ. of Tokyo (Japan),²Keio Univ. (Japan)</p>		<p>16:15 C-2-02 Surface-Passivation-Improvement Mechanism in Perovskite Solar Cells by the Surface Modification of NiO_x Hole-Selective Contacts with 2PACz SAMs °Seira Yamaguchi¹, Atsushi Sato¹, Kaori Ajiro², Miyuki Shiokawa², Yuya Hashimoto³, Takuto Maeda³, Mutsumi Sugiyama³, Takeshi Gotanda², Kazuhiro Marumoto⁴,¹Univ. of Tsukuba (Japan),²Toshiba ESS (Japan),³Tokyo Univ. of Sci. (Japan),⁴TREMS, Univ. of Tsukuba (Japan)</p>			
<p>16:30 A-2-03 Self-Aligned WO₃ S/D Contacts to Gate Stacks with TiO₂ Nucleation Layer by Multiple-Deposition Method in WSe₂ pFETs °Ryosuke Kajikawa¹, Takamasa Kawanago¹, Iriya Muneta¹, Takuya Hoshii¹, Kuniyuki Kakushima¹, Kazuo Tsutsui¹, Hitoshi Wakabayashi¹,¹Tokyo Institute of Technology (Japan)</p>	<p>16:30 B-2-02 Electrical formation of electron-hole bilayer system in Si MOS transistors °Masahiro Hori¹, Jinya Kume¹, Yukinori Ono¹,¹Shizuoka Univ. (Japan)</p>	<p>16:30 C-2-03 Room Temperature Processed TiO₂ Electron Collector for Inverted Perovskite Solar Cells °Atsushi Kogo¹, Takuro N Murakami²,¹National Institute of Advanced Industrial Science and Technology (Japan)</p>	<p>16:30 D-2-02 (Invited) Solution-Processed Ohmic Contacts to Organic Polymers Semiconductor Devices °Peter K.H. Ho¹,¹National Univ. of Singapore (Singapore)</p>		

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Area 3:Interconnect / 3D Integrations / MEMS G-2:MEMS and Advanced Metallization I (16:00-17:30) Session Chair: Akinobu Yamaguchi (Univ. of Hyogo), Takeo Minari (NIMS)	Area 5:Photonics: Devices / Integration / Related Technology H-2:Photonics for AI (16:00-17:00) Session Chair: Koichi Akahane (NICT), Nobuhiko Ozaki (Wakayama Univ.)		Area 2:Advanced and Emerging Memories / New Applications K-2:Emerging Memory Devices (16:00-17:30) Session Chair: Atsushi Himeno (Panasonic Holdings Corporation), Grenouillet Laurent (CEA-Leti)	Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-2:Advanced Materials, Nanofabrication, and Thin Films I (16:00-17:30) Session Chair: Hirokazu Tatsuoka (Shizuoka Univ.), Yu-Lun Chueh (National Tsing-Hua Univ.)	Area 4:Power / High-speed Devices and Materials N-2:SiC Processes and Characterizations (16:00-17:30) Session Chair: Shinsuke Harada (National Institute of Advanced Industrial Science and Technology), Tomoya Ono (Kobe Univ.)
16:00 G-2-01 (Invited) Strategy of Wafer Bonding Techniques in Commercial MEMS °Tadashi Inoue ¹ , ¹ MMI Semiconductor Co., Ltd. (Japan)	16:00 H-2-01 (Invited) Photonic and electronic integrated technologies for neuromorphic computing °Bert Jan Offrein ¹ , Tommaso Stecconi ¹ , Donato Francesco Falcone ¹ , Elger Anne Vlieg ¹ , Felix Hermann ¹ , Laura Bégon-Lours ¹ , Daniel Jubin ¹ , Heinz Siegwart ¹ , Antonio La Porta ¹ , Valeria Bragaglia ¹ , Folkert Horst ¹ , ¹ IBM Research Europe - Zurich (Switzerland)		16:00 K-2-01 A 0.11pJ/bit Read Energy Embedded NanoBridge NVM and its Integration in a 28nm 32-bit RISC-V MCU °Xu Bai ¹ , Ryusuke Nebashi ¹ , Makoto Miyamura ¹ , Kazunori Funahashi ¹ , Koichiro Okamoto ¹ , Hideaki Numata ¹ , Noriyuki Iguchi ¹ , Toshitsugu Sakamoto ¹ , Munehiro Tada ¹ , ¹ NanoBridge Semiconductor, Inc. (Japan) 16:15 K-2-02 Controllable Temporal Dynamics of Titanium Oxide Memristor for Analog Time-Based Reservoir Computing °Alexander-Hanyu Wang ¹ , Firman Simanjuntak ¹ , Ruomeng Huang ¹ , Harold Chong ¹ , David Thomas ¹ , ¹ Univ. of Southampton (UK)	16:00 M-2-01 (Invited) Design of Novel Hetero-Nanostructures for Electronic and Optoelectronic Devices Wei Wang ¹ , °Johnny Ho ^{1,2} , ¹ City Univ. of Hong Kong (Hong Kong), ² Kyushu University (Japan)	16:00 N-2-01 (Invited) Proton implantation: the last resort to solve bipolar degradation of SiC power devices? °Masashi Kato ¹ , Shunta Harada ² , Hitoshi Sakane ³ , ¹ Nagoya Inst. of Tech. (Japan), ² Nagoya Univ. (Japan), ³ SHI-ATEX Co. Ltd. (Japan)
16:30 G-2-02 Design Technique of Serpentine Spring with Half Edge Span Beam Length for High Sensitivity Gold Proof-mass MEMS Capacitive Accelerometer °Kisuke Miyado ¹ , Tenneti Devi Srujana ¹ , Akira Onishi ¹ , Katsuyuki Machida ¹ , Tomoyuki Kurioka ¹ , Parthojit Chakraborty ¹ , Tso-Fu Mark Chang ¹ , Masato Sone ¹ , Yoshihiro Miyake ¹ , Hiroyuki Ito ¹ , ¹ Tokyo Institute of Technology (Japan)	16:30 H-2-02 Withdrawn		16:30 K-2-03 2-kbits 40-nm Hybrid Anti-fuse and D-fuse OTP-PUF MACRO by Enhancedsecurity-processed scheme with 100-ns of Program-time & Robust-retention in 200°C °Po Hsiung Huang ¹ , Y.H. Lin ¹ , K.H. Chang ¹ , T.H. Shen ¹ , R.Y. Lyu ¹ , K.Y. Lee ¹ , M.L. Miu ¹ , E Ray Hsieh ¹ , ¹ National Central University (Taiwan)	16:30 M-2-02 Growth of High-Performance Single-Crystalline MoS₂ on Sapphire Substrates Using an Industrial Reactor for Next-Generation Electronics °Henry Medina Silva ¹ , Yuanyuan Shi ^{1,2} , Benjamin Groven ¹ , Sreetama Banerjee ¹ , Ankit Nalin Mehta ¹ , Iryna Kandybka ¹ , Akane Inoue ¹ , Joris Verdin ¹ , Pawan Kumar ¹ , Quentin Smets ¹ , Souvik Ghosh ¹ , Daire Cott ¹ , Stefanie Sergeant ¹ , Dries Vranckx ¹ , Sebastiaan Nijs ¹ , Rudy Verheyen ¹ , Tom Schram ¹ , Marco Claudio Torres Macario ¹ , Raf Rennen ¹ , Felix De Groef ¹ , Steven Brems ¹ , Pierre Morin ¹ , Cesar Javier Lockhart de la Rosa ¹ , Inge Asselberghs ¹ , Gouri Sankar Kar ¹ , ¹ IMEC (Belgium), ² Univ. of Sci. and Tech. of China (China)	16:30 N-2-02 Intrinsic carrier density in 4H-SiC obtained from diffusion current in bipolar junction transistor °Satoshi Asada ¹ , Koichi Murata ¹ , Hajime Tanaka ² , Hidekazu Tsuchida ¹ , ¹ CRIEPI (Japan), ² Osaka Univ. (Japan)

Wednesday, September 6

Room A (131+132, Bldg. 1)	Room B (133+134, Bldg. 1)	Room C (221, Bldg. 2)	Room D (222, Bldg. 2)	Room E (223, Bldg. 2)	Room F (224, Bldg. 2)
Area 8:Low Dimensional Devices and Materials A-2:Device Application I: Low Dimensional Devices and Materials	Focus Session (Area 1&2&9) B-2:Quantum and cold computing 2 / Quantum devices and technologies	Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-2:Perovskite solar cells	Area 7:Organic / Molecular / Bio-electronics D-2:Advanced organic and hybrid film devices		
16:45 A-2-04 High-Frequency Semiconductor-Graphene-Semiconductor Transistors Using Epitaxial Graphene <i>Chi Liu^{1,2}, Xiaoyue Wang^{1,2}, Haiyan Jiang^{1,2}, Xuqi Yang^{1,2}, Zhongying Xue², Zengfeng Di³, Dongming Sun^{1,2}, ¹ Inst. of Metal Res., Chinese Academy of Sci. (China), ² Univ. of Sci. and Tech. of China (China), ³ Shanghai Inst. of Microsystem and Info. Tech., Chinese Academy of Sci. (China)</i>	16:45 B-2-03 Aharonov-Bohm-type oscillations in selectively-grown polymorphic core/shell GaAs/InAs nanowires <i>^oFarah Basaric^{1,4}, Anton Faustmann^{1,4}, Alexander Pawlis^{2,4}, Patrick Zellekens^{3,5,6}, Russel Deacon^{3,5}, Benjamin Bennemann^{2,4}, Detlev Grützmacher^{2,1,4}, Koji Ishibashi^{3,5}, Thomas Schäpers^{1,4}, ¹Peter Grünberg Inst. 9, Res. center Jülich (Germany), ²Peter Grünberg Inst. 10, Res. center Jülich (Germany), ³RIKEN Center for Emergent Matter Sci. (Japan), ⁴JARA-Fundamentals of Future Info. Tech., Jülich-Aachen Res. Alliance, Research center Jülich and RWTH Aachen Univ. (Germany), ⁵RIKEN Advanced Device Lab. (Japan), ⁶Special Postdoctoral Res. Program (SPDR), RIKEN (Germany)</i>	16:45 C-2-04 Charge States and Device Degradation Mechanisms in ICBA-containing Tin Perovskite Solar Cells Investigated by ESR Spectroscopy <i>^oAtsushi Sato¹, Seira Yamaguchi¹, Mayu Motohashi¹, Yihuang Wang¹, Tomoya Nakamura², Atsushi Wakamiya², Kazuhiro Marumoto^{1,3}, ¹Univ. of Tsukuba (Japan), ²Kyoto Univ. (Japan), ³TREMS, Univ. of Tsukuba (Japan)</i>	17:00 D-2-03 Solvent Selection in the Preparation of Floating Film of Semiconducting Polymers by Unidirectional Floating Film Transfer Method <i>^oManish Pandey¹, Jumpei Toyoda¹, Yongyoon Cho¹, Hiroaki Bente¹, Masakazu Nakamura¹, ¹Nara Institute of Science and Technology (Japan)</i>		
17:00 A-2-05 High-performance CMOS inverter based on MoTe₂-FETs achieved by contact doping and channel encapsulation <i>^oTianshun Xie¹, Mengnan Ke², Nobuyuki Aoki³, ¹Chiba Univ. (Japan), ²Chiba Univ. (Japan), ³Chiba Univ. (Japan)</i>	17:00 B-2-04 Crosstalk Effect for Acousto-Electric Quantized Current <i>^oShunsuke Ota², Junliang Wang³, Hermann Edlbauer², Yuma Okazaki², Shuji Nakamura², Takehiko Oe², Arne Ludwig⁴, Andreas D Wieck¹, Tetsuo Koder¹, Christopher Bauerle³, Shintaro Takada², Nobu-Hisa Kaneko², ¹Tokyo Tech (Japan), ²AIST (Japan), ³Inst. Neel (France), ⁴Ruhr-Univ. Bochum (Germany)</i>		17:15 D-2-04 Organic Photoconductive Films with Ultralow Dark Currents Using Transparent Top Electrodes <i>^oKoki Imamura¹, Toshikatsu Sakai¹, Hiroto Sato¹, ¹NHK STRL (Japan)</i>		
17:15 A-2-06 (Late News) Multilevel Storage Enabled by Light Erasable GNDs Floating Gate Transistor with MoS₂ Channel <i>^oHan Hsiang Tai¹, Yu Yuan Su¹, Jer Chyi Wang^{1,2,3}, Wen Hao Chang^{4,5}, Chao Sung Lai^{1,6,7}, ¹Department of Electronic Engineering, Chang Gung Univ. (Taiwan), ²Department of Neurosurgery, Chang Gung Memorial Hospital (Taiwan), ³Department of Electronic Engineering, Ming Chi Univ. of Tech. (Taiwan), ⁴Research Center for Applied Sciences, Academia Sinica (Taiwan), ⁵Department of Electrophysics, National Yang Ming Chiao Tung Univ. (Taiwan), ⁶Department of Nephrology, Chang Gung Memorial Hospital (Taiwan), ⁷Department of Materials Engineering, Ming Chi Univ. of Tech. (Taiwan)</i>	17:15 B-2-05 The high concentration NV ensembles formed from heavily nitrogen-doped CVD diamond with high quality <i>^oYudai Asano¹, Kyosuke Hayasaka¹, Mayu Ueda¹, Kosuke Kimura^{2,3}, Takashi Tani¹, Shinobu Onoda², Shinpei Enomoto⁴, Hiroshi Kawarada^{1,4}, ¹Waseda Univ. (Japan), ²National Inst. of Quantum and Radiological Sci. and Tech. (Japan), ³Gunma Univ. (Japan), ⁴Kagami Memorial Res. Inst. for Materials Sci. and Tech. (Japan)</i>		17:30 D-2-05 (Late News) Efficient electroluminescence from organic-fluorophore-containing perovskites <i>^oToshinori Matsushima¹, ¹Kyushu Univ. (Japan)</i>		

Banquet (at Nagoya Castle, Honmaru Area)

(18:40-20:40)

Banquet

Wednesday, September 6

Room G (231, Bldg. 2)	Room H (232, Bldg. 2)	Room J (233, Bldg. 2)	Room K (234, Bldg. 2)	Room M (431, Bldg. 4)	Room N (432, Bldg. 4)
Area 3:Interconnect / 3D Integrations / MEMS G-2:MEMS and Advanced Metallization I	Area 5:Photonics: Devices / Integration / Related Technology H-2:Photonics for AI		Area 2:Advanced and Emerging Memories / New Applications K-2:Emerging Memory Devices	Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-2:Advanced Materials, Nanofabrication, and Thin Films I	Area 4:Power / High-speed Devices and Materials N-2:SiC Processes and Characterizations
16:45 G-2-03 One-dimensional Hybrid Nanowires Patterning by Interfacial Architectonics for Soft Electronics °Lingying Li ¹ , Wanli Li ¹ , Masayuki Kanehara ³ , Takeo Minari ¹ , ¹ NIMS (Japan), ² Jiangnan Univ. (China), ³ C-INK Co., Ltd. (Japan)	16:45 H-2-03 On-chip non-volatile electron-optical memory switch based on ferroelectric doped graphene °Yong Zhang ¹ , Danyang Yao ¹ , Jianguo Wang ² , Zheng-Dong Luo ^{1,3} , Ruijuan Tian ² , Cizhe Fang ^{1,3} , Xuetao Gan ² , Yan Liu ^{1,3} , Yue Hao ¹ , Genquan Han ^{1,3} , ¹ School of Microelectronics, Xidian Univ. (China), ² School of Physical Sci. and Tech., Northwestern Polytechnical Univ. (China), ³ Hangzhou Inst. of Tech., Xidian Univ. (China)		16:45 K-2-04 Investigation of Spin-on Films as Mold Stack and Controlling Wafer Warpage for 3D Memory Integration °Soodoo Chae ¹ , Hojin Kim ¹ , Nayoung Bae ¹ , Stephen Mancini ² , Lior Huli ¹ , Steven Gucci ¹ , Dave Hetzer ¹ , Sitaram Arkalgud ¹ , ¹ TEL Technology Center, America, LLC (United States of America), ² College of Nanoscale Science and Engineering (United States of America)	16:45 M-2-03 Tuning CVD growth conditions for enlarging monolayer MoS₂ crystal °Kakeru Fujii ¹ , Toshiya Okabe ¹ , Kentaro Watanabe ^{1,2} , ¹ Shinshu Univ. (Japan), ² IFES, Shinshu Univ. (Japan)	16:45 N-2-03 Measurement of Heat Dissipation between SiC and Thermal Interface Material in Power Device Packaging Based on Optical-Interference Contactless Thermometry °Jiawen Yu ¹ , Ryunosuke Goto ¹ , Hiroaki Hanafusa ¹ , Seichiro Higashi ¹ , ¹ Hiroshima Univ. (Japan)
17:00 G-2-04 Wafer Reconstitution: embedded multi-die III-V and silicon co-integration platform °Gauri Vibhakar Karve ¹ , Yunlong Li ¹ , Vasily Motsnyi ¹ , Wei Wei ¹ , Jakob Visker ¹ , Francois Chancere ¹ , Jan Ackaert ¹ , Renaud Puybaret ¹ , Barundeb Dutta ¹ , Deniz Sabuncuoglu Tezcan ¹ , Lan Peng ¹ , Philippe Soussan ¹ , Simone Severi ¹ , Haris Osman ¹ , ¹ IMEC (Belgium), ² Zhejiang University (China)			17:00 K-2-05 Performance comparison of planar and cylindrical ferroelectric tunnel junctions °Yirong Guo ¹ , Jie Li ¹ , Pengying Chang ¹ , ¹ Beijing University of Technology (China)	17:00 M-2-04 Development of CL nano-spectroscopy for monolayer materials using wet sheet transfer technique °Toshiya Okabe ¹ , Kakeru Fujii ¹ , Kentaro Watanabe ^{1,2} , ¹ Shinshu Univ. (Japan), ² IFES, Shinshu Univ. (Japan)	17:00 N-2-04 Analysis of Tunneling Effects in 4H-SiC Schottky Barrier Diodes Based on Complex Band Structure Considering Barrier Potential °Yutoku Murakami ¹ , Sachika Nagamizo ¹ , Hajime Tanaka ¹ , Nobuya Mori ¹ , ¹ Osaka Univ. (Japan)
17:15 G-2-05 Propagation Characteristics of AlScN SAW Resonators on Silicon and Al₂O₃ Substrates °Guofang Yu ¹ , Renrong Liang ¹ , Congyi Zhu ² , Haiming Zhao ¹ , Jing Wang ¹ , Jun Fu ¹ , ¹ Tsinghua Univ. (China), ² Nanjing Univ. of Aero. and Astr. (China)			17:15 K-2-06 (Late News) First Demonstration of Novel Channel-less CuO_x/HfO_x Synaptic Transistor for Neuromorphic Computing Systems °Seonuk Jeon ¹ , Nayeon Kim ¹ , Eumryeong Hong ¹ , Hyun Wook Kim ¹ , Jiyong Woo ¹ , ¹ Kyungpook National Univ. (Korea)	17:15 M-2-05 Synthesis of Mg₂Si Nanosheet Bundle Powders using CaSi₂ Crystal Powders and Mg-MgCl₂ Sources °Shalika Parakatawella ¹ , Keigo Sasaki ¹ , Tomoya Koga ² , Yosuke Shimura ^{2,3,3} , Naohisa Takahashi ¹ , Hirokazu Tatsuoka ² , ¹ Graduate School of Sci. and Tech., Shizuoka Univ. (Japan), ² Graduate School of Integrated Sci. & Tech., Department of Eng., Shizuoka Univ. University (Japan), ³ Res. Inst. of Electronics, Shizuoka Univ. (Japan), ⁴ YAMAHA MOTOR Corp. Ltd. (Japan), ⁵ imec (Belgium)	17:15 N-2-05 (Late News) Atomic and Electronic Structures of Basal Plane Dislocations (BPDs) in 4H-SiC -Atomistic Origin of Bipolar Degradation of SiC Devices- °Masaki Sano ¹ , Jun Kojima ² , Shoichi Onda ² , Takashi Yoda ³ , Takayuki Ohba ³ , Kenji Shiraishi ^{1,2} , ¹ Graduate School of Engineering, Nagoya University (Japan), ² Institute of Materials and Systems for Sustainability (Japan), ³ WOW Alliance, Tokyo Institute of Technology (Japan)

Banquet (at Nagoya Castle, Honmaru Area)

Thursday, September 7

Room A (131+132, Bldg. 1)	Room B (133+134, Bldg. 1)	Room C (221, Bldg. 2)	Room D (222, Bldg. 2)	Room E (223, Bldg. 2)	Room F (224, Bldg. 2)
<p>Area 8:Low Dimensional Devices and Materials A-3:Growth and Synthesis: Low Dimensional Devices and Materials</p> <p>(9:00-10:00) Session Chair: Masafumi Jo (RIKEN), Satoshi Hiura (Hokkaido Univ.)</p>	<p>Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-3:Spintronic technologies I</p> <p>(9:00-10:00) Session Chair: Nozomi Nishizawa (Kitasato Univ.), Michael Quinsat (KIOXIA)</p>	<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process C-3:Advanced process of oxide semiconductors</p> <p>(9:00-10:15) Session Chair: Keisuke Ide (Tokyo Tech), Kaoru Toko (Univ. of Tsukuba)</p>	<p>Area 7:Organic / Molecular / Bio-electronics D-3:Advanced Lab-on-chip devices</p> <p>(9:00-10:15) Session Chair: Cheng-Hsien Liu (National Tsing Hua Univ.), Shinya Kumagai (Meijo Univ.)</p>	<p>Area 2:Advanced and Emerging Memories / New Applications E-3:DRAM</p> <p>(9:00-10:00) Session Chair: E Ray Hsieh (National Central Univ.), Atsushi Himeno (Panasonic Holdings Corporation)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-3:Ferroelectric Devices</p> <p>(9:00-10:00) Session Chair: Pin Su (NYCU), Shibun Tsuda (Renesas Electronics Corp.)</p>
<p>9:00 A-3-01 (Invited) Core-shell Nanowire LEDs Enabled by Polarity-Controlled Growth of Gallium Nitride Nanowire Arrays on Silicon °Matt Brubaker¹, Alexana Roshko¹, Todd Harvey¹, Kris Bertness¹, ¹National Inst. of Standards and Tech. (United States of America)</p>	<p>9:00 B-3-01 Canted Magnetic Field Assisted Spin Orbit Torque Switching in a Perpendicularly Magnetized Nano-magnet °Tian Li¹, Masahiro Koike¹, Toshiya Murakami¹, Shiho Murakami¹, Nobuyuki Umetsu¹, Hiroki Tokuhira¹, Michael Quinsat¹, Masatoshi Yoshikawa¹, ¹Kioxia Corp. (Japan)</p> <p>9:15 B-3-02 Atomistic Modelling of Spatially Resolved Oscillation Dynamics in Ferrimagnetic Spin-Chain °Baofang Cai¹, Xue Zhang², Zhifeng Zhu², Gengchiao Liang¹, ¹National Univ. of Singapore (Singapore), ²ShanghaiTech Univ. (China)</p> <p>9:30 B-3-03 High Frequency Spin Torque Oscillation in Orthogonal Magnetization Disks with Strong Biquadratic Magnetic Coupling °Chuhan Liu¹, Yuichiro Kurokawa¹, Naoki Hashimoto¹, Terumitsu Tanaka¹, Hiromi Yuasa¹, ¹Kyushu University (Japan)</p>	<p>9:00 C-3-01 (Invited) Stability Issues in Oxide TFTs for VLSI Applications °Junghwan Kim¹, ¹UNIST (Korea)</p> <p>9:30 C-3-02 High-Performance Submicron IGZO TFTs Fabricated with a Maximum Temperature of 110 °C Horng-Chih Lin¹, °Po-Jung Lin¹, Yu-Chi Chen¹, Ping-Che Liu¹, Chien-Wei Chen², Chi-Chung Ke², Pei-Wen Li¹, ¹National Yang Ming Chiao Tung University (Taiwan), ²Taiwan Instrument Research Institute (Taiwan)</p>	<p>9:00 D-3-01 (Invited) Large-scale Serial-Parallel Microfluidic Device System for Desktop Chemical Plant °Takehiko Kitamori^{1,2}, ¹National Tsing Hua Univ. (Taiwan), ²Kanagawa Inst. of Indus. Sci. and Tech. (Japan)</p> <p>9:30 D-3-02 A plasma exposure system towards controlling cell fate using gas permeable thin film Daiki Yamamoto¹, °Shinya Kumagai Kumagai¹, ¹Meijo University (Japan)</p>	<p>9:00 E-3-01 Improvement of Cell Transistors in High-k/ Metal-Gate Peripheral Transistors DRAM Technology for High Performance Graphic Memories °Dongkyu Jang¹, Jieun Lee¹, Daekyung Kim¹, Kyoungrock Nho¹, Inkyum Lee¹, Shindeuk Kim¹, Taehoon Park¹, ¹Samsung Electronics Corp. (Korea)</p> <p>9:15 E-3-02 Novel Stacked Gate All-Around Nanosheet Transistor-Based DRAM °Imtiyaz Ahmad khan¹, Sanjeev Kumar Manhas¹, Arvind Kumar², Mahendra Pakala², ¹Indian Inst. of Tech. Roorkee (India), ²Applied Materials Inc. (United States of America)</p> <p>9:30 E-3-03 Exploring Vertical DRAM Architecture using Advanced Pathfinding Techniques °TaeYeon Oh¹, ¹LAM RESEARCH (Korea)</p>	<p>9:00 F-3-01 First Demonstration of SiGe/Si Super-Lattice Ferroelectric HfZrO₂ Multibit FinFET for Nonvolatile Memory °Tsai-Jung Lin¹, Yi-Ju Yao¹, Ting-Yu Tseng², Ching-Ru Yang², Heng-Jia Chang², Guang-Li Luo³, Fu-Ju Hou¹, Yung-Chun Wu², ¹College of Semiconductor Research, National Tsing Hua University (Taiwan), ²Department of Engineering and System Science, National Tsing Hua University (Taiwan), ³Taiwan Semiconductor Research Institute (Taiwan)</p> <p>9:15 F-3-02 Reliability Improvement of MFM Capacitors by Ozone Treatment on Bottom TiN Electrode °Haoji Qian¹, Rongzong Shen¹, Jiajia Chen¹, Gaobo Lin¹, Minglei Ma², Jiacheng Xu¹, Chengji Jin¹, Yan Liu², Xiao Yu¹, Genquan Han², ¹Zhejiang Lab. (China), ²Xidian University (China)</p> <p>9:30 F-3-03 Impact of the dielectric layer on Wake-up Effect of HZO-based Thin Films °Min Liao¹, Junshuai Chai¹, Jinjuan Xiang², Kai Han³, Yanrong Wang¹, Hao Xu¹, Xiaolei Wang¹, Jing Zhang¹, Wenwu Wang¹, ¹Institute of Microelectronics Chinese Academy of Sciences (China), ²Beijing Superstring Academy of Memory Tech. (China), ³Weifang Univ. (China), ⁴North China Univ.of Tech. (China)</p>

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Room G (231, Bldg. 2)	Room H (232, Bldg. 2)	Room J (233, Bldg. 2)	Room K (234, Bldg. 2)	Room M (431, Bldg. 4)	Room N (432, Bldg. 4)
	<p>Area 5: Photonics: Devices / Integration / Related Technology H-3: New/next generation optical sources on silicon</p> <p>(9:00-10:15) Session Chair: Satoshi Iwamoto (Univ. of Tokyo), Kejiro Suzuki (AIST)</p>	<p>Area 12: Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-3: Advanced Circuits and Systems</p> <p>(9:00-10:15) Session Chair: Jerald Yoo (National Univ. of Singapore), Kousuke Miyaji (Shinshu Univ.)</p>	<p>Focus Session (Area 1&2&8) K-3: CMOS and Memory Applications of Low Dimensional Materials</p> <p>(9:00-10:15) Session Chair: Kuniyuki Kakushima (Tokyo Institute of Technology), Hiroshi Naganuma (Tohoku Univ.)</p>	<p>Area 11: Advanced Materials: Synthesis / Crystal Growth / Characterization M-3: Group IV Materials I</p> <p>(9:00-10:30) Session Chair: Katsunori Makihara (Nagoya Univ.), Yosuke Shimura (imec)</p>	<p>Area 4: Power / High-speed Devices and Materials N-3: High-speed and Advanced Technologies</p> <p>(9:00-10:15) Session Chair: Taketomo Sato (Hokkaido Univ.), Akira Satou (Tohoku Univ.)</p>
	<p>9:00 H-3-01 (Invited) Quantum Dot Lasers on Silicon for Monolithic Photonic Integrated Circuits °Alec Skipper¹, Chen Shang¹, Eamonn Hughes¹, Kaiyin Feng¹, Rosalyn Koszica¹, Mario Dumont¹, John Bowers¹, ¹UCSB (United States of America)</p>	<p>9:00 J-3-01 A 351pW Stand-By Power 0.017mm² 37.4GHz Fully-Integrated LC Oscillator-Based OOK Transmitter Using Low-Leakage Switch in 22nm CMOS °Kiichi Niitsu¹, Jin Nakamura², Masaya Kaneko², Yuya Osaki², Hiroki Wakatsuchi³, ¹Kyoto Univ. (Japan), ²Meitec Corp. (Japan), ³Nagoya Inst. Tech. (Japan)</p> <p>9:15 J-3-02 A High-Resolution Ultrasonic Water Flow Meter with Multi-Phase Time-Zooming Technique and Active Band Pass Filter °Junpei Oda¹, Yuta Kaga¹, Koh Johguchi¹, ¹Shinshu Univ. (Japan)</p>	<p>9:00 K-3-01 (Invited) Scaling Potential of Transition Metal Dichalcogenide Monolayer Transistors °Gouthan Arutchelvan¹, ¹TSMC (Taiwan)</p>	<p>9:00 M-3-01 (Invited) Si-Ge-Sn heterostructures grown by chemical vapor deposition for electronic and photonic devices Omar Concepción¹, Yuji Yamamoto², Giovanni Capellin², Mustafa El-Kurd³, Qing-Tai Zhao¹, Dan Buca⁴, °Detlev Grützmacher¹, ¹Forschungszentrum Julich (Germany), ²IHP - Leibniz Institut für innovative Mikroelektronik (Germany), ³C2N - CNRS - Université Paris Saclay (France)</p>	<p>9:00 N-3-01 (Invited) Feasibility Study of InP-based Tera-Hertz-ICs Fabrication Process for Beyond 5G / 6G Wireless Network Systems °Takuya Tsutsumi¹, Hiroki Sugiyama, Hiroshi Hamada, Teruo Jyo, Yuta Shiratori, Takuya Hoshi, Hiroyuki Takahashi, Fumito Nakajima, ¹NTT Device Tech. Lab. (Japan)</p>
	<p>9:30 H-3-02 Investigation of InAs Quantum Dot Membrane Lasers for on-chip Communications: Simulation and Integration Prospects °Mattéo Chobé¹, Hadi Hijazi², Mickaël Martin², Sophie Barbet¹, Romain Thibon¹, Christophe Jany¹, Thierry Baron², Karim Hassan¹, ¹Univ. Grenoble Alpes, CEA-LETI (France), ²Univ. Grenoble Alpes, CNRS, CEA/LETI Minatoc, Grenoble INP, LTM (France)</p>	<p>9:30 J-3-03 A 1.58nJ/Conversion Temperature-to-Digital Converter with Low Power Variations Mao-Wei Lee¹, Po-Wei Lai¹, Ching-Hsiang Chang¹, °Hongchin Lin¹, ¹National Chung Hsing Univ. (Taiwan)</p>	<p>9:30 K-3-02 (Invited) Introducing 2D Materials in Magnetic Tunnel Junctions °Bruno Dlubak¹, Victor Zatkó¹, Simon M.-M. Dubois^{1,2}, Marta Galbiati¹, Julian Peiro¹, Florian Godel¹, Maelis Piquemal-Banci¹, Regina Galceran¹, Cécile Carretero¹, Sophie Collin¹, Aymeric Vecchiola¹, Karim Bouzehouane¹, Stéphane Xavier³, Bernard Serré², Federico Panciera⁴, Gilles Patriarche¹, Mauro Och⁵, Cecilia Mattevi⁵, Piran R Kidambi⁶, Robert S Weatherup⁷, Sabina Caneva¹, John Robertson⁷, Stephan Hofmann⁷, Albert Fert¹, Frederic Petroff¹, Jean-Christophe Charlier², Marie-Blandine Martin¹, Pierre Seneor¹, ¹Unite Mixte de Physique CNRS-Thales, Université Paris-Saclay (France), ²Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain (Belgium), ³Thales Research and Technology, Palaiseau (France), ⁴C2N, Université Paris-Saclay (France), ⁵Department of Materials, Imperial College London (UK), ⁶Vanderbilt University (United States of America), ⁷Department of Engineering, University of Cambridge (UK)</p>	<p>9:30 M-3-02 Influence of Strain on Multilayer Ge Nanodot Formation on SiGe Virtual Substrate °Wei-Chen Wen¹, Bernd Tillack^{1,2}, Yuji Yamamoto¹, ¹IHP - Leibniz-Institut für innovative Mikroelektronik (Germany), ²Technische Universität Berlin (Germany)</p>	<p>9:30 N-3-02 Calculation of pnp GaInSb pnp lateral HBT for Complementary Bipolar Logic Technology °Yasuyuki Miyamoto¹, Makoto Honjyo¹, Koichi Fukuda², ¹Tokyo Tech (Japan), ²AIST (Japan)</p>

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Area 8:Low Dimensional Devices and Materials A-3:Growth and Synthesis: Low Dimensional Devices and Materials	Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-3:Spintronic technologies I	Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process C-3:Advanced process of oxide semiconductors	Area 7:Organic / Molecular / Bio-electronics D-3:Advanced Lab-on-chip devices	Area 2:Advanced and Emerging Memories / New Applications E-3:DRAM	Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-3:Ferroelectric Devices
9:45 A-3-03 Evaluation of Si and Ge Segregation from Si_{0.2}Ge_{0.8}(111) through Al and Ag Layer <i>°Taiki Sakai¹, Akio Ohta², Noriyuki Taoka³, Junji Yuhara¹, Katsunori Makihara¹, Yuji Yamamoto⁴, Wei-chen Wen⁴, Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan), ²Fukuoka Univ. (Japan), ³Aichi Inst. of Tech. (Japan), ⁴IHP (Germany)</i>	9:45 B-3-04 (Late News) Ferromagnetic Semiconductor (Ga,Fe)Sb with Very High Curie Temperature (530 K) Grown on Vicinal GaAs(001) Substrates <i>°Kenta Takabayashi¹, Masaaki Tanaka^{2,3}, Pham Nam Hai^{1,3}, ¹Department of Electrical and Electronic Eng., Tokyo Inst. of Tech. (Japan), ²Department of Electrical Engineering and Info. System, The Univ. of Tokyo, Tokyo 113-8656 (Japan), ³Center for Spintronics Res. Network (CSRN), The Univ. of Tokyo, Tokyo 113-8656 (Japan)</i>	9:45 C-3-03 A Study of Stable Gallium-Tin-Oxide Thin-Film Transistors by Ultrasonic Spray Pyrolysis Deposition <i>°Hao Chun Hung¹, Wei Chou Hsu¹, Han Yin Liu², Teng Yuan Chang¹, ¹Univ. of National Cheng Kung (Taiwan), ²Univ. of National Sun Yat-sen (Taiwan)</i>	9:45 D-3-03 Immune Response To IL6 Gradient In A Diffusion-Based Microfluidic Chip <i>°parvaneh sardarabadi¹, Kang-Yun Lee², Wei-lun Sun³, Cheng-Hsien Liu⁴, ¹National Tsing Hua University (Taiwan), ²Shuang Ho Hospital (Taiwan), ³Shuang Ho Hospital (Taiwan), ⁴Univ.National Tsing Hua (Taiwan)</i>	9:45 E-3-04 "A Novel Solution to improve Static and Dynamic Retention Characteristics by Enhancing Hydrogen Passivation with in-situ LD-TEOS/TEOS Dual Layer" <i>°JIEUN LEE¹, Dongkyu Jang¹, Inkyum Lee¹, Shindeuk Kim¹, Taehoon Park¹, Hyeongsun Hong¹, ¹Samsung Electronics Corp. (Korea)</i>	9:45 F-3-04 Improved Anti-fatigue and Fatigue Recovery Capability of the HfO₂-ZrO₂ Ferroelectric Capacitors with Superlattice Structure <i>°Mingshuang Kang¹, Yue Peng¹, Wenwu Xiao², Yan Liu¹, Genquan Han^{1,3}, Yue Hao¹, ¹Wide Bandgap Semiconductor Technology Disciplines State Key Laboratory, School of Microelectronics, Xidian University (China), ²Xi'an UniIC Semiconductors Company Ltd. (China), ³Hangzhou Institute of Technology, Xidian University, Hangzhou (China)</i>
		10:00 C-3-04 Synthesis of CuAlO₂/Si heterostructures by DPDS-assisted LBL approach and their transistor characteristics <i>°MEHDI ALI¹, Daiki Yamashita¹, Hideo Isshiki¹, ¹The University of Electro -Communications, Tokyo- Japan (Japan)</i>	10:00 D-3-04 Fluorescence detection based on transparent OLED for lab-on-a-chip applications <i>°Benoît RACINE¹, Christelle LAUGIER¹, Xavier MERMET¹, Tigrane CANTAT-MOLTRECHT¹, Selimen BENAHMED¹, Erienne QUESNEL¹, Pierre BLANDIN¹, ¹CEA (France)</i>		

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	Area 5: Photonics: Devices / Integration / Related Technology H-3: New/next generation optical sources on silicon	Area 12: Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-3: Advanced Circuits and Systems	Focus Session (Area 1&2&8) K-3: CMOS and Memory Applications of Low Dimensional Materials	Area 11: Advanced Materials: Synthesis / Crystal Growth / Characterization M-3: Group IV Materials I	Area 4: Power / High-speed Devices and Materials N-3: High-speed and Advanced Technologies
	9:45 H-3-03 Exciton-Plasmon Coupling and Nonradiative Energy Transfer in TMDCs/Quantum Dots Hybrid Emitter °James Singh Konthoujam ¹ , Yen-Shou Lin ^{1,2} , Yi-Hua Pai ² , Chiao-Yun Chang ¹ , Yu-Wei Zhang ¹ , Shih-Yen Lin ¹ , Hao-Chung Kuo ^{1,2} , Min-Hsiung Shih ^{1,2} , ¹ Academia Sinica (Taiwan), ² National Yang Ming Chiao Tung University (Taiwan)	9:45 J-3-04 Low Quiescent Current LDO with FVF-Based PSRR Enhanced Circuit for EEG Recording Wearable Devices °Kenji Mii ¹ , Daisuke Kanemoto ¹ , Tetsuya Hirose ¹ , ¹ Osaka Univ. (Japan)		9:45 M-3-03 "Self-Assembling Formation of Si-QDs on SiO₂ Line-Patterns" °Ryoya Tsuji ¹ , Yuki Imai ¹ , Baek Jongeun ¹ , Katsunori Makihara ¹ , Seiichi Miyazaki ¹ , ¹ Nagoya Univ. (Japan)	9:45 N-3-03 Monolithic Fully-Controlled HEMT Bidirectional Power Switch for Compact and Efficient Power Electronics Systems °Guoliang - Peng ¹ , Wei - Mao ¹ , Cut - Yang ¹ , Longyang - Yu ¹ , Yachao - Zhang ¹ , Chunfu - Zhang ¹ , Tao - Zhang ¹ , Jincheng - Zhang ¹ , Yue - Hao ¹ , ¹ xidian university (China)
	10:00 H-3-04 Rate Equation Analysis for Deterministic and Unidirectional Lasing in Ring Resonators with an S-shaped Coupler °Zhiwei Dai ¹ , Wenbo Lin ² , Satoshi Iwamoto ^{1,3} , ¹ RCAST, Univ. of Tokyo (Japan), ² KIS, Univ. of Tokyo (Japan), ³ IIS, Univ. of Tokyo (Japan)	10:00 J-3-05 High-Efficiency and Wide-Load Current Range LDO Regulator with Dynamic Loop Gain Control Technique Yu-Lung LO ¹ , °YU-CHUN CHIU ¹ , Chia-Wen Lin ¹ , Wei-Bin Yang ² , ¹ Department of Electronic Engineering, National Kaohsiung Normal University, Kaohsiung City, Taiwan (Taiwan), ² Department of Electrical Engineering, Tamkang University, New Taipei City, Taiwan (Taiwan)	10:00 K-3-03 Enhanced Device Performance of Monolayer WSe₂ pMOSFETs by Utilizing Bi₂Te₃ S/D Contacts °Wenhsin CHANG ¹ , Shogo HATAYAMA ¹ , Yuta SAITO ¹ , Naoya OKADA ¹ , Takahiko ENDO ² , Yasumitsu MIYATA ² , Toshifumi IRISAWA ¹ , ¹ Natl. Inst. Adv. Indus. Sci. Tech. (Japan), ² Tokyo Metropolitan Univ. (Japan)	10:00 M-3-04 Formation of One-Dimensionally Self-Aligned Si-QDs and Their Local Electron Charging Properties °Yuki Imai ¹ , Katsunori Makihara ¹ , Yiji Yamamoto ² , Wei-Chen Wen ³ , Markus Andreas Schubert ² , Johgeun Baek ¹ , Ryoya Tsuji ¹ , Noriyuki Taoka ³ , Akio Ohta ⁴ , Seiichi Miyazaki ¹ , ¹ Nagoya Univ. (Japan), ² IHP (Germany), ³ Aichi Inst. of Tech. (Japan), ⁴ Fukuoka Univ. (Japan)	10:00 N-3-04 Recess Ohmic contact to AlGaIn/GaN heterostructure using single or hybrid electrode structures °Kazuya Uryu ^{1,2} , Yuchen Deng ¹ , Toshi-kazu Suzuki ¹ , ¹ Japan Advanced Inst. of Sci. and Tech. (Japan), ² Advantest Lab. Ltd. (Japan)
				10:15 M-3-05 (Late News) Optical Material Properties of Epitaxial SiGe/Si Multi-Layers Used for Complementary FET Devices °Roger Loo ¹ , Andriy Hikavyi ¹ , Dong Wang ² , Keisuke Yamamoto ² , Tamás Sipőcz ³ , Árpád Kerekes ³ , Anjani Akula ⁴ , Yosuke Shimura ¹ , ¹ Imec (Belgium), ² Kyushu Univ (Japan), ³ Semilab Semiconductor Physics Lab. Corp. (Hungary)	

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<p>Area 8:Low Dimensional Devices and Materials A-4:Characterization II: Low Dimensional Devices and Materials</p> <p>(10:45-11:45) Session Chair: Masafumi Jo (RIKEN), Takayuki Arie (Osaka Metropolitan Univ.)</p>	<p>Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-4:Spintronic technologies 2</p> <p>(10:45-11:45) Session Chair: Michael Quinsat (KIOXIA), Nozomi Nishizawa (Kitasato Univ.)</p>	<p>Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-4:Photovoltaics</p> <p>(10:45-12:00) Session Chair: Takeshi Tayagaki (AIST), Seira Yamaguchi (Univ. of Tsukuba)</p>	<p>Area 7:Organic / Molecular / Bio-electronics D-4:High-sensitive devices for chem/bio detection 1</p> <p>(10:45-12:00) Session Chair: Huang-Ming Philip CHEN (NYCU), Ryugo Tero (ToyoHashi Univ. of Technology)</p>	<p>Area 2:Advanced and Emerging Memories / New Applications E-4:3D NAND</p> <p>(10:45-12:00) Session Chair: Keiji Hosotani (KIOXIA), Ming-Hsiu Lee (Macronix International Co., Ltd)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-4:Innovative Devices and Sensing Technology</p> <p>(10:45-11:45) Session Chair: Hidetoshi Oishi (Sony Semiconductor Solutions Corp.), Nobuyuki Mise (Hitachi High-Tech Corp.)</p>
<p>10:45 A-4-01 From h-BN to graphene: comprehensive structural characterizations of hybrid carbon-doped h-BN to understand its electrical conductivity °Supawan Ngamprapawat¹, Jimpei Kawase¹, Tomonori Nishimura¹, Kenji Watanabe², Takashi Taniguchi², Kosuke Nagashio¹, ¹Univ. of Tokyo (Japan), ²NIMS (Japan)</p>	<p>10:45 B-4-01 (Invited) Electron- and Magnon-Mediated Spin Torque based on Topological Materials °Yi Wang¹, Fanyu Meng¹, Ying Feng¹, Wenbo Li¹, Tuo Zhang¹, Hyunsoo Yang², ¹Dalian University of Technology (China), ²National University of Singapore (Singapore)</p>	<p>10:45 C-4-01 (Invited) High efficiency perovskite/crystalline silicon tandem solar cells: Towards industrial-sized cell and module °Daisuke Adachi¹, Ryota Mishima¹, Hisashi Uzu¹, Kenji Yamamoto¹, ¹Kaneka Corp. (Japan)</p>	<p>10:45 D-4-01 (Invited) Simple & Rapid Virus Detection by Integrated Graphene FET Array with Automated Solution Exchange System °Kazuhiko Matsumoto¹, Kaori Yamamoto¹, Natsuki Sato¹, Kiyoji Sakano¹, Takao Ono¹, Yasushi Kanai¹, Hidekazu Tanaka¹, Shota Ushiba¹, Naruto Miyakawa², Shinsuke Tani², Masahiko Kimura², ¹Osaka Univ. (Japan), ²Murata Manufacturing Co., Ltd. (Japan)</p>	<p>10:45 E-4-01 (Invited) Polysilicon channel in 3-D NAND: Challenges and Strategies for Improvement °Sivaramkrishnan Ramesh¹, ¹imec (Belgium)</p>	<p>10:45 F-4-01 On-Wafer 3D E-beam Detector Cube by FinFET CMOS Technologies Yi-Han Huang¹, Kuan-Chung Chiu¹, °Yu-Jie Teng¹, Burn Jeng Lin¹, Jiaw-Ren Shih², Faith Yuh², Yue-Der Chih², Jonathan Chang², Chrong Jung Lin¹, Ya-Chin King¹, ¹Inst. of Electronics Engineering, National Tsing Hua Univ. (Taiwan), ²Taiwan Semiconductor Manufac. Company (Taiwan)</p>
<p>11:00 A-4-02 Characterization of Nanowire Light-Emitting Diodes with InP/InAsP Heterostructures Emitting in Telecom Band Manami Okamoto¹, Tomoya Akamatsu¹, Katsuhiro Tomioka¹, °Junichi Motohisa¹, ¹Hokkaido Univ. (Japan)</p>					<p>11:00 F-4-02 New module and sensor optic design to reduce petal flare in CMOS image sensor °Hye Yeon Park¹, Sang-In Bae¹, Yunki Lee¹, Tao Feng², Tong Cheng², Peide Li², Wei Zhang², Baotan Jiang², Jinmyoung Mok¹, Younggyu Jeong¹, Kyoungyong Choi¹, Bumsuk Kim¹, Jungchak Ahn¹, ¹Samsung Electronics (Korea), ²vivo Communication Technology Co. Ltd (China)</p>
<p>11:15 A-4-03 Strong Gate Modulation Effect in Nanoscale TiN Channels °Yu-An Lai¹, Chin-Te Wang¹, Yu-An Chou¹, Shun-Tsung Lo¹, Thi Hien Do¹, Sheng-Di Lin¹, ¹National Yang Ming Chiao Tung University (Taiwan)</p>	<p>11:15 B-4-02 Circular photogalvanic effect in spin-splitting metallic state at the surface of SrTiO₃ substrates °Mahiro Yamamoto^{1,2}, Taiki Nishijima^{1,2}, Ryo Ohshima^{1,2}, Yuichiro Ando^{1,2,3}, Masashi Shiraishi^{1,2}, ¹Kyoto Univ. (Japan), ²CSRN Kyoto Univ. (Japan), ³PRESTO (Japan)</p>	<p>11:15 C-4-02 Germanium foils with adjustable thickness based on epitaxial growth from GeCl₄ and lift-off for lower environmental footprint multijunction solar cells °Valérie Depaun^{1,2,3}, Guillaume Courtois⁴, Jinyoun Cho⁴, Kristof Dessein⁴, Clément Porret⁴, Roger Loo¹, ¹imec (Belgium), ²Univ. Hasselt (Belgium), ³EnergyVille (Belgium), ⁴Umicore (Belgium)</p>	<p>11:15 D-4-02 The Detection of Cortisol in Artificial Serum Using AttoSense-FET Biosensors °Daisy Cheng¹, Yi-Chan Lee¹, Shi-Wei Lin¹, Hsiao-Chung Tsai², Hsi-Teng Kao¹, ¹Sunplus Technology Co., Ltd. (Taiwan), ²ProtectLife International Biomedical Inc (Taiwan)</p>	<p>11:15 E-4-02 Compact Thermally Stable High Voltage FinFET with 40nm Top and Lateral Break-Down>35V for 3D NAND Flash Periphery Application °Alessio Spessot¹, Philippe Matagne¹, Hiroaki Arimura¹, Jishnu Ganguly¹, Romain Ritzenthaler¹, Joao Bastos¹, Ritam Sarkar¹, Elena Capogreco¹, Yangyin Chen^{1,2}, Naoto Horiguchi¹, ¹imec (Belgium), ²Western Digital (Belgium)</p>	<p>11:15 F-4-03 Experimental observation of negative differential resistance in GeSn/GeSiSn double barrier structure toward resonant tunneling diode applications °Shuto Ishimoto¹, Mitsuo Sakashita¹, Masashi Kurosawa¹, Osamu Nakatsuka¹, Shigehisa Shibayama¹, ¹Nagoya Univ. (Japan)</p>
<p>11:30 A-4-04 Thermal Desorption Study of PCz-sorted SWCNTs for Electronic Hourglass Device °Yang Xu¹, Jiayi Wang¹, Nannan You¹, Hong Dong², Weihua Wang³, Xuelei Liang⁴, Shengkai Wang^{2,3}, ¹Inst. of Microelectronics of Chinese Academy of Sci. (China), ²Univ. of Chinese Academy of Sci. (China), ³Department of Electronic Sci. and Eng. and Tianjin Key Lab. of Photo-Electronic Thin Film Device and Tech., Nankai Univ. (China), ⁴Key Lab. for the Physics and Chemistry of New Device, Peking Univ. (China)</p>	<p>11:30 B-4-03 Annealing temperature effects on spin orbit torque in YPtBi topological semimetal and Co/Pt perpendicular magnetization multilayers °Sho Kagami¹, Takanori Shirokura¹, Pham Nam Hai¹, ¹Tokyo Institute of Technology (Japan)</p>	<p>11:30 C-4-03 Improvement of PbS quantum dot superlattice solar cells by using iodide ligands °Seiya Ikeda¹, Ibuki Masuda¹, Hayato Sato¹, Kohki Mukai¹, ¹Yokohama National Univ. (Japan)</p>	<p>11:30 D-4-03 High-sensitivity, low-power FET-type NO₂ gas sensor using electron concentration control of gas-sensing material °Gyuweon Jung¹, Kangwook Choi¹, Wonjun Shin¹, Jinwook Park¹, Donghee Kim¹, Jaehyeon Kim¹, Hunhee Shin¹, Chayoung Lee¹, Woo Young Choi¹, Jong-Ho Lee¹, ¹Seoul National Univ. (Korea)</p>	<p>11:30 E-4-03 The Effect of Crystallinity of Channel Silicon Formed by Two Different Metal Induced Lateral Crystallization (MILC) on Cell Current Distribution in 3D Flash Memory °Haruki Matsuo¹, Hiroki Yamashita¹, Yusuke Shimada¹, Noritaka Ishihara¹, Satoshi Seto¹, Sho Morita¹, Masafumi Ukishima¹, Kazuya Uejima¹, Yusuke Arayashiki¹, Suzuka Kajiwara¹, Akiyuki Murayama¹, Katsuya Nishiyama¹, Kikuko Suhimae¹, Shinji Mori¹, Yuta Saito¹, Takeshi Shundo¹, Yurika Kanno¹, Hiroyuki Kamiya², Yasuhiro Uchiyama¹, Fumiki Aisou¹, Katsuyuki Sekine¹, Norio Ohtani¹, ¹Kioxia Corp. (Japan), ²Western Digital Corp. (United States of America)</p>	<p>11:30 F-4-04 Integrate-and-Fire Operation with Signal Amplification by using "Dual-Gate PN-Body Tied SOI-FET" °Haruki Yonezaki¹, Takayuki Mori¹, Jiro Ida¹, ¹Kanazawa Inst. of Tech. (Japan)</p>

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<p>Area 3:Interconnect / 3D Integrations / MEMS G-4:Advanced Metallization II</p> <p>(10:45-12:00) Session Chair: Xun Gu (ASM Japan), Takeo Minari (NIMS)</p>		<p>Area 12:Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-4:Circuit Reliability and Image Sensors</p> <p>(10:45-12:00) Session Chair: Takeshi Yoshida (Hiroshima Univ.), Keita Yasutomi (Shizuoka Univ.)</p>	<p>Focus Session (Area 1&2&10) K-4:Oxide Semiconductors for Logic and Memory</p> <p>(10:45-12:15) Session Chair: Mamoru Furuta (Kochi Univ. of Technology), Kasidit Toprasertpong (Univ. of Tokyo)</p>	<p>Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-4:Group IV Materials II</p> <p>(10:45-12:00) Session Chair: Akira Heya (Univ. of Hyogo), Taizoh Sadoh (Kyushu Univ.)</p>	<p>Area 4:Power / High-speed Devices and Materials N-4:Si-based Power Devices</p> <p>(10:45-12:00) Session Chair: Tetsuya Nitta (Mitsubishi Electric Corporation), Yuichi Onozawa (Fuji Electric Corporation)</p>
<p>10:45 G-4-01 (Late News) Moisture Barrier Properties of Microwave Plasma-Enhanced CVD Graphene Using Greenhouse Gases for Cu Metallization °Ploybussara Gomasang^{1,4}, Masayoshi Umeno², Kazuyoshi Ueno^{3,4}, ¹Dept. of Electrical Eng., Silpakorn Univ. (Thailand), ²C's Techno Inc. (Japan), ³Dept. of Electronic Eng., Shibaura Inst. of Tech. (Japan), ⁴Int'l Res. Center for Green Electronics, SIT (Japan)</p>		<p>10:45 J-4-01 (Invited) Circuit-level Insight into Reliability Issues of Si-based Semiconductor Chips °Kazutoshi Kobayashi¹, ¹Kyoto Inst. of Tech. (Japan)</p>	<p>10:45 K-4-01 (Invited) Oxide Semiconductor Devices for Back-End-of-Line Applications °Xiao Gong¹, ¹National Univ. of Singapore (Singapore)</p>	<p>10:45 M-4-01 Thin and Locally Dislocation-Free SiGe Virtual Substrate Fabrication by Lateral Selective Epitaxy °Yuji Yamamoto¹, Wei-Chen Wen¹, Markus Andreas Schubert¹, Agnieszka Anna Corley-Wieczak¹, Sho Sugawa², Yuta Ito², Ryo Yokogawa², Atsushi Ogura², Bernd Tillack^{1,3}, ¹IHP - Leibniz-Institut für innovative Mikroelektronik (Germany), ²School of Sci. and Tech., Meiji Univ. (Japan), ³Technische Universität Berlin (Germany)</p>	<p>10:45 N-4-01 Grid-Patterned Trench IGBT for 1.2kV HEV/PHEV Silicon Power Devices °Satoru Machida¹, Yusuke Yamashita¹, Jun Saito², Masaru Senoo³, ¹Toyota Central R&D Labs. Inc. (Japan), ²MIRISE Tech. Corp. (Japan), ³DENSO Corp. (Japan)</p>
<p>11:00 G-4-02 Dielectric Breakdown of Low Temperature Deposited SiCN Layers °Lin Hou¹, Venkat Sunil Kumar Channam², Alicja Lesniewska², Serena Lacovo², Shuo Kang², Joeri De Vos², Anne Jourdain², Gerald Beyer², Kristof Croes², Edward Walsby³, Kath Crook³, Igor Belov³, Yangyin Chen¹, Yan Li¹, Eric Beyne², ¹Western Digital (United States of America), ²IMEC (Belgium), ³SPTS (United States of America)</p>		<p>11:15 J-4-02 Total Ionizing Dose Effect by Gamma-ray Irradiation and Recovery Phenomenon by Applying High Gate Bias to Commercial SiC Power MOSFETs °Masatoshi Mizushima¹, Kazutoshi Kobayashi¹, Jun Furuta¹, ¹Kyoto Inst. of Tech. (Japan)</p>	<p>11:15 K-4-02 (Invited) IGZO FET for Capacitorless DRAM Application Xinlv Duan¹, Guanhua Yang¹, Ling Li¹, °Ming Liu^{1,2}, ¹Inst. of Microelectronics, Chinese Academy of Sci. (China), ²Fudan Univ. (China)</p>	<p>11:15 M-4-02 High-Quality Ge Epitaxial Film Based on Dislocation Trapping Mechanism in Patterned Si Substrate °MOHD FAIZ BIN AMIN¹, Jose A. Piedra-Lorenzana¹, Keisuke Yamane¹, Takeshi Hizawa¹, Tetsuya Nakai², Yasuhiko Ishikawa¹, ¹Toyohashi Univ. of Tech. (Japan), ²SUMCO Corp. (Japan)</p>	<p>11:00 N-4-02 Restoration of Degraded Reverse Bias Safety Operating Area (RBSOA) in 3300V Scaled IGBTs by Non-Proportional Scaling Method °Xiang Zhou¹, Munetoshi Fukui¹, Kiyoshi Takeuchi¹, Takuya Saraya¹, Wataru Saito², Toshiro Hiramoto¹, ¹The Univ. of Tokyo (Japan), ²Kyushu Univ. (Japan)</p>
<p>11:15 G-4-03 Effects of Tri-Methyl-Aluminum Introduced into Vinylsilane on SiC Thin Film by Using Chemical Vapor Deposition °Yuuki Tsuchizumi¹, Kennichi Uehara², Sigeo Yasuhara², Wakana Takeuchi¹, ¹Aichi Inst. of Tech. (Japan), ²Japan Advanced Chemicals Ltd. (Japan)</p>				<p>11:15 M-4-03 Seed-layer driven solid phase epitaxy of amorphous Ge_{1-x}Sn_x layers on Si(001) substrates toward in-plane strain control °Tatsuma Hiraide¹, Masashi Kurosawa¹, Shigehisa Shibayama¹, Mitsuo Sakashita¹, Osamu Nakatsuka¹, ¹Nagoya Univ. (Japan)</p>	<p>11:15 N-4-03 Study on Stress in Trench Structures during Silicon IGBTs Process – Oxidation °Bozhou Cai¹, Jiuyang Yuan¹, Yoshiji Miyamura¹, Wataru Saito¹, Shin-ichi Nishizawa¹, ¹Univ. of Kyushu (Japan)</p>
<p>11:30 G-4-04 Electrical Properties of Reactive Sputtered Ti or V -based MAX alloy Thin Films °Kazuki Ueda¹, Kazunobu Wakamatsu¹, Takeyasu Saito¹, Naoki Okamoto¹, ¹Osaka Metropolitan University (Japan)</p>		<p>11:30 J-4-03 Gate-controlled Gain Tuning of FDSOI-based 1T Pixel for In-Sensor White Balance °Jiaqi Li¹, Zheng Zhou¹, Guihai Yu¹, Haozhang Yang¹, Ruiqi Chen¹, Nan Tang¹, Peng Huang¹, Xiaoyan Liu¹, Jinfeng Kang¹, ¹School of Integrated Circuits, Peking Univ. (China)</p>		<p>11:30 M-4-04 Various Metal Contacts on Polycrystalline Ge with Amorphous Interlayer Formed by ZrN Sputter-Deposition °Kenta Moto¹, Kaoru Toko², Tomonari Takayama¹, Takamitsu Ishiyama², Keisuke Yamamoto¹, ¹Kyushu Univ. (Japan), ²Univ. of Tsukuba (Japan)</p>	<p>11:30 N-4-04 Wafer Warpage Modeling for Process Integration of Trench Field Plate Power MOSFETs °Hiroaki Kato¹, Bozhou Cai¹, Jiuyang Yuan¹, Yoshiji Miyamura¹, Shin-ichi Nishizawa¹, Wataru Saito¹, ¹Kyushu Univ. (Japan)</p>

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Room A (131+132, Bldg. 1)	Room B (133+134, Bldg. 1)	Room C (221, Bldg. 2)	Room D (222, Bldg. 2)	Room E (223, Bldg. 2)	Room F (224, Bldg. 2)
Area 8:Low Dimensional Devices and Materials A-4:Characterization II: Low Dimensional Devices and Materials	Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-4:Spintronic technologies 2	Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-4:Photovoltaics	Area 7:Organic / Molecular / Bio-electronics D-4:High-sensitive devices for chem/bio detection 1	Area 2:Advanced and Emerging Memories / New Applications E-4:3D NAND	Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-4:Innovative Devices and Sensing Technology
		11:45 C-4-04 Growth of Epitaxial BaSi₂ Films with Carrier Lifetime over 2 μs by Close-Spaced Evaporation <i>[*]Kosuke O. Hara¹, Ryota Takagaki¹, Keisuke Arimoto¹, Noritaka Usami², ¹Univ. of Yamanashi (Japan), ²Nagoya Univ. (Japan)</i>	11:45 D-4-04 Enhancing Gas Sensing Performance of Graphene through Strain-Induced Modulation of Gas Adsorption Behavior <i>^oXiangyu Qiao¹, Meng Yin¹, Ken Suzuki², Hideo Miura³, ¹Graduate School of Engineering, Tohoku Univ. (Japan), ²Green X-tech Research Center, Tohoku Univ. (Japan), ³Fracture and Reliability Research Inst. Tohoku Univ. (Japan)</i>	11:45 E-4-04 Optimization of Cell to Cell Space Material on 3D NAND Flash Memory <i>^oDaewoong Kang¹, Inyoung Lee², Yunjae Oh², Yunjae Suh³, Il Hwan Cho², ¹Seoul National University (Korea), ²Myongji Univ. (Korea), ³Soongsil Univ. (Korea)</i>	

Short Oral Presentation

(13:30-13:56) Area 8 (PS-8): Low Dimensional Devices and Materials Session Chair: Shu Nakaharai (Tokyo Univ. of Technology)	(13:30-13:48) Area 9 (PS-9): Novel Functional / Quantum / Spintronic Devices and Materials Session Chair: Kenichi Aoshima (NHK STRL), Tetsuo Kodera (Tokyo Tech)	(13:30-13:48) Area 6 (PS-6): Photovoltaics / Energy Harvesting / Battery-related Technology Session Chair: Takeshi Tayagaki (AIST)	(13:30-13:46) Area 7 (PS-7): Organic / Molecular / Bio-electronics Session Chair: Ryugo Tero (Toyohashi Univ. of Technology), Huang-Ming Philip Chen (NYCU)	(13:30-13:50) Area 10 (PS-10): Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process Session Chair: Kaoru Toko (Univ. of Tsukuba), Ryo Matsumura (NIMS)	(13:30-14:00) Area 1 (PS-1): Advanced CMOS: Material Science / Process Engineering / Device Technology Session Chair: Hidetoshi Oishi (Sony Semiconductor Solutions Corp.), Keisuke Yamamoto (Kyushu Univ)
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Rump Session (Room F (224, Bldg. 2))

(17:30-19:30)

Organizer: Jun Suda, Nagoya Univ. (Japan)

Expectations of semiconductor devices and materials for Automotive applications

Kazuoki Matsugatani, Denso Corp. (Japan)

Thursday, September 7

Room G (231, Bldg. 2)	Room H (232, Bldg. 2)	Room J (233, Bldg. 2)	Room K (234, Bldg. 2)	Room M (431, Bldg. 4)	Room N (432, Bldg. 4)
Area 3: Interconnect / 3D Integrations / MEMS G-4: Advanced Metallization II		Area 12: Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-4: Circuit Reliability and Image Sensors	Focus Session (Area 1&2&10) K-4: Oxide Semiconductors for Logic and Memory	Area 11: Advanced Materials: Synthesis / Crystal Growth / Characterization M-4: Group IV Materials II	Area 4: Power / High-speed Devices and Materials N-4: Si-based Power Devices
11:45 G-4-05 Photoelectrical Characterization of Heavily-doped p-SiC Schottky Contacts <i>°Hiroki Imabayashi¹, Hitose Sawazaki¹, Haruto Yoshimura¹, Masashi Kato², Kenji Shiojima¹, ¹Univ. of Fukui (Japan), ²Nagoya Inst. of Tech. (Japan)</i>		11:45 J-4-04 A High-Accuracy Time-of-Flight Image Sensor Using Cascaded 4-Tap Demodulators and Dual-Phase Short-Pulse Modulation <i>°HYEUN WOO KWEN¹, Hiroaki Nagae¹, Keita Yasutomi², Keiichiro Kagawa², Shoji Kawahito², ¹Graduate School of Integrated Sci. and Tech., Shizuoka Univ. (Japan), ²Res. Inst. of Electronics, Shizuoka Univ. (Japan)</i>	11:45 K-4-03 Vertical-Channel Oxide Semiconductor FET with Off-State Leakage Current of 4.6 zA/μm <i>°Masashi Oota¹, Toshiaki Hamada¹, Minato Ito¹, Toshiaki Mizuguchi¹, Hidetomo Kobayashi¹, Takanori Matsuzaki¹, Hiromi Sawai¹, Hitoshi Kunitake¹, Tatsuya Onuki¹, Hajime Kimura¹, Shunpei Yamazaki¹, ¹Semiconductor Energy Laboratory Co., Ltd. (Japan)</i> 12:00 K-4-04 A Thin TiN, Layer on Pt Electrode Based Hf_{0.35}Zr_{0.65}O₂ Ferroelectric Memory <i>°Asim Senapati¹, Zhao-Feng Lou², Fu-Sheng Chang², Yu-Rui Chen², Yi-Pin Chen^{1,3}, Shih-Yin Huang^{3,4}, Siddheswar Maikap^{1,3}, Chee-Wee Liu¹, Min-Hung Lee², ¹Chang Gung Univ. (Taiwan), ²National Taiwan Univ. (Taiwan), ³Keelung Chang Gung Memorial Hospital (Taiwan), ⁴Chang Gung University College of Medicine (Taiwan)</i>	11:45 M-4-05 Giant thermoelectric power of n-type Si_{1-x}Sn_x layers grown on FZ-Si(001) substrates <i>°Tatsuki Oiwa¹, Shigehisa Shibayama¹, Mitsuo Sakashita¹, Osamu Nakatsuka¹, Takayoshi Katase², Masashi Kurosawa¹, ¹Nagoya Univ. (Japan), ²Tokyo Tech. (Japan)</i>	11:45 N-4-05 Drain Leakage Current Control of Si Power MOSFETs with Fast Recovery Diodes <i>°Hiroki Nemoto¹, Tsuyoshi Kachi¹, Hiroaki Kato¹, Katsura Miyashita¹, ¹Toshiba Electronic Devices & Storage Corp. (Japan)</i>

Short Oral Presentation					
(13:30-13:46) Area 3 (PS-3): Interconnect / 3D Integrations / MEMS Session Chair: Kenji Shiojima (Univ. of Fukui), Takeo Minari (NIMS)	(13:30-13:52) Area 5 (PS-5): Photonics: Devices / Integration / Related Technology Session Chair: Nobuhiko Ozaki (Wakayama Univ.)	(13:30-13:42) Area 12 (PS-12): Advanced Circuits / Systems Interacting with Innovative Devices and Materials Session Chair: Mahfuzul Islam (Kyoto Univ.), Yasuhiro Ogasahara (AIST)	(13:30-14:18) Area 2 (PS-2): Advanced and Emerging Memories / New Applications Session Chair: Atsushi Himeno (Panasonic Holdings Corporation), Ming-Hsiu Lee (Macronix International Co., Ltd)	(13:30-14:10) Area 11 (PS-11): Advanced Materials: Synthesis / Crystal Growth / Characterization Session Chair: Shingo Ogawa (Toray Research Center, Inc.), Taizoh Sadoh (Kyushu Univ.)	(13:30-14:04) Area 4 (PS-4): Power / High-speed Devices and Materials Session Chair: Heiji Watanabe (Osaka Univ.), Taketomo Sato (Hokkaido Univ.)

Rump Session (Room F (224, Bldg. 2))

Thursday, September 7

Poster Session (15:00-17:00) Shirotori Hall

01: Advanced CMOS: Material Science / Process Engineering / Device Technology

PS-1-01

Amorphous Si-rich Mo silicide films for advanced source/drain contacts

[°]Naoya Okada¹, Noriyuki Uchida¹, Toshihiko Kanayama¹, ¹AIST (Japan)

PS-1-02

A Simple Way to Fabricate Si N-/P-Channels CFET Using Si/Ge Multilayer Epitaxy, Direct S/D Implantation and Ge Selective Etching

[°]Guang-Li Luo¹, Chun-Lin Chu¹, Szu-Hung Chen¹, Wei-Yuan Chang¹, Wen-Fa Wu¹, ¹Taiwan Semiconductor Research Institute (Taiwan)

PS-1-03

Effects of HfO₂ and ZrO₂ Seed Layers on the Transition from Antiferroelectric (AFE) to Ferroelectric (FE) of Rich Zr Composition HfO₂-based Film

[°]Peilin Zeng¹, Yue Peng¹, Wenwu Xiao², Yan Liu¹, Genquan Han^{1,3}, Yue Hao¹, ¹Wide Bandgap Semiconductor Technology Disciplines State Key Laboratory, School of Microelectronics, Xidian University (China), ²Xi'an UnilC Semiconductors Company Ltd. (China), ³Hangzhou Institute of Technology, Xidian University, Hangzhou (China)

PS-1-04

Generative Adversarial Network Applied to Neuroevolution-based Compact Device models

[°]Bing-Ru Jiang¹, Han-Chun Tung¹, Ting Tsai¹, Ming-Hsien Hsu¹, Albert Lin¹, Pei-Wen Li¹, ¹Natioanl Yang Ming Chiao Tung University (Taiwan)

PS-1-05

Effective Detection of Micro-Potential Analytes with Self-Sensitivity Programmable pH Sensor Platform Based on a Multi-Functional Charge-Trap-Flash-Type Ion-Sensitive-Field-Effect-Transistor

[°]Yeong-Ung Kim¹, Won-Ju Cho¹, ¹Kwangwoon Univ. (Korea)

PS-1-06

Investigation of SiGe/Si Super Lattice GAAFET and CMOS Inverter

[°]Heng-Jia Chang¹, Yi-Ju Yao², Ching-Ru Yang¹, Ting-Yu Tseng¹, Tsai-Jung Lin², Guang-Li Luo³, Fu-Ju Hou¹, Yung-Chun Wu¹, ¹Department of Engineering and System Science, National Tsing Hua University (Taiwan), ²College of Semiconductor Research, National Tsing Hua University (Taiwan), ³Taiwan Semiconductor Research Institute (Taiwan)

PS-1-07

Robustness of ferroelectric domain walls in Hf_{0.5}Zr_{0.5}O₂ thin films investigated by ac-signal response of dielectric properties

[°]Shinji Migita¹, Shutaro Asanuma¹, Yukinori Morita¹, Hiroyuki Ota¹, ¹AIST (Japan)

PS-1-08

Double-Gated Ferroelectric-Gate Field-Effect-Transistor for Multi-Bit Content-Addressable Memories

[°]Hongrui Zhang¹, Jiajia Chen¹, Chengji Jin¹, Gaobo Lin¹, Yan Liu², Xiao Yu¹, Genquan Han², ¹Zhejiang Lab, Hangzhou 311121 (China), ²Xidian University, Xi'an 710071 (China)

PS-1-09

Mobility Modeling of Nanosheet FET's using Poisson-Schrodinger, Cellular Automaton Coupled Approach

[°]Koichi Fukuda¹, ¹AIST (Japan)

PS-1-10

Comparative Study of Radiation Damage Effects on FinFET and GAAFET

[°]Ching-Hung Chang¹, Kuei-Shu Chang-Liao¹, Dun-Bao Ruan², ¹National Tsing Hua University (Taiwan), ²Fuzhou University (China)

PS-1-11

A DNN-Based Compact Modeling Technique for GAA Si NS FETs and Its Application in CMOS Circuit Simulation

[°]Rajat - Butola¹, [°]Sekhar Reddy Kola¹, Yiming Li¹, ¹National Yang Ming Chiao Tung Univ. (Taiwan)

PS-1-12

Engineering Oxidation State in Interfacial Layer of Ge nMOSFET with Ozone and Hydrogen Plasma Treatments on Ge

[°]Cheng-Hsueh Wu¹, Kuei-Shu Chang-Liao¹, Dun-Bao Ruan², ¹National Tsing Hua University (Taiwan), ²Fuzhou University (China)

PS-1-13

Vertical Gate-All-Around SiGeSn/GeSn/SiGeSn Nanowire nFETs

[°]Yannik Junk¹, Omar Concepción Diaz¹, Marvin Frauenrath^{2,3}, Florian Bärwolf¹, Andreas Mai¹, Jean-Michel Hartmann^{2,3}, Detlev Grünzmacher¹, Dan Buca¹, [°]Qing-Tai Zhao¹, ¹Peter-Grünberg-Institut (PGI-9) and JARA-FIT, Forschungszentrum Jülich (Germany), ²CEA-LETI, MINATEC Campus, F-38054 Grenoble (France), ³Univ. of Grenoble Alps (France), ⁴IHP-Leibniz-Institut für innovative Mikroelektronik, 15236 Frankfurt (Oder) (Germany)

PS-1-14

Nano CMOS Devices Layout Optimization for Super-350GHz f_{MAX} in mmWave and Sub-THz CMOS Applications

[°]Adhi Cahyo Wijaya¹, Jing Min Lin¹, Jyh Chyurn Guo¹, ¹National Yang Ming Chiao Tung University (Taiwan)

PS-1-15

Enhancing Perceptual Artificial Intelligence Systems with a Dynamically Reconfigurable CMOS-Compatible Synaptic Transistor

[°]Dong Hee LEE¹, Won-Ju Cho¹, ¹Kwangwoon university, Korea (Korea)

02: Advanced and Emerging Memories / New Applications

PS-2-01 (Late News)

Analysis of Inference Accuracy of Convolutional Neural Networks due to Quantization of Weights, Gradients, Input and Output Signals Stemming from Computation-in-Memory

[°]Adil Padiyal¹, Ayumu Yamada¹, Naoko Misawa¹, Chihiro Matsui¹, Ken Takeuchi¹, ¹The University of Tokyo (Japan)

PS-2-02 (Late News)

Enhanced Ferroelectricity of HfZrO₂-based Ferroelectric Capacitors by Quenching with Liquid Nitrogen

[°]Chun-I Kuo¹, Kai-Sheun Lee¹, Yi-Fan Chen¹, Yung-Hsien Wu¹, ¹Department of Engineering and System Science National Tsing Hua Univ. (Taiwan)

PS-2-03

Physical Insights into Depolarization Field, Sweeping Speed and Interfacial Layer Effect of 4.5V Ultra-Wide Memory Window and Long Endurance Ferroelectric HZO Memory

[°]Yu Tzu Tsai¹, Zeng Kai Chen¹, Sheng Min Wang¹, Cheng Rui Liu¹, Yu Ting Chen¹, Zi Rong Huang¹, Chia Shuo Pai¹, Ying Tsan Tang^{*1}, ¹National Central Univ. (Taiwan)

PS-2-04

Remnant Polarization Enhancement in Ferroelectric HfO₂ Thin Films Induced by Mechanical Uniaxial Tensile Strain during Polarization Switching

[°]Tatsuya Inoue¹, Takashi Onaya², Koji Kita^{1,2}, ¹Dept. of Materials Engineering, The Univ. of Tokyo (Japan), ²Dept. of Advanced Materials Science, The Univ. of Tokyo (Japan)

PS-2-05

Improved Stable Memory Window of the Germanium Ferroelectric Field-Effect Transistor with ZrO₂-HfO₂-ZrO₂ Superlattice Gate Dielectric

[°]Kaixuan Li¹, Yue Peng¹, wenwu xiao², Yan Liu¹, Genquan Han¹, Yue Hao¹, ¹Wide Bandgap Semiconductor Technology Disciplines State Key Laboratory, School of Microelectronics, Xidian University (China), ²Xi'an UnilC Semiconductors Company Ltd. (China)

PS-2-06

Bilayer Type of Hf_{0.5}Zr_{0.5}O₂-based Ferroelectric and Anti-ferroelectric Tunneling Junction

[°]Fu-Sheng Chang¹, Kuo-Yu Hsiang^{2,1}, Jia-Yang Lee¹, Zhao-Feng Lou¹, Zong-Han Li¹, Jia-Hong Chen¹, Cheng-Hong Liu¹, Ming Han Liao², Chee Wee Liu^{1,2}, Min Hung Lee¹, ¹Graduate School of Advance Tech., National Taiwan Univ. (Taiwan), ²Graduate Institute of Electronics Eng., National Taiwan Univ. (Taiwan), ³Inst. of Electronics, National Yang Ming Chiao Tung University (Taiwan), ⁴Inst. and Undergraduate Program of Electro-Optical Eng., National Taiwan Normal Univ. (Taiwan), ⁵Department of Mechanical Eng., National Taiwan Univ. (Taiwan)

PS-2-07

Comparative Study of Variability in FeFET Memories with Different Erase Voltages

[°]JAY LIU¹, Cheng-Hung Wu¹, Masaharu Kobayashi², Chun-Jung Su³, Vita Pi-Ho Hui¹, ¹National Taiwan Univ. (Taiwan), ²Univ. of Tokyo (Japan), ³National Yang Ming Chiao Tung Univ. (Taiwan)

PS-2-08

The Study of Trap Evolution by Gate Leakage Current in Hf_{0.5}Zr_{0.5}O₂ FeFET During Endurance Fatigue

[°]Fengbin - Tian¹, Xiaoqing - Sun¹, Shuangshuang - Xu¹, Songwei - Li¹, Junshuai - Chai¹, Hao - Xu¹, Xiaolei - Wang¹, Wenwu - Wang², ¹Institute of Microelectronics of the Chinese Academy of Sciences (China), ²Bureau of Major R&D Program Chinese Academy of Sciences (China)

PS-2-09

Design Space Exploration of Dual-Port FeFET for Low-Voltage Applications

[°]Chen-Wei Huang¹, Pin Su¹, ¹National Yang Ming Chiao Tung University (Taiwan)

PS-2-10

Ab initio investigation of defects in AlScN wurtzite ferroelectric memory materials

[°]Qiang Wang^{1,2}, [°]Shao-Xiang Go¹, Desmond Loke¹, ¹Singapore University of Technology and Design (Singapore), ²Agency for Science, Technology and Research (A*STAR) (Singapore)

PS-2-11

Influence of H₂ in Reactive Sputtering of Ferroelectric AlScN Films

[°]Si-Meng Chen¹, Sung-Lin Tsai¹, Takuya Hoshii¹, Hitoshi Wakabayashi¹, Kazuo Tsutsui¹, Kuniyuki Kakushima¹, ¹Tokyo Inst. of Tech. (Japan)

PS-2-12

Highly Reliable Dual-mode Memristor with Digital and Analog Features

[°]Dong Hoon Shin¹, Taegyun Park¹, Yeong Rok Kim¹, Cheol Seong Hwang¹, ¹Seoul National Univ. (Korea)

PS-2-13

Finite element analysis of oxygen vacancy behavior in four-terminal TiO_{2-x} memristive devices

[°]Yuki Koizumi¹, Ryotaro Miyake¹, Yusuke Hayashi¹, Tetsuya Tohei¹, Akira Sakai¹, ¹Osaka Univ. (Japan)

PS-2-14

Temporal data processing enabled by mesoporous silica-based diffusive memristors

[°]Tongjun Zhang¹, Li Shao¹, Ioannis Zeinpekis¹, Andrew Hector¹, Ruomeng Huang¹, ¹Univ. of Southampton (UK)

PS-2-15

Emulation of Short-term and Long-term Synaptic Plasticity in Chalcogenide-based Diffusive Memristor Device

[°]Haider Abbas¹, Asif Ali¹, [°]Jiayi Li¹, Diing Shenp Ang¹, ¹Nanyang Technological Univ. (Singapore)

PS-2-16

Improved Response to NO Gas Observed in HfO₂-based Gasistor Devices due to CNTs-Top Electrode and en-APTAS Membrane

[°]Myoungsu Chae¹, Doowon Lee¹, Hee-Dong Kim¹, ¹Univ. of Sejong (Korea)

PS-2-17

Dual Word Line Enabled Energy-Efficient High-Speed RFET based 1T-eDRAM

[◦]Abhinav Kranti¹, Rohit Kumar Nirala¹, Sandeep Semwal¹, ¹Indian Institute of Technology Indore, India (India)

PS-2-18

Capacitorless DRAM Based on Polycrystalline-Silicon with a Separated Channel Layer and a Fin-Shaped Storage Layer

[◦]Seung Ji Bae¹, Sang Ho Lee¹, Jin Park¹, Ga Eon Kang¹, Jun Hyeok Heo¹, So Ra Jeon¹, Min Seok Kim¹, Jeong Woo Hong¹, Jaewon Jang¹, Jin-Hyuk Bae¹, Sin-Hyung Lee¹, In Man Kang¹, ¹Kyungpook National Univ. (Korea)

PS-2-19

Effect of Geometrical Variations on Bulk FinFET-Based Capacitorless DRAM

[◦]Min Seok Kim¹, Sang Ho Lee¹, Jin Park¹, Ga Eon Kang¹, Jun Hyeok Heo¹, So Ra Jeon¹, Jeong Woo Hong¹, Seung Ji Bae¹, In Man Kang¹, ¹Kyungpook National Univ. (Korea)

PS-2-20

Improvement of Read Performance using CMOS on Array(COA) in 3D NAND Flash

Daewoong Kang³, [◦]Hyowon Kang¹, Hyoungsoo Kim², ¹Korea Int'l School (Korea), ²California State Polytechnics Uni (United States of America), ³Soul National Uni (Korea)

PS-2-21

High-Speed Operation at 25ns Enabled by Angstrom Layer HZO Technology in MFS IGZO Device with Ultra-Wide Memory Window and Low Thermal Budget

[◦]CHENG-RUI LIU¹, SHENG-MIN WANG¹, YU-TING CHEN¹, SHAO-CHEN LEE¹, YING-TSAN TANG¹, ¹National Central Univ. (Taiwan)

PS-2-22

2 bit/cell Dynamic Flash Memory with Three Gates

[◦]Koji Sakui¹, Yisuo Li¹, Yoshihisa Iwata¹, Masakazu Kakumu¹, Nozomu Harada¹, ¹Unisantis Electronics Singapore (Singapore)

PS-2-23

Improved Synaptic Plasticity of Li Ion-Gated Transistors with Mg-Doped LiCoO₂ Channel for Neuromorphic Computing

[◦]Samapika Mallik¹, Tohru Tsuruoka², Takashi Tsuchiya³, Kazuya Terabe⁴, ¹National Inst. for materials sci. (Japan), ²National Inst. for materials sci. (Japan), ³National Inst. for materials sci. (Japan), ⁴National Inst. for materials sci. (Japan)

PS-2-24

Positive Feedback Field Effect Transistor Based on Vertical NAND Flash Structure for In-Memory Computing

[◦]Junhyeong Lee¹, Misun Cha¹, Min-Woo Kwon¹, ¹Gangneung-Wonju National Univ (Korea)

03: Interconnect / 3D Integrations / MEMS

PS-3-01

Development of Low-thermal-budget and Low-electrical-loss Heterogeneous Integration Platform by Glass Substrate and Area-Selective Passivation Technology

[◦]Mu-Ping Hsu¹, Hsin-Chi Chang¹, Yi-Chieh Tsai¹, Kuan-Neng Chen¹, ¹National Yang Ming Chiao Tung Univ. (Taiwan)

PS-3-02

Using a CMOS MEMS Resonator System for Rapid Calibration of Thin Film Deposition Thickness

[◦]Cheng-Yang Chang¹, Chin-Te Hsin¹, Ying-Zong Juang¹, Sheng-Hsiang Tseng¹, ¹National Applied Research Laboratories Taiwan Semiconductor Research Institute (Taiwan)

PS-3-03

On the Study of ESD-Induced Electromigration in CMOS Metallization

[◦]Yang-Shou Hou¹, Chun-Yu Lin¹, ¹National Taiwan Normal Univ. (Taiwan)

PS-3-04

Characteristic Verification of Flexible Printed Circuit Applied to System Circuit and Package with High Frequency and High Speed

[◦]Meng-Hua Tu¹, CHIA-LIN HSIEH¹, Sung-Mao Wu¹, Shang-Chih Chou², ¹National University of Kaohsiung (Taiwan), ²Taiwan Textile Research Institute (Taiwan)

PS-3-05

Investigation of Spin-Orbit-Torque-induced modulation of magnetization dynamics via rectifying planar Hall effect

[◦]Akinobu Yamaguchi¹, ¹University of Hyogo (Japan)

PS-3-06

Chemical Mechanical Polishing for Indium Bond Pad Damascene Processing

[◦]Karl Gerard Herman Ceulemans¹, Ehsan Shafahian¹, Katia Devriendt¹, Herbert Struyf¹, Jaber Derakhshandeh¹, ¹IMEC (Belgium)

PS-3-07 (Late News)

Light Enhanced Direct Copper Bonding and the Drop Test Reliability

Zong-Yu Xie¹, Po-Kai Huang¹, [◦]Wei-Ting Chen¹, Chih-Pin Hung², Kiyokazu Yasuda², Jenn-Ming Song^{1,3,4}, ¹National Chung Hsing University (Taiwan), ²Advanced Semiconductor Engineering Group (Taiwan), ³Division of Materials and Manufacturing Science (Japan), ⁴Innovation and Development Center of Sustainable Agriculture (Taiwan)

PS-3-08 (Late News)

Surface Activated Thermo-compression Bonding of GaN to Carbon-composite and Diamond Substrate for Heat Dissipation System Applications

Nora Martinez², Akio Wakejima², Atsushi Tanaka², [◦]Tadatomo Suga¹, ¹Meisei Univ. (Japan), ²Nagoya Inst. Tech. (Japan), ³Nagoya Univ. (Japan)

04: Power / High-speed Devices and Materials

PS-4-01

Turn-Off Switching Voltage Surge Analysis with Dependence on IGBT Cell Design

Yuri Fujimoto¹, Shin-ichi Nishizawa¹, [◦]Wataru Saito¹, ¹Kyushu Univ. (Japan)

PS-4-02

Investigation of Problems with Current Filament Simulation Model for Two-dimensional Multi-cell Structure in IGBTs

[◦]Takeshi Suwa¹, Kozo Kinoshita¹, ¹Toshiba Electronic Devices & Storage Corp. (Japan)

PS-4-03

A 4H-SiC p-channel IGBT with Higher Breakdown Voltage and Superior VF-Crss FOM

Erjun Wang^{1,2}, Xiaoli Tian¹, [◦]Wei Wei^{1,2}, Yun Bai¹, Jilong Hao¹, Chengyue Yang¹, Yidan Tang¹, Xinyu Liu¹, ¹Inst. of Microelectronics of the Chinese Academy of Sci. (China), ²the Chinese Academy of Sci. (China)

PS-4-04

Recombination coefficients for 3C- and 6H-SiC to analyze carrier recombination at stacking faults in 4H-SiC

[◦]Kazuhiro “-” TANAKA¹, Masashi “-” KATO¹, ¹Nagoya Institute Technology (Japan)

PS-4-05

First-Principles Study for Orientation Dependence of Band Alignments at 4H-SiC/SiO₂ Interface

¹Shun - Matsuda¹, Toru - Akiyama¹, Tetsuo - Hatakeyama², Kenji - Shirashi³, Takashi - Nakayama⁴, ¹Mie Univ. (Japan), ²Toyama Pref. Univ. (Japan), ³Nagoya Univ. (Japan), ⁴Chiba Univ. (Japan)

PS-4-06

Wannier-Stark Localization of Electronic States in 4H-SiC MOS Inversion Layer

[◦]Sachika Nagamizo¹, Hajime Tanaka¹, Nobuya Mori¹, ¹Osaka Univ. (Japan)

PS-4-07

First-principles calculation for SiC/SiO₂ interface atomic structure after NO annealing

[◦]Mizuho Ohmoto¹, Naoki Komatsu¹, Mitsuharu Uemoto¹, Tomoya Ono¹, ¹Univ. of Kobe (Japan)

PS-4-08

Reaching the GaN Theoretical Limit (FOM of 6.6 GW/cm²) by Fabricating Vertical GaN Diodes with Micron Column Schottky Contact

Shuai Li¹, Bo Li¹, Zhengwen Ma¹, Huakai Yang¹, Shijie He¹, Jiajun Han², Yu Li¹, Xiaohua Li¹, Wei He¹, [◦]Xinke - Liu¹, ¹Shenzhen Univ. (China), ²South China Normal Univ. (China)

PS-4-09

High Quality GaN Epitaxy and SAW Resonators on Sapphire Substrates with Cross-Stacked Carbon Nanotube Films

[◦]lei xiao¹, Guofang Yu¹, Renrong Liang¹, Jun Xun¹, Yang Wei¹, Jing Wang¹, ¹Univ. of Tsinghua (China)

PS-4-10

AlGaIn/GaN MIS-HEMT on PVD-Grown AlN-on-Si wafer for Power Applications

[◦]Bing-Syuan Li¹, Tsung-Han Chiang², You-Chen Weng³, Tsung-Ying Yang², Edward Yi Chang^{2,4}, Chin-Han Chung², Michel Khoury⁵, Helen Zhao⁵, ¹Master's Degree Program of Applied Science and Technology, College of Science, National Yang Ming Chiao Tung Univ. (Taiwan), ²International College of Semiconductor Technology, National Yang Ming Chiao Tung Univ. (Taiwan), ³College of Photonics, National Yang Ming Chiao Tung Univ. (Taiwan), ⁴Department of Materials Science and Engineering, National Yang Ming Chiao Tung Univ. (Taiwan), ⁵Applied Materials, Ltd. (United States of America)

PS-4-11

Impact of Different Ohmic Etching Patterns on the K- and Ka-Band Noise Figure of AlGaIn/GaN HEMTs

[◦]Ming-Wen Lee^{1,2}, Yueh-Chin Lin¹, Cheng-Wei Chuang¹, Edward Yi Chang^{1,3}, ¹International College of Semiconductor Technology, National Yang Ming Chiao Tung Univ. (Taiwan), ²Department of Electronics and Computer Technology, Univ. of Granada (Spain), ³Inst. of Microengineering and Nanoelectronics, Univ. Kebangsaan Malaysia (Malaysia)

PS-4-12

Full-Band Monte Carlo Analysis of Strain Effects on Carrier Transport in GaN

[◦]Wataru Miyazaki¹, Hajime Tanaka¹, Nobuya Mori¹, ¹Osaka Univ. (Japan)

PS-4-13

Improvement of Noise and Output Power Performance in GaN HEMT with Thick Cu-Interconnection for Satellite System Applications

[◦]Po-Wei CHEN¹, Chieh Cheng¹, Yueh-Chin Lin¹, Edward Yi Chang¹, ¹Univ. National Yang Ming Chiao Tung (Taiwan)

PS-4-14

Machine Learning Framework to Extract Small Signal Equivalent Circuit Models of AlGaIn/GaN HEMTs for Broadband Parametric Analysis

Asim Ashai¹, Aakash Jadhav¹, Avirup Dasgupta¹, [◦]Biplab Sarkar¹, Sourajeet Roy¹, ¹Indian Institute of Technology Roorkee (India)

PS-4-15

Withdrawn

PS-4-16

GaAsSb/InGaAs tunnel FETs using thick SiO₂ mask for regrowth

Ruifeng Xu¹, [◦]Jiawei Fan¹, Masakazu Arat¹, Yasuyuki Miyamoto¹, ¹Tokyo Tech (Japan), ²Miyazaki Univ. (Japan)

PS-4-17 (Late News)

GaN Heterojunction Rectifier Diode with Low Turn-On Voltage and High Breakdown Voltage for Energy Harvesting

[◦]Naotaka Iwata¹, Kouki Hino², Maria Emma Castil Villamin³, ¹Toyota Tech. Inst. (Japan), ²Toyota Tech. Inst. (Japan), ³Toyota Tech. Inst. (Japan)

05: Photonics: Devices / Integration / Related Technology

PS-5-01

Photonic Inter-Layer Vias for Three-Dimensional Optical Signal Transmission and Effect of Increased Surface Recombination Velocity

[◦]Yu-Chien Wei¹, Ming-Hua Mao^{1,2,3}, ¹Graduate Inst. of Electronics Eng., National Taiwan Univ. (Taiwan), ²Department of Electrical Eng., National Taiwan Univ. (Taiwan), ³Graduate Inst. of Photonics and Optoelectronics, National Taiwan Univ. (Taiwan)

PS-5-02

Experimental and Simulating Demonstration of Fast Response by Using a Silicon X-ray Photon Sensor

[◦]Teitsuya Ariyoshi¹, Takuma Matsunaga¹, ¹Fukuoka Inst. of Tech. (Japan)

PS-5-03

Anti-relaxation of Tensile Lattice Strain in Si-Embedded Ge Strip Structure for Photonic Device Applications

[◦]Joshua Chombo¹, Mohd Faiz Bin Amin¹, Jose A. Piedra-Lorenzana¹, Takeshi Hizawa¹, Keisuke Yamane¹, Mingjun Jiang², Donghwan Ahn², Kazumi Wada³, Yasuhiko Ishikawa¹, ¹Toyoashi Univ. of Tech. (Japan), ²Kookmin Univ. (Korea), ³MIT (United States of America)

PS-5-04

THz Wave Mux/DeMux Operation using Bearded-Type Topological Photonic Crystal Waveguide Structure

[◦]Remma Hata¹, Junichi Fujikata², ¹Univ. of Tokushima (Japan), ²Institute of Post-LED Photonics, Univ. of Tokushima (Japan)

PS-5-05

AIN Stressor for Near-infrared Ge-on-Si Photonic Devices

[◦]Jose Alberto Piedra-Lorenzana¹, Shohei Kaneko¹, Takaaki Fukushima¹, Takeshi Hizawa¹, Keisuke Yamane¹, Junichi Fujikata², Yasuhiko Ishikawa¹, ¹Toyoashi Univ. of Tech. (Japan), ²Tokushima Univ. (Japan)

PS-5-06

Improved Optical Performance of Light-Emitting HEMT with Low Temperature Growth of Single Quantum Well

[◦]Yao-Luen Shen¹, Yen-Ya Wang¹, Wen-Yun He¹, Tian-Li Wu², Chih-Fang Huang¹, ¹National Tsing-Hua University (Taiwan), ²National Yang Ming Chiao Tung Univ. (Taiwan)

PS-5-07

Nanophotonic Neural Network and Generic Algorithm Computing Using n-InP/Electro-Optic Polymer Hybrid Modulator

[◦]Tomoki Sakuma¹, Shiyoshi Yokoyama², Junichi Fujikata³, ¹Tokushima Univ. (Japan), ²Inst. of Materials Chemistry, Kyushu Univ. (Japan), ³Inst. of post-LED photonics, Tokushima Univ. (Japan)

PS-5-08

Enhancement of broadband ZnO nanorods photosensing capability by incorporating Nanoimprinted lithography grating nanostructures

[◦]Chun Yen Yang¹, Bo Hong Lin², Jyun Jie Chen¹, Chun Hung Lin², Ming Yu Kuo¹, Ming Hsien Li¹, Hsiang Chen¹, ¹National Chi Nan Univ. (Taiwan), ²National Cheng Kung Univ. (Taiwan)

PS-5-09

Investigation of the Photodetection Performance by Modulating Schottky Barrier and Density of Surface States(Nss) of the Nitrogen Doped Monolayer MoS₂

[◦]parikshit parshoram sahatiya¹, [◦]Gowtham Polumati¹, [◦]Department of Electrical and Electronics Engineering, BITS Pilani, Hyderabad Campus, Hyderabad, 500078, India (India)

PS-5-10

Design of 1D and 2D Photonic Crystals in Single Crystalline Halide Perovskites for Purcell Enhanced Emission and Sensing Applications

[◦]Dominik Kowal¹, Somnath Mahato¹, Muhammad Danang Birowosuto¹, ¹Lukasiewicz Res. Network - PORT Polish Center for Tech. Development (Poland)

PS-5-11

GAP/InP Heterostructure Nanowires for Movable Photonic Crystal Cavities

[◦]Liliana Tjahjana^{2,3}, Aurelien Olivier^{2,3}, Arramel Arrame⁴, [◦]Dominik Kowal¹, Hong Wang^{2,3}, Muhammad Danang Birowosuto¹, ¹Lukasiewicz PORT (Poland), ²CINTRA (Singapore), ³Nanyang Technological University (Singapore), ⁴Nano Center Indonesia (Indonesia)

06: Photovoltaics / Energy Harvesting / Battery-related Technology

PS-6-01

Controlling Growth of Lead Halide Perovskites on Organic Semiconductor Buffer Layers

[◦]Ikumi Kamikawa¹, Kohei Yamamoto², Tetsuhiko Miyadera², Yuji Yoshida², Takuro N. Murakami², Kei Noda¹, ¹Keio Univ. (Japan), ²AIST (Japan)

PS-6-02

Effects of the distribution of dislocation glide planes on electrical properties of lattice-mismatched InGaAs solar cells

[◦]Hidetoshi Suzuki¹, Kosei Kurisaki¹, Akio Ogura², Mitsuru Imaizumi³, Atsuhiko Fukuyama¹, ¹Miyazaki Univ. (Japan), ²Tsukuba Univ. (Japan), ³Sanjo City Univ. (Japan)

PS-6-03

Mapping of Dislocation-Related Carrier Nonradiative Recombination in InGaAs Solar Cells Using a Laser Heterodyne Photothermal Displacement Method

[◦]Shogo Harada¹, Tomoki Harada^{1,2}, Hidetoshi Suzuki¹, Akio Ogura³, Mitsuru Imaizumi³, Tetsuo Ikari³, Atsuhiko Fukuyama¹, ¹Miyazaki Univ. (Japan), ²JSPS (Japan), ³Tsukuba Univ. (Japan), ⁴Sanjo City Univ. (Japan)

PS-6-04

Cell Performance Recovery from Potential-Induced Degraded p-type Based Polycrystalline Si Photovoltaic Modules by Reverse Bias-Pulse-Voltage Method

[◦]Naing Lin Htun¹, Shingo Hashimoto¹, Yasushi Sobajima¹, Norimitsu Yoshida¹, ¹Univ. of Gifu (Japan)

PS-6-05

Strategy for Improving the Energy Density of All-Solid-State Batteries by Controlling LGPS Particle Size and Deformability

[◦]Han-Seul Kim¹, Masaaki Hirayama¹, Kenta Watanabe¹, Kota Suzuki¹, Ryoji Kanno¹, Kazuhiro Hikima², Satoshi Obokata², Hiroyuki Muto², Atsunori Matsuda², ¹Tokyo Inst. of Tech. (Japan), ²Toyoashi Univ. of Tech. (Japan)

PS-6-06

NiO/GaN Composite Films as Photoelectrodes for Photoelectrochemical Hydrogen Generation and CO₂ Reduction in NaCl Aqueous Electrolyte

[◦]Ching-Ying Sheu¹, Shih-Sian Tu², Shoou-Jinn Chang², ¹National Tainan Girl's Senior High School (Taiwan), ²National Cheng Kung University (Taiwan)

PS-6-07

Analysis of defects dominating carrier recombination in CeO₂ single crystal for photocatalytic applications

[◦]Endong Zhang¹, Christoph J Brabec², Masashi Kato¹, ¹Nagoya Inst. of Tech. (Japan), ²Friedrich-Alexander Univ. Erlangen-Nürnberg (Germany)

PS-6-08

Thermoelectric Properties and Defects Formation in Mg₂Sn_{1-x}Ge_x Epitaxial Thin Films Grown with High Mg Flux Rate

[◦]Kenneth Magallon Senados^{1,2}, Takashi Aizawa², Isao Ohkubo², Takahiro Baba^{1,2}, Akira Uedono¹, Takao Mori^{1,2}, Takeaki Sakurai¹, ¹Univ. of Tsukuba (Japan), ²National Inst. for Materials Science (Japan)

PS-6-09

Thermal Design of Planar-type Nano Si Thermoelectric Generator

[◦]Ryoto Yanagisawa¹, Masahiro Nomura¹, ¹IIS Univ. of Tokyo (Japan)

07: Organic / Molecular / Bio-electronics

PS-7-01

Enhancement in Thermal Stability of Perovskite Solar Cells by using Ionic Liquid Dopant for Spiro-OMeTAD

[◦]Kohei Yamamoto¹, Takuro N. Murakami¹, ¹National Institute of Advanced Industrial Science and Technology (AIST) (Japan)

PS-7-02

TIPS-Pentacene Organic Field-Effect Transistor for Simulation of Optoelectronic Neuromorphic

[◦]Tianyang Feng¹, Qingxuan Li², Xueming Hu², Yafen Yang⁴, Hang Xu², Lin Chen⁶, ¹Univ. of Fudan (China), ²Univ. of Fudan (China), ³Univ. of Fudan (China), ⁴Univ. of Fudan (China), ⁵Univ. of Fudan (China), ⁶Univ. of Fudan (China)

PS-7-03

Single Crystal Growth and Electronic Structure Characterization of a Cyclopenta-fused Polycyclic Aromatic Hydrocarbon

[◦]Takuma Yuki¹, Hirohiko Tanoguchi¹, Seiya Yokokura¹, Toshihiro SHIMADA Shimada¹, ¹Hokkaido Univ. (Japan)

PS-7-04

Feasibility Study of PLL-based Analog-to-Digital Converter for Low-Voltage Organic Thin-Film Transistors

[◦]Hiroki Urabe¹, Kunihiro Oshima¹, Takashi Sato¹, ¹Univ. of Kyoto (Japan)

PS-7-05

Great Enhancement of Sensitivity for SARS-CoV-2 Detection by Integrated Graphene FET Biosensor Using ζ-potential modulator

[◦]Kaori - Yamamoto¹, Natsumi Sato¹, Kiyoji Sakano¹, Takao Ono¹, Yasushi Kanai¹, Shota Ushiba², Naruto Miyakawa², Shinsuke Tani², Masahiko Kimura², Youhei Watanabe³, Hidekazu Tanaka⁴, Kazuhiko Matsumoto¹, ¹SANKEN, Osaka Univ. (Japan), ²Murata Manufac. (Japan), ³Kyoto Prefecture Univ. of Medicine (Japan)

PS-7-06

Dynamic 2D chemical images of droplets in microfluidic on a thinned Si LAPS

[◦]Chia-Jung Su¹, Chin-Yi Kuan², Chia-Ming Yang^{1,2,3,4,5}, ¹Inst. of Electro-Optical Eng. Chang Gung Univ. of Taoyuan (Taiwan), ²Department of Electronic Eng. Chang Gung Univ. of Taoyuan (Taiwan), ³Biosensor Group, Biomedical Eng. Research Center Chang Gung Univ. of Taoyuan (Taiwan), ⁴Department of Nephrology, Chang Gung Memorial Hospital of Linkou (Taiwan), ⁵Department of Material Eng. Ming-Chi Univ. Technology of New Taipei City (Taiwan)

PS-7-07

Patterning of Graphene Oxide for Application to Lipid Bilayer Array Formation

[◦]Kar Man Lee¹, [◦]Ryugo Tero¹, ¹Toyoashi Univ. Tech. (Japan)

PS-7-08 (Late News)

Tunable multistate organic resistive switching memory devices utilizing multilayer-oriented floating films of conjugated polymers

[◦]Shubham Sharma¹, Shyam S. Pandey¹, ¹Kyushu Institute of Technology, Japan (Japan)

08: Low Dimensional Devices and Materials

PS-8-01

High-performance 2D/3D Heterostructure Photodetectors

[◦]Mingsheng Xu¹, Kai Jiang¹, Fengyuan Zhang¹, Peng Ye¹, Qinghai Zhu¹, Yexin Chen¹, ¹Zhejiang Univ. (China)

PS-8-02

Enhanced acetone gas sensing using zeolite functionalized graphene nanoribbon FET in the real-air environment

[◦]Sankar Ganesh Ramaraj¹, Zhou Haolong¹, Hiroyasu Yamahara¹, Hitoshi Tabata¹, ¹Univ. of Tokyo (Japan)

PS-8-03

Accumulation of Photo-induced Carriers at the SiO₂/Si Interface Observed through Graphene Transport

[°]Jin Miura¹, FumiYuki Inamura¹, Takashi Ikuta¹, Kenzo Maehashi¹, Kenji Ikushima¹, ¹Tokyo Univ. of A & T (Japan)

PS-8-04

Effect of Strain Modulation on Gas Molecule Adsorption on Graphene using First-Principles Calculations

[°]Meng Yin¹, Xiangyu Qiao¹, Ken Suzuki², Lei Wang⁴, Hideo Miura², ¹Dept. of Finemechanics, Tohoku Univ. (Japan), ²FRRJ, Graduate School of Eng., Tohoku Univ. (Japan), ³Green X-tech Center, Green Goals Initiative, Tohoku Univ. (Japan), ⁴Dept. of Physics, Univ. of Science and Technology Beijing (China)

PS-8-05

First-Principles Study for Structural and Electronic Properties of Janus and Alloy Monolayers in Transition Metal Dichalcogenides

[°]Kenta Matsubara¹, Toru Akiyama¹, ¹Mie University (Japan)

PS-8-06

Realization of Multifunctional Logic Circuits in van der Waals Heterostructures

[°]Ciao-Fen - Chen^{1,2}, Shih-Hsien - Yang², Shun-Tsung - Lo¹, Yen-Fu - Lin², ¹National Yang Ming Chiao Tung Univ. (Taiwan), ²National Chung Hsing Univ. (Taiwan)

PS-8-07

Control of Ge Nanowire Orientation in Selective-Area VLS Growth on Si (111)

[°]Shohei Okuda¹, Shuma Yuzawa¹, Michiharu Makino¹, Wipakorn Jevasuwan², Naoki Fukata², Shinjiro Hara¹, ¹Research Center for Integrated Quantum Electronics, Hokkaido Univ. (Japan), ²Research Center for Materials Nanoarchitectonics, National Inst. for Materials Science (NIMS) (Japan)

PS-8-08

Comparison of Magnetic Domain Formation in CoFe/MgO Nanolayer Patterns on SiO₂/Si (111) and GaAs (001) Substrates

[°]Yu Fujiwara¹, Rui Ochiai¹, Li Zi¹, Masashi Akabori², [°]Shinjiro Hara¹, ¹Research Center for Integrated Quantum Electronics, Hokkaido Univ., Sapporo (Japan), ²Center for Nano Materials and Technology, Japan Advanced Institute of Sci. and Tech., Ishikawa (Japan)

PS-8-09

Performance and Device Physics Evaluation of Ultra-thin Body BAs Transistors based on Quantum Transport and Wannier-type Tight-Binding Simulations

[°]Yi-Hsin Tu¹, Sheng Luo¹, Gengchiao Liang¹, ¹National Univ. of Singapore (Singapore)

PS-8-10

Statistical Model of Electronic Structure in Disordered Quantum Dots of InAs, InP, GaSb, and Si

[°]Jin Hyong Lim¹, Nobuya Mori², ¹Univ. of Osaka (Japan), ²Univ. of Osaka (Japan)

PS-8-11

Compact Band Model for 2D Semiconductor Material: In Case of Phosphorene

[°]Yun-Fang Chung¹, Shu-Tong Chang¹, ¹National Chung Hsing University (Taiwan)

PS-8-12

Investigation of Top-gate MoS₂ FETs by Low-temperature ALD High-κ and Hydrazine Passivated Interface

[°]Min-Kun Huang¹, Hsu-Tang Liao², William Cheng-Yu Ma³, Yeong-Her Wang¹, Chun-Jung Su^{3,4}, ¹National Cheng Kung Univ. (Taiwan), ²National Sun Yat-sen Univ. (Taiwan), ³National Yang Ming Chiao Tung Univ. (Taiwan), ⁴Taiwan Semiconductor Research Inst. (Taiwan)

PS-8-13

Hybrid nanostructures of Al-catalyzed Si nanowires and CsPb_{0.81}Mn_{0.19}Cl₃ perovskite nanocrystals for efficiency enhancement of thin photovoltaic cells

[°]Wipakorn Jevasuwan¹, Mostafa F. Abdelbar², Bernice Mae Yu Jeco- Espaldon², Mohammed Abdelhameed³, Hassane Sodabanlu², Qingqiang Zhang¹, Yoshitaka Okada², Naoki Fukata¹, ¹NIMS (Japan), ²Univ. of Tokyo (Japan)

09: Novel Functional / Quantum / Spintronic Devices and Materials

PS-9-01

Analysis of Constant Bit Shift Motion of Recorded Magnetic Domains in Magnetic Nanowire Device with Installed Magnetic Trap Sites

[°]Kei Ogura¹, Mao Takahashi¹, Daisuke Kato¹, Yoshinori Iguchi¹, Yasuyoshi Miyamoto¹, ¹NHK Sci. & Tech. Res. Labs. (Japan)

PS-9-02

Effect of Non-uniform Atom Distribution on Ferrimagnetic Domain Wall Motion Based on an Atomistic Model

[°]Jie Ren¹, Zhengde Xu¹, [°]Xue Zhang¹, Jingwei Long¹, Zhengping Yuan¹, Zhifeng Zhu^{1,2}, ¹Univ. of ShanghaiTech (China), ²Res. of Center of Energy Efficient and Custom AI IC (China)

PS-9-03

Current Induced Spatially Nonuniform Switching in Ferrimagnets based on the Atomistic Model

[°]Xue Zhang¹, Zhengde Xu¹, Jie Ren¹, Yixiao Qiao¹, Zhifeng Zhu^{1,2}, ¹Univ. of ShanghaiTech (China), ²Res. Center of Energy Efficient and Custom AI IC (China)

PS-9-04

Phase and Thickness Dependence of Inverse Spin Hall Effect in Topological Insulator Sb₂Te₃/Ferromagnetic CoFeB Bilayers

[°]Misako Morota¹, Wipakorn Jevasuwan², Naoki Fukata², Yuta Saito¹, ¹AIST (Japan), ²NIMS (Japan)

PS-9-05

Inserted-Gd effort on type of skyrmion in Pt/Co/Ni system

[°]Lin Zhang¹, Kazuhiko Tokunaga¹, Yuichiro Kurokawa¹, Ryuta Satone¹, Takehiro Tamaoka², Yuto Tomita², Yasukazu Murakami^{2,3}, Hiromi Yuasa¹, ¹Graduate School of Information Science and Electrical Engineering, Kyushu Univ. (Japan), ²The Ultramicroscopy Research Center, Kyushu Univ. (Japan), ³Department of Applied Quantum Physics and Nuclear Engineering, Kyushu Univ. (Japan)

PS-9-06

Anisotropic Magnetoresistance of FeRh across the Magnetic Phase Transition

[°]Woonjae Won¹, Min Tae Park², Taekhyeon Lee¹, Jong-Ryul Jeong³, Myung Hwa Jung², Kab-Jin Kim¹, ¹KAIST (Korea), ²Sogang Univ. (Korea), ³Chungnam National Univ. (Korea)

PS-9-07

Room temperature ferromagnetism of Cr₂O₃ nanoparticles

[°]Takuto Nakazawa¹, Akihiro Fukawa¹, Josuke Tamura¹, Chiehisa Takeoka¹, Kouichi Takase¹, ¹College of Sci. and Tech., Nihon Univ. (Japan)

PS-9-08

Noise properties in the Coulomb blockade region of FinFET

[°]Tetsufumi - Tanamoto¹, Keiji - Ono², Jun - Deguchi³, Junji - Wadatsumi³, Ryuichi - Fujimoto³, ¹Teikyo Univ. (Japan), ²Riken (Japan), ³Kioxia Corp. (Japan)

PS-9-09

A Probabilistic-Bits Design based on Stochastic Ferroelectric Field-Effect Transistors

[°]Sheng Luo¹, Yihan He¹, Baofang Cai¹, Xiao Gong¹, Gengchiao Liang¹, ¹National Univ. of Singapore (Singapore)

10: Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process

PS-10-01

Withdrawn

PS-10-02

Ferroelectric properties of 50 nm size BaTiO₃ / polysiloxane nanocomposites processed by low temperature solution method

[°]ChuanJun Wu¹, Juan Paolo Bermundo¹, Aimi Syairah Safaruddin¹, Atsuko Yamamoto², Yukiharu Uraoka¹, ¹NARA Inst. of Sci. and Tech. (Japan), ²Merck Electronics Ltd. (Japan)

PS-10-03

Fabrication of HfO₂ dielectric with κ-value exceeding 30 at room temperature

[°]Mochamad Januar¹, Chun-Yen Li¹, [°]Kou-Chen Liu^{1,2,3}, ¹Chang Gung University (Taiwan), ²Chang Gung Memorial Hospital (Taiwan), ³Ming Chi University of Technology (Taiwan)

PS-10-04

Effect of Bilayer High-κ Al₂O₃ and HfO₂ Gate Insulators on the Electrical Performance of Amorphous Oxide Thin-Film Transistors

[°]Dian Budiarti Kastian¹, Juan Paolo Bermundo¹, Yukiharu Uraoka¹, ¹Nara Inst. of Sci. and Tech. (Japan)

PS-10-05

Characterization of Metal/IGZO Contact with Back-to-Back Schottky Diode

[°]Shujuan Mao¹, Jianfeng Gao², Weibing Liu², Yanping He², Xu Chen², Gaobo Xu², Jinbiao Liu², Junfeng Li², Jun Luo², Jing Zhang¹, Yuke Li¹, Xiangsheng Wang¹, Wei Yu¹, Chao Tian¹, Hongbo Sun¹, Jinjuan Xiang¹, Guilei Wang¹, Chao Zhao¹, ¹Beijing Superstring Academy of Memory Technology (China), ²Institute of Microelectronics, Chinese Academy of Sciences (China)

PS-10-06

Developing Fully Room-Temperature-Fabricated SnO_x-Based p-n Diodes via Ion-Beam-Assisted Deposition & Numerical Analysis

[°]Mochamad Januar¹, Suhendro Purbo Prakoso², Jang-Hsing Hsieh^{3,4}, Kou-Chen Liu^{1,5,4}, ¹Chang Gung University (Taiwan), ²National Taiwan University of Science & Technology (Taiwan), ³National Yang Ming Chiao Tung University (Taiwan), ⁴Ming Chi University of Technology (Taiwan), ⁵Chang Gung Memorial Hospital (Taiwan)

PS-10-07

Nano-Scale InSnO Transistors with an On-State Current of 325 μA/μm at V_D = 2 V

[°]dengqin xu¹, ¹peking Univ (China)

PS-10-08

High Electrical Performance with Superior Bias Stabilities for an Oxide Thin-Film Transistor with Solution-Processed Ultra-Thin Semiconductor

[°]Jun-Hyeong Park¹, Do-Kyung Kim¹, Jin-Hyuk Bae^{1,2}, ¹School of Electronic and Electrical Engineering, Kyungpook National Univ. (Korea), ²School of Electronics Engineering, Kyungpook National Univ. (Korea)

PS-10-09

Temperature Dependence of GeS Crystallization by Using a Vapor Transport Method

[°]Qinqiang Zhang¹, Ryo Matsumura¹, Naoki Fukata^{1,2}, ¹NIMS (Japan), ²Univ. of Tsukuba (Japan)

PS-10-10

Impact of Post-growth Slow-cooling Process on the Growth of Rocksalt-structured MgZnO Films by Mist CVD

[°]Kotaro Ogawa¹, Wataru Kosaka¹, Hiroya Kusaka¹, Yuichi Ota², Tomohiro Yamaguchi¹, Tohru Honda¹, Kentaro Kaneko³, Shizuo Fujita⁴, Takeyoshi Onuma¹, ¹Kogakuin Univ. (Japan), ²Tokyo Metropolitan Industrial Technology Research Inst. (Japan), ³Ritsumeikan Univ. (Japan), ⁴Kyoto Univ. (Japan)

11: Advanced Materials: Synthesis / Crystal Growth / Characterization

PS-11-01

Three-dimensional structure of threading screw dislocation at deep location in 4H-SiC using step-scanning X-ray section topography

[°]Kotaro Ishiji¹, Akio Yoneyama^{1,2}, Masayuki Inaba³, Kazunori Fukuda⁴, Atsushi Sakaki⁵, Shinya Ohmagari⁶, Ryuichi Sugie², ¹Kyushu Synchro. Light Res. Center (Japan), ²Res. Dev. Group, Hitachi, Ltd. (Japan), ³Nissan ARC, Ltd. (Japan), ⁴Kobelco Res. Inst., Inc. (Japan), ⁵Nichia Corp. (Japan), ⁶National Inst. Adv. Indus. Sci. Tech. (Japan), ⁷Toray Res. Center, Inc. (Japan)

PS-11-02

Impact of Dot Size on Electron Emission from Multiple-Stacked Si-QDs

[°]Katsunori Makihara¹, Shuji Obayashi¹, Yuki Imai¹, Noriyuki Taoka², Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan), ²Aichi Inst. Tech. (Japan)

PS-11-03**Grain Enlargement of Ultrathin Si Films on Insulators by Sn-Doping**

^oYuki Hanafusa¹, Kota Okamoto¹, Taizoh Sadoh¹, ¹Kyushu Univ. (Japan)

PS-11-04**High Carrier Mobility of Sn-Doped Ge Thin-Films (<20 nm) by Thinning Combined with Post-Annealing**

^oTaishiro Koga¹, Takaya Nagano¹, Kenta Moto¹, Keisuke Yamamoto¹, Taizoh Sadoh¹, ¹Kyushu Univ. (Japan)

PS-11-05**Radical Treatment of Graphene Oxide Using Heated Catalyst, H₂ and NH₃ Gas**

^oAkira Heya¹, Kenta Fujimoto¹, Yoshiaki Matsuo², Junichi Inamoto², Koji Sumitomo¹, ¹Univ. of Hyogo (Japan), ²Univ. of Hyogo (Japan)

PS-11-06**Large-area and phase-controlled MoTe₂ grown by cold-wall chemical vapor deposition on different substrates**

^oPing-Feng Chi¹, Yung-Lan Chuang¹, Jing-Wen Zhang¹, Jing-Jie Wang¹, Zide Yu¹, Ming-Lun Lee², Jinn-Kong Sheu¹, ¹Univ. of NCKU (Taiwan), ²Univ. of STUST (Taiwan)

PS-11-07**Formation of Micron-Thick Ge by Trench-Filling Epitaxy Using a Patterned (001) Si Substrate with a <100>-Oriented Trench Array**

^oTakumi Maeda¹, Kota Kato¹, Jose A. Piedra-Lorenzana¹, Takeshi Hizawa¹, Tetsuya Nakai², Yasuhiko Ishikawa¹, ¹Toyoashi Univ. of Tech. (Japan), ²SUMCO Corp. (Japan)

PS-11-08**Epitaxial Temperature Effect on the Band Alignment of MoS₂/GaN Heterojunction Measured by X-ray Photoelectron Spectroscopy**

^oRay-Yu Hong¹, Ing-Song Yu¹, Ping-Yu Tsai², Po-Hung Wu², ¹National Dong Hwa Univ. (Taiwan), ²National Chung-Shan Inst. of Sci. & Tech. (Taiwan), ³Stone & Resource Industry R&D Center (Taiwan)

PS-11-09**Ultra-High Concentration Doping by Excimer Laser Annealing Using Solid-Diffusion Source**

^oRen Aoki¹, Keita Katayama¹, Daisuke Nakamura¹, Hisato Yabuta¹, Hiroshi Ikenoue¹, Taizoh Sadoh¹, ¹Kyushu Univ. (Japan)

PS-11-10**Crystal growth, luminescence and scintillation properties of Er-doped La₂Hf₂O₇ single crystal**

^oYuui Yokota¹, Naomoto Hayashi¹, Takahiko Horiai¹, Kohei Yamano¹, Masao Yoshino¹, Nobuhiko Sarukura², Akira Yoshikawa¹, ¹Tohoku Univ. (Japan), ²Osaka Univ. (Japan)

PS-11-11**First Principles Studies on Mg Impurity Incorporation into GaN during MOVPE Growth**

^oTakashi Kuroda¹, Lisa Mizuno², Shuto Hattori², Kenji Shiraishi^{3,4}, ¹Gifu Highschool (Japan), ²Nanzan Highschool (Japan), ³Graduate School of Engineering, Nagoya Univ. (Japan), ⁴Institute of Materials and Systems for Sustainability, Nagoya Univ. (Japan)

PS-11-12**Low-temperature thermoelectric power-factor enhancement of n-type Ge-rich Ge_{1-x}Si_xSn_y layers**

^oItsuki Sugimura¹, Masaya Nakata¹, Shigehisa Shibayama¹, Mitsuo Sakashita¹, Osamu Nakatsuka¹, Takayoshi Katase², Masashi Kurosawa¹, ¹Nagoya Univ. (Japan), ²Tokyo Tech. (Japan)

PS-11-13**Local strain distribution analysis in strained SiGe spintronics devices**

^oTomoki Onabe¹, Zhenrong Wu¹, Tetsuya Tohei¹, Yusuke Hayashi¹, Kazushi Sumitani², Yasuhiko Imai², Shigeru Kimura², Takahiro Naito¹, Kohei Hamaya¹, Akira Sakai¹, ¹Osaka Univ. (Japan), ²JASRI (Japan)

PS-11-14**Optoelectronic properties of Ge_{1-x}Sn_x/high-Si-content Si_yGe_{1-y-z}Sn_z double quantum wells formed by low-temperature MBE growth and post deposition annealing**

^oShigehisa Shibayama¹, Shiyu Zhang¹, Mitsuo Sakashita¹, Masashi Kurosawa¹, Osamu Nakatsuka¹, ¹Nagoya Univ. (Japan)

PS-11-15**Formation of Ultra-thin Nickel Silicide on SiO₂ Using a-Si/Ni/a-Si Structures for Oxidation Control**

^oKeisuke Kimura¹, Noriyuki Taoka², Akio Ohta³, Katsunori Makihara¹, Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan), ²Aichi Inst. of Tec. (Japan), ³Fukuoka Univ. (Japan)

PS-11-16**Oxygen Adsorption on Pseudomorphic Fe(111)/Ru(0001) Surface: A combined LEED analysis and First-Principles DFT Study.**

^oDhiman Banik¹, Yuka Nagamatsu¹, Takeshi Nakagawa¹, ¹Kyushu University (Japan)

PS-11-17**Enhancement of Mg Induced Lateral Crystallization of Amorphous Ge on Insulating Substrate by Two-Step Annealing**

^oAtsuki Morimoto¹, Towa Hirai¹, Ayato Takazai¹, Hajime Kuwazuru¹, Kenichiro Takakura¹, Isao Tsunoda¹, ¹Natl. Inst. of Tech., Kumamoto College (Japan)

PS-11-18 (Late News)**Unveiling the role of trimethylaluminum in passivating InAs surface quantum dots**

^oHanif Mohammadi¹, Ronel Christian Roca¹, Hyunju Lee², Yoshio Ohshita¹, Naotaka Iwata¹, Itaru Kamiya¹, ¹Toyota Tech. Inst. (Japan), ²Meiji Univ. (Japan)

PS-11-19 (Late News)**The Effect of V/III Ratio on the Morphology and Structure of the Homo-epitaxial GaN Growth on Bulk GaN Substrates by Radical Enhanced Metal-Organic Chemical Vapor Deposition (REMOCVD)**

^oARUN KUMAR DHASIYAN¹, Swathy Jayaprasad¹, Frank Wilson Amalraj¹, Naohiro Shimizu¹, Osamu Oda¹, Kenji Ishikawa¹, Masaru Hori¹, ¹Center for Low-temperature Plasma Sciences, Nagoya University (Japan)

PS-11-20 (Late News)**Optical Property Enhancement through Alloying in High-Speed CWLA-Grown n-type Ge-based Materials**

^oRahmat Hadi Saputro^{1,2}, Ryo Matsumura¹, Tatsuro Maeda³, Naoki Fukata^{1,2}, ¹NIMS (Japan), ²Univ. of Tsukuba (Japan), ³AIST (Japan)

12: Advanced Circuits / Systems Interacting with Innovative Devices and Materials**PS-12-01****The Construction of 4-D FMCW LiDAR Images by Directly Using Self-Heterodyne Beating Signal at Baseband and Linearization of Wavelength Sweeping Lasers**

^oYu-Xiang Lin¹, Zohaiddin Ahmad², Huan-Bin Yang², Ke-En Liao², You-Chia Chang³, Chia-Chien Wei¹, ^oJin-Wei Shi², ¹National Sun Yat-sen University (Taiwan), ²National Central University (Taiwan), ³National Yang Ming Chiao Tung University (Taiwan)

PS-12-02**A Reconfigurable Low-Power Current Mode Computing near Sensor Element for Edge Detection**

^oXu Ren¹, Chang Xue¹, Yandong He¹, Gang Du¹, ¹Peking University (China)

PS-12-03**An Ultra-Low Power Low-Dropout Regulator with a Load Current Tracking Bias Current Generator**

^oYosuke Mizuno¹, Hikaru Sebe¹, Daisuke Kanemoto¹, Tetsuya Hirose¹, ¹Osaka Univ. (Japan)

PS-12-04**A sub-50-mV supply, recursive stacking body bias NAND gate for extremely low-voltage energy harvesting**

^oShintaro Sumi¹, Hikaru Sebe¹, Daisuke Kanemoto¹, Tetsuya Hirose¹, ¹Osaka Univ. (Japan)

PS-12-05**A New Equivalent Circuit based Analytical Model for mm-Wave CMOS Inductors Design and Simulation at Various Substrate Resistivities**

^oJyh-Chyurn Guo¹, Teng-Yang Tan¹, ¹National Yang Ming Chiao-Tung University (Taiwan)

PS-12-06**Low Quiescent Current Capacitively-coupled Chopper Instrumentation Amplifier in EEG Recording Wearable Devices for Compressed Sensing Framework**

^oKenji Mii¹, Daisuke Kanemoto¹, Tetsuya Hirose¹, ¹Osaka Univ. (Japan)

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			<p>Area 7:Organic / Molecular / Bio-electronics D-5:High-sensitive devices for chem/bio detection 2</p> <p>(9:00-10:00) Session Chair: Takashi Tokuda (Tokyo Institute of Technology), Hiroaki Takehara (The Univ. of Tokyo)</p>	<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-5:Oxide semiconductor TFTs and technology</p> <p>(9:00-10:15) Session Chair: Juan Paolo Bermundo (NAIST), Jun Koyama (Semiconductor Energy Lab.)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-5:Advanced CMOS: Process Technology</p> <p>(9:00-10:15) Session Chair: Genji Nakamura (Tokyo Electron Ltd.), Takashi Matsukawa (AIST)</p>
			<p>9:00 D-5-01 Desmoplasia in Endothelial Cells and Anti-Cancer Drug Resistance: One Chip Microengineered Tumor Model °Madhushree Poddar¹, Yu-de Chu², Chau-Ting Yeh², Cheng-Hsien Liu¹, ¹National Tsing Hua University (Taiwan), ²Chang Gung Memorial Hospital (Taiwan)</p>	<p>9:00 E-5-01 (Late News) Electrical Characteristic Degradation of Ultra-Scaled IGZO-TFTs Induced by Bias- and Temperature-Dependent Hot Carrier Stresses °Muhammad Aslam^{1,2}, Shu-Wei Chang³, Yao Jen Lee⁴, Yiming Li^{1,2,4,5,6,7}, Wen-Hsi Lee³, ¹Parallel and Scientific Computing Laboratory, National Yang Ming Chiao Tung Univ. (Taiwan), ²EECS International Graduate Program, National Yang Ming Chiao Tung Univ. (Taiwan), ³Department of Electrical Engineering, National Cheng Kung Univ. (Taiwan), ⁴Institute of Pioneer Semiconductor Innovation, National Yang Ming Chiao Tung Univ. (Taiwan), ⁵Institute of Communications Engineering, National Yang Ming Chiao Tung Univ. (Taiwan), ⁶Institute of Communications Engineering, National Yang Ming Chiao Tung Univ. (Taiwan), ⁷Department of Electronics and Electrical Engineering, National Yang Ming Chiao Tung Univ. (Taiwan)</p>	<p>9:00 F-5-01 (Invited) Low Temperature Selective Growth of Group-IV Source / Drain Epilayers for Advanced Contact Applications °Clement Porret¹, Andriy Y. Hikavyi¹, Erik Rossee¹, Pierre Eyben¹, Gerardo T. Martinez¹, Jean-Luc Everaert¹, Gianluca Rengo^{1,2,3}, Bert Pollefliet^{1,2}, Yosuke Shimura¹, Robert Langer¹, Naoto Horiguchi¹, Roger Loo¹, ¹imec (Belgium), ²FWO (Belgium), ³KU Leuven (Belgium)</p>
			<p>9:15 D-5-02 Demonstration of multi-point stimulation with AC-driven CMOS chip for retinal prosthesis °Yuki Nakanishi¹, Wisaroot Sriitsaransom¹, Yoshinori Sunaga¹, Kenzo Shodo², Yasuo Terasawa², Hironari Takehara¹, Makito Haruta^{2,3}, Hiroyuki Tashiro^{1,4}, Kiyotaka Sasagawa¹, Jun Ohta¹, ¹Nara Institute of Science and Technology (Japan), ²Nidek Co. LTD (Japan), ³Chitose Institute of Science and Technology (Japan), ⁴Kyushu Univ. (Japan)</p>	<p>9:15 E-5-02 Improved C-axis-aligned Crystalline Oxide Semiconductor FET Suitable for Scaling and Monolithic Stacking for Higher Integration of Integrated Circuit °Hiromi Sawai¹, Motomu Kurata¹, Tsutomu Murakawa¹, Yoshinori Ando¹, Takako Kikuchi¹, Kunihiko Fukushima¹, Ryota Eto¹, Shinya Sasagawa¹, Kentaro Sugaya¹, Ryota Hodo¹, Yuki Okamoto¹, Toshiki Mizuguchi¹, Hitoshi Kunitake¹, Shunpei Yamazaki¹, ¹Semiconductor Energy Laboratory Co., Ltd. (Japan)</p>	
			<p>9:30 D-5-03 Multiple Gases Sensing Ability Based on Spiral-Shape Chip °Wan Lin Lee¹, Huang Ming Philip Chen¹, Hsi Teng Kao², ¹National Yang Ming Chiao Tung University (Taiwan), ²SUNPLUS TECHNOLOGY CO., LTD. (Taiwan)</p>	<p>9:30 E-5-03 Rapid Thermal Crystallization of H-doped InO_x for Thin Film Transistors °Xiaoqian Wang¹, Mamoru Furuta¹, ¹Kochi Univ. of Tech. (Japan)</p>	<p>9:30 F-5-02 Crystallinity and Composition of Sc / Si:P System for Advanced Contact Applications °Bert Pollefliet^{1,2}, Clement Porret², Jean-Luc Everaert², Kiroubanand Sankaran², Xiaoyu Piao², Erik Rossee², Thierry Conard², Andrea Impagnatiello², Yosuke Shimura², Andriy Hikavyi², Roger Loo², André Vantomme¹, Clement Merckling^{1,2}, ¹KU Leuven (Belgium), ²imec (Belgium)</p>

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<p>Focus Session (Area 1&3) G-5:Heterogenous Integration for High Performance Computing; System, Material, Process and Chiplet I</p> <p>(9:00-10:15) Session Chair: Takeyasu Saito (Osaka Metropolitan Univ.), François Andrieu (CEA-Leti)</p>	<p>Area 2:Advanced and Emerging Memories / New Applications H-5:Ferroelectric Memory Materials</p> <p>(9:00-10:15) Session Chair: Grenouillet Laurent (CEA-Leti), Halid Mulaosmanovic (GlobalFoundries., Germany)</p>	<p>Area 12:Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-5:AI and Neural Applications</p> <p>(9:00-10:15) Session Chair: Koh Johguchi (Shinshu Univ.), Yitao Ma (Tohoku Univ.)</p>	<p>Focus Session (Area 2&8&9) K-5:Advanced devices, circuits, and system architectures for future computing systems</p> <p>(9:00-10:30) Session Chair: Kazuyuki Kouno (Nuvoton Technology Corporation Japan)</p>		<p>Area 4:Power / High-speed Devices and Materials N-5:SiC MOS interfaces</p> <p>(9:00-10:15) Session Chair: Heiji Watanabe (Osaka Univ.), Tarou Nishiguchi (Sumitomo Electric Industries, Ltd.)</p>
<p>9:00 G-5-01 (Invited) EMIB and Advanced Substrate Packaging Technologies to Enable Heterogeneous Integration (HI) Applications °Gang Duan¹, Ravi Mahajan¹, Rahul Manepalli¹, Hamid Azimi¹, ¹Intel Corp. (United States of America)</p>	<p>9:00 H-5-01 Understanding of Polarization Reversal and Charge Trapping under Imprint in HfO₂-FeFET by Charge Component Analysis °Yoko Yoshimura¹, Kunifumi Suzuki¹, Reika Ichihara¹, Kiwamu Sakuma¹, Kota Takahashi¹, Kazuhiro Matsuo¹, Makoto Fujiwara¹, Masumi Saitoh¹, ¹Kioxia Corp. (Japan)</p>	<p>9:00 J-5-01 (Invited) Impact of Spintronics-Based Nonvolatile Hardware for AI Applications °Takahiro Hanyu¹, Naoya Onizawa¹, Daisuke Suzuki², Masanori Natsui¹, ¹Tohoku Univ. (Japan), ²Univ. of Aizu (Japan)</p>	<p>9:00 K-5-01 (Invited) Materializing Cognition: Information Processing in Cognitive Matter °Wilfred G. van der Wiel^{1,2}, ¹Univ. of Twente (Netherlands), ²Univ. of Münster (Germany)</p>		<p>9:00 N-5-01 Low-temperature post-nitridation O₂ annealing to reduce the fixed charge density while maintaining the high SiC surface N density °Tianlin Yang¹, Takashi Onaya², Koji Kita^{1,2}, ¹Department of Materials Engineering, The Univ. of Tokyo (Japan), ²Department of Advanced Materials Sci., The Univ. of Tokyo (Japan)</p>
	<p>9:15 H-5-02 Ferroelectric Properties Tuning in Hf_{0.5}Zr_{0.5}O₂ Thin Films via Controlling the Crystal Orientations of Single-crystalline TiN Substrates °Yiyan Fan^{1,2}, Shunda Zhang³, Yulong Dong^{1,2}, Danyang Chen^{1,2}, Jiahui Zhang^{3,4}, Jingquan Liu¹, Mengwei Si¹, Yanwei Cao³, Xiuyan Li¹, ¹National Key Lab. of Sci. and Tech. on Micro/Nano Fabrication (China), ²Department of Micro/Nano Electronics, Shanghai Jiao Tong Univ. (China), ³Ningbo Inst. of Materials Tech. and Eng., Chinese Academy of Sci. (China), ⁴Faculty of Electrical Eng. and Computer Sci., Ningbo Univ. (China)</p>				<p>9:15 N-5-02 Role of P(O₂) in Annealing of the SiO₂/SiC Stack Formed by Si Deposition plus Oxidation °Qian Zhang^{1,2}, Nannan You¹, Jiayi Wang¹, Yang Xu¹, Yu Wang^{1,2}, Kuo Zhang^{1,2}, Shengkai Wang^{1,2}, ¹Inst. of Microelectronics of the Chinese Academy of Sci. (China), ²Univ. of Chinese Academy of Sci. (China)</p>
<p>9:30 G-5-02 High-Bendable 3D Corrugated Interconnections for Chiplet-Embedded Flexible Hybrid Electronics Using Wafer-Level Packaging °Chang Liu¹, Tadaaki Hoshi¹, Jiayi Shen¹, Atsushi Shinoda¹, Zehua Du¹, Hisashi Kino^{1,2}, Tetsu Tanaka^{1,2}, Takafumi Fukushima^{1,2}, ¹Graduate School of Eng., Tohoku Univ. (Japan), ²Graduate School of Biomedical Eng., Tohoku Univ. (Japan)</p>	<p>9:30 H-5-03 Switching Characteristics and Endurance Analysis of Nanolaminated Ferroelectric HZO Gate Stack with Al₂O₃ for Back-End-of-Line Applications °Cheng-Hung Wu¹, Chun-Jung Su², Vita Pi-Ho Hu¹, ¹National Taiwan Univ. (Taiwan), ²National Yang Ming Chiao Tung Univ. (Taiwan)</p>	<p>9:30 J-5-02 Design of an SOT-Based Self-Terminated Nonvolatile Register for Write/Leakage-Energy-Minimized Backup Operation °Daisuke Suzuki¹, Takahiro Hanyu², ¹The Univ. Aizu (Japan), ²Tohoku Univ. (Japan)</p>	<p>9:30 K-5-02 (Invited) Analog Computation-in-Memory (CIM) for Neuromorphic Computing °Ken Takeuchi¹, ¹Univ. of Tokyo (Japan)</p>		<p>9:30 N-5-03 Anomalous Impact of Mechanical Uniaxial Stress on Threshold Voltage of 4H-SiC (0001) MOSFET °Qiao Chu¹, Masahiro Masunaga², Akio Shima², Koji Kita¹, ¹The University of Tokyo (Japan), ²Hitachi, Ltd. R&D Group (Japan)</p>

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			<p>Area 7:Organic / Molecular / Bio-electronics D-5:High-sensitive devices for chem/bio detection 2</p> <p>9:45 D-5-04 Enhancing Performance of High-<i>k</i> Engineered Dual-gate Ion-Sensitive Field-Effect Transistor through Template Transfer of Electrospun Polyvinylpyrrolidone Nanofibers onto Random-Network Si Nanowire Channel °Tae-Hwan Hyun¹, Won-Ju Cho¹, ¹Kwangwoon Univ. (Korea)</p>	<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-5:Oxide semiconductor TFTs and technology</p> <p>9:45 E-5-04 Role of Weakly-bonded and Excess Oxygen in a-In₂O₃ Thin-Film Transistors °Jiayi Wang¹, Kuo Zhang^{1,2}, Yuxuan Li^{1,2}, Nannan You¹, Yang Xu¹, Ling Li^{1,2}, Shengkai Wang^{1,2}, ¹Inst. of Microelectron. of CAS (China), ²Univ. of CAS (China)</p> <p>10:00 E-5-05 Variable Photocurrent Method Characterization of Subgap Defects in In₂O₃ TFT °Kuo Zhang^{1,2}, Jiayi Wang¹, Yang Xu¹, Nannan You¹, Qian Zhang^{1,2}, Yu Wang^{1,2}, Shengkai Wang^{1,2}, ¹Inst. of Microelectronics of the Chinese Academy of Sci. (China), ²Univ. of Chinese Academy of Sci. (China)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-5:Advanced CMOS: Process Technology</p> <p>9:45 F-5-03 Epitaxial SiGe/Si Multi-Stacks for CFET Devices °Roger Loo¹, Yosuke Shimura¹, Anjani Akula¹, Clement Porret¹, Alex Merkulov¹, Mustafa Ayyad¹, Han Han¹, Olivier Richard¹, Andrea Impagnatiello¹, Andriy Hikavyi¹, ¹Imec (Belgium)</p> <p>10:00 F-5-04 Compressively Strained Epitaxial Ge Layers for Quantum Computing Applications °Yosuke Shimura¹, Clement Godfrin¹, Andriy Hikavyi¹, Roy Li¹, Juan Aguilera Servin², Georgios Katsaros², Paola Favia¹, Danny Wan¹, Kristiaan De Greve¹, Roger Loo¹, ¹imec (Belgium), ²IST Austria (Austria)</p>

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Focus Session (Area 1&3) G-5:Heterogenous Integration for High Performance Computing; System, Material, Process and Chiplet 1	Area 2:Advanced and Emerging Memories / New Applications H-5:Ferroelectric Memory Materials	Area 12:Advanced Circuits / Systems Interacting with Innovative Devices and Materials J-5:AI and Neural Applications	Focus Session (Area 2&8&9) K-5:Advanced devices, circuits, and system architectures for future computing systems		Area 4:Power / High-speed Devices and Materials N-5:SiC MOS interfaces
9:45 G-5-03 Damascene Compatible Low Thermal Budget Fine-Pitch Copper Hybrid Boding with Ultra-Thin Surface Passivation <i>°Hemant Kumar Cheemalamarri¹, Gim Guan Chen¹, Hongyu Li¹, Chandra Rao Bhesetti¹, Nagendra Sekhar Vasarla¹, Nandini Venkataraman¹, King Jien Chui¹, Srinivasa Rao Vempati¹, Navab Singh¹, ¹Institute of Microelectronics, Agency for Science, Technology and Research (A*STAR), Singapore (Singapore)</i>	9:45 H-5-04 Laminate-Thickness-Dependent Switching Dynamics of HfO₂-ZrO₂ Ferroelectric Nanolaminate Capacitors <i>°Xiaoyu Ke^{1,2}, Junshuai Chai^{1,2}, Hao Xu^{1,2}, Xiaolei Wang^{1,2}, Wenwu Wang^{1,2}, ¹Key Lab. of Microelectronics Devices and Integrated Tech., Inst. of Microelectronics, Chinese Academy of Sci. (China), ²College of Integrated Circuits, Univ. of Chinese Academy of Sci. (China)</i>	9:45 J-5-03 Hardware-conscious Software Training for Deep Neural Network Inference Accelerator Chips to Recover Accuracy Degradation due to Hardware Variabilities <i>°Shuchao Gao¹, Takashi Ohsawa¹, ¹Waseda University (Japan)</i>			9:45 N-5-04 Theoretical Analysis of Electron Scattering by Step-Terrace Structures at SiC Metal-Oxide-Semiconductor Interface <i>°Keisuke Utsumi¹, Hajime Tanaka¹, Nobuya Mori¹, ¹Osaka Univ. (Japan)</i>
10:00 G-5-04 Middle-End of Line Si FinFETs Using Laser-Liquid-Phase-Epitaxy Technique for Monolithic 3DIC <i>°Bo-Jheng Shih^{1,2}, Yu-Ming Pan¹, Hao-Tung Chung¹, Nei-Chih Lin², Chih-Chao Yang², Po-Tsang Huang¹, Huang-Chung Cheng¹, Chang-Hong Shen², Jia-Min Shieh², Wen-Fa Wu², Kuan-Neng Chen¹, Chenming Hu^{1,3}, ¹Univ. of Yang Ming Chiaou Tung (Taiwan), ²Inst. of Taiwan Semiconductor Research (Taiwan), ³Univ. of California, Berkeley (United States of America)</i>	10:00 H-5-05 Performance Improvement of HfZrO₂ Ferroelectric Tunnel Junction with Amorphous Al₂O₃ Passivation Layer <i>°Yueyuan - Zhang¹, Yue - Peng¹, Fenning - Liu¹, Yan - Liu¹, Yue - Hao¹, Genquan - Han¹, ¹Xidian Univ. (China)</i>	10:00 J-5-04 (Late News) A Highly Efficient STT-MRAM-Based IndRNN Accelerator with Approximate Dictionary Encoded Weight for Edge AI Devices <i>°Yiming Song¹, Tao Li¹, Tetsuo Endoh¹, ¹Tohoku Univ. (Japan)</i>	10:00 K-5-03 (Invited) 2D Material Based Bio-inspired Neuromorphic Edge Computing Devices <i>°Saptarshi Das Das¹, ¹Pennsylvania State Univ. (United States of America)</i>		10:00 N-5-05 The Influence of Boron Concentration on the Reduction of SiO₂/4H-SiC MOS Interface Defect Density with Preserved Flatband Voltage Stability <i>°Runze Wang¹, Munetaka Noguchi², Hiroshi Watanabe², Koji Kita¹, ¹Univ. of Tokyo (Japan), ²Mitsubishi Electric Corp. (Japan)</i>

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<p>Area 8:Low Dimensional Devices and Materials A-6:Device Application II: Low Dimensional Devices and Materials</p> <p>(10:45-12:15) Session Chair: Satoshi Hiura (Hokkaido Univ.), Takamasa Kawanago (Tokyo Tech)</p>	<p>Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-6:Neuromorphic devices and materials</p> <p>(10:45-12:15) Session Chair: Yoshifumi Nishi (Toshiba Corp.), Takashi Tsuchiya (NIMS)</p>	<p>Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-6:Battery&Energy harvesting</p> <p>(10:45-12:00) Session Chair: Munekazu Motoyama (Kyushu Univ.), Shunsuke Yamada (Tohoku Univ.)</p>	<p>Area 7:Organic / Molecular / Bio-electronics D-6:Advanced organic devices</p> <p>(10:45-12:15) Session Chair: Hiroaki Iino (Tokyo Institute of Technology), Hisashi Kino (Tohoku Univ.)</p>	<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-6:Thin films for sensors and gate insulators</p> <p>(10:45-12:00) Session Chair: Mamoru Furuta (Kochi Univ. of Technology), Chih-Yu Chang (TSMC)</p>	
<p>10:45 A-6-01 (Invited) Efficient Electron Spin Orientation and Nonlinear Spin Response in a Room-Temperature All-Semiconductor Spin Amplifier Yuqing Huang^{1,2}, Irina A. Buyanova¹, Weimin M. Chen¹, ¹Linköping Univ. (Sweden), ²Inst. of Semiconductors, Chinese Academy of Sciences (China)</p>	<p>10:45 B-6-01 (Invited) Hardware Implementation of Probabilistic Models through Nanodevice Variability Louis Hutin¹, Djohan Bonnet¹, Kamal Danouchi², Tifenn Hirtzlin¹, Thomas Dalgaty³, Philippe Talatchian², Francois Andrieu¹, Kevin Garello², Damien Querlioz¹, Elisa Vianello¹, ¹CEA-Leti (France), ²CEA-CNRS-SPINTEC (France), ³CEA-List (France), ⁴Univ. Paris-Saclay, CNRS (France)</p>	<p>10:45 C-6-01 (Invited) Demonstration of Reversible Photo-Assisted Lithium Extraction at Solid-Solid Interface toward Photo-Rechargeable Battery Masataka Yoshimoto¹, Kenta Watanabe¹, Keisuke Shimizu¹, Kazuhisa Tamura², Kota Suzuki¹, Ryoji Kanno¹, Masaaki Hirayama¹, ¹Tokyo Tech (Japan), ²JAEA (Japan)</p>	<p>10:45 D-6-01 Low voltage operation of organic thin-film transistor with atmospheric coating of high-k polymer dielectric Kazunari Kuribara¹, Atsushi Takei¹, Takashi Sato², Manabu Yoshida¹, ¹the National Inst. of Advanced Indus. Sci. and Tech. (Japan), ²Kyoto University (Japan)</p>	<p>10:45 E-6-01 Using thin-film transistor with thick oxygen-doped SZTO channel and patterned Pt/NiO capping layer to enhance ultraviolet light sensing performance Chang-Yu Liao¹, Rong-Ming Ko², Yu-Hao Chen¹, Chien-Hung Wu³, Shui-Jinn Wang^{1,2}, ¹Inst. of Microelectronics, Department of Electrical Eng., National Cheng Kung Univ., Tainan (Taiwan), ²Academy of Innovative Semiconductor and Sustainable Manufac., National Cheng Kung Univ., Tainan (Taiwan), ³Department of Optoelectronics and Materials Eng., Chung Hua Univ., Hsinchu (Taiwan)</p>	
			<p>11:00 D-6-02 Threshold Voltage Control of Organic Transistors Using Liquid Crystalline Organic Semiconductor Ph-BTBT-10 by Doping Shun Takamaru¹, Jun-ichi Hanna¹, Hiroaki Iino¹, ¹Tokyo Tech. (Japan)</p>	<p>11:00 E-6-02 Development of a Low-Powered, Ultra-Sensitive, Room-Temperature-Operated SnO₂-Based NOx Gas Sensor Using Sol-Gel Technique Moumita Deb¹, Ngoc Khanh Tran Ho², Hsin Fei Meng², Olivier Soppera³, Hsiao Wen Zan¹, ¹Department of Photonics, College of Electrical and Computer Engineering, National Yang Ming Chiao Tung Univ. (Taiwan), ²Institute of Physics, National Yang Ming Chiao Tung Univ. (Taiwan), ³Université de Haute-Alsace, CNRS, IS2M (France)</p>	
<p>11:15 A-6-02 First Demonstration of Bi-directional Sub-50 mV/dec MoS₂-Hf_{0.5}Zr_{0.5}O₂ Ferroelectric FET with Record High Memory Window Efficiency Exceeding the Theoretical Limit and High-Precision Analog Synapse HENG XIANG¹, Yu-Chieh Chien¹, Lingqi Li¹, Haofei Zheng¹, Sifan Li¹, Yufei Shi¹, Kah-Wee Ang^{1,2}, ¹National Univ. of Singapore (Singapore), ²Inst. of Materials Res. and Eng. (Singapore)</p>	<p>11:15 B-6-02 Deep Physical Reservoir Computing Achieved by Electric Double Layer Ion-Gating Reservoir Daiki Nishioka^{1,2}, Takashi Tsuchiya¹, Wataru Namiki¹, Masataka Imura¹, Yasuo Koide¹, Tohru Higuchi², Kazuya Terabe¹, ¹National Institute for Materials Science (Japan), ²Tokyo Univ. of Sci. (Japan)</p>	<p>11:15 C-6-02 Triboelectric Charging Behaviors of Emerging MDMO-PPV Copolymers for Highly Efficient Nanogenerator Applications Tzu Chuan Yang¹, Shih Cheng Tsao¹, Ting Han Lin², Ming Chung Wu², Jer Chyi Wang^{1,3,4}, ¹Department of Electronic Engineering, Chang Gung Univ. (Taiwan), ²Department of Chemical and Materials Engineering, Chang Gung Univ. (Taiwan), ³Department of Neurosurgery, Chang Gung Memorial Hospital (Taiwan), ⁴Department of Electronic Engineering, Ming Chi Univ. of Tech. (Taiwan)</p>	<p>11:15 D-6-03 Nonvolatile Operation of Resistive Memory with Ionic Liquid Crystal Thin Film as Switching Layer wenzhong zhang¹, Haruka Komatsu¹, Shingo Maruyama¹, Kenichi Kaminaga¹, Yuji Matsumoto¹, ¹Tohoku Univ. (Japan)</p>	<p>11:15 E-6-03 Selenized 2D Film Based Gas Sensor with Self-Convergent Calibration Che-Chuan Liu¹, Hsin-Yi Shen¹, Kuangye Wang², Yu-Lun Chueh², Yue-Der Chih³, Jonathen Chang³, Jiaw-Ren Shih¹, Chrong-Jung Lin¹, Ya-Chin King¹, ¹Microelectronics Laboratory, Institute of Electronics Engineering, National Tsing Hua Univ. (Taiwan), ²Department of Materials Science and Engineering, National Tsing Hua Univ. (Taiwan), ³Design and Technology Platform, Taiwan Semiconductor Manufacturing Company (tsmc) (Taiwan)</p>	
<p>11:30 A-6-03 Heterogeneous Integration of 32 × 32 ISIR Crossbar Array using 2D Hafnium Diselenide on Si Platform and its Compute-in-Memory Hardware Featuring Low Latency and High Energy Efficiency Samarth Jain¹, Sifan Li¹, Jianze Wang¹, Xuanyao Fong¹, Kah-Wee Ang^{1,2}, ¹National University of Singapore (Singapore), ²Institute of Materials Research and Engineering, A*STAR (Singapore)</p>	<p>11:30 B-6-03 Scaling of Device Area for Ultra-low-power Dissipation in 2-terminal Protonic Artificial Synapses Satya Prakash Pati¹, Satoshi Hamasuna¹, Takeaki Yajima¹, ¹Kyushu University (Japan)</p>	<p>11:30 C-6-03 The Formation of Defect State in Mo-doped BiVO₄ Photoanode to Generate a Higher Performance of PEC System Lingga Ghufira Oktariza¹, Yuta Sato¹, Muhammad Monirul Islam¹, Takeaki Sakurai¹, ¹University of Tsukuba (Japan)</p>	<p>11:30 D-6-04 Enhancement of Thermoelectric Properties in Carbon-Nanotube Yarns by an Improved Dispersion Method ANH NGOC NGUYEN¹, Naofumi Okamoto¹, Yongyoon Cho¹, Ryo Abe¹, Nikita Kumari¹, Manish Pandey¹, Hiroaki Bente¹, Masakazu Nakamura¹, ¹NAIST (Japan)</p>	<p>11:30 E-6-04 Reducing Leakage Current with Wider-Bandgap Alumina Films Formed by Ultrathin-AIN Oxidation Yusuke Nakajima¹, Akira Takashima¹, Masaki Noguchi¹, Tatsunori Isogai¹, ¹KIOXIA Corp. (Japan)</p>	

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<p>Focus Session (Area 1&3) G-6:Heterogenous Integration for High Performance Computing; System, Material, Process and Chiplet II</p> <p>(10:45-12:00) Session Chair: Takeshi Nogami (IBM Research), François Andrieu (CEA-Leti)</p>	<p>Area 5:Photonics: Devices / Integration / Related Technology H-6:Advanced light sources</p> <p>(10:45-12:00) Session Chair: Yuhki Ito (Sumitomo Electric Industries, Ltd.), Karim Hassan (CEA-Leti)</p>		<p>Area 2:Advanced and Emerging Memories / New Applications K-6:In-Memory and Unconventional Computing 1</p> <p>(10:45-12:00) Session Chair: Wein-Town Sun (eMemory Technology Inc.), Ming-Hsiu Lee (Macronix International Co., Ltd)</p>	<p>Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-6:Advanced Materials, Nanofabrication, and Thin Films II</p> <p>(10:45-12:00) Session Chair: Yoriko Tominaga (Hiroshima Univ.), Akira Heya (Univ. of Hyogo)</p>	<p>Area 4:Power / High-speed Devices and Materials N-6:Diamond-based Devices</p> <p>(10:45-11:45) Session Chair: Satoshi Yamasaki (Kanazawa Univ.), Shinsuke Harada (National Institute of Advanced Industrial Science and Technology)</p>
<p>10:45 G-6-01 (Invited) The evolution towards CMOS 2.0, a Heterogeneous Logic Platform °Geert Hellings¹, Sheng Yang¹, Pieter Weckx¹, Marie Garcia Bardon¹, Maarten Van de Put¹, Julien Ryckaert¹, imec (Belgium)</p>	<p>10:45 H-6-01 High Brightness Addressable VCSEL Array with Zn-Diffusion Apertures at 940 nm Wavelength °Min-Long Wu¹, Zuhaib Khan¹, Cheng-Wei Lin¹, Jin-Wei Shi¹,¹National Central University (Taiwan)</p> <p>11:00 H-6-02 Fabrication and optical characterization of a GaN-based micro-disk laser undercut by laser-assisted photo-electrochemical etching °Takeyoshi Tajiri¹, Sho Sosumi¹, Kazuo Uchida¹,¹The University of Electro-Communications (Japan)</p>		<p>10:45 K-6-01 Dual Integration of Approximate Random Weight Generator & CiM for Event-based Reservoir Computing & Spiking Neural Networks Shunsuke Koshino¹, °Naoko Misawa¹, Chihiro Matsui¹, Ken Takeuchi¹,¹The University of Tokyo (Japan)</p> <p>11:00 K-6-02 Highly Error-tolerant Low Power CiM by Co-design of SLC Mask & MLC Weight Twin FeFETs and Strong Lottery Ticket Hypothesis Neural Network Algorithm °Kenshin Yamauchi¹, Ayumu Yamada¹, Naoko Misawa¹, Seong-Kun Cho¹, Kasidit Toprasertpong¹, Shinichi Takagi¹, Chihiro Matsui¹, Ken Takeuchi¹,¹Univ. of Tokyo (Japan)</p>	<p>10:45 M-6-01 Bayesian Optimization of Polycrystalline III-V Compound Semiconductors Films for Thermoelectric Applications °Takamitsu Ishiyama^{1,2}, Koki Nozawa¹, Takashi Suemasu¹, Kaoru Toko¹,¹Univ. of Tsukuba (Japan),²JSPS Res. Fellow (Japan)</p> <p>11:00 M-6-02 Near-infrared Photoresponsivity of Polycrystalline InGaAs Films for Flexible Multi-junction Solar Cells °Takeshi Nishida^{1,2}, Takashi Suemasu¹, Kaoru Toko¹,¹AIST (Japan),²Univ. of Tsukuba (Japan)</p>	<p>10:45 N-6-01 (Invited) High-mobility p-channel field-effect transistors based on hydrogen-terminated diamond/h-BN heterostructures °Takahide Yamaguchi¹,¹NIMS (Japan)</p>
<p>11:15 G-6-02 (Invited) Packaging for Heterogeneous Integration: An Equipment Supplier's Perspective °Amulya Athayde¹,¹Applied Materials, Inc. (United States of America)</p>	<p>11:15 H-6-03 Enhanced Carrier Collection Efficiency in GeSn Waveguide Light-Emitting Diodes via Strain Engineering °Cheng-Ting Kuo¹, Yi-Wei Peng¹, Yue-Tong Jheng¹, Guo-En Chang¹,¹National Chung Cheng Univ. (Taiwan)</p> <p>11:30 H-6-04 A Novel Tensile Strained Ge/InGaAs Quantum Well Laser for MIR Applications °Rutwik Joshi¹, Steven Johnston², Sengunthar Karthikeyan¹, Mantu Hudait¹,¹Virginia Tech, (United States of America),²National Renewable Energy Lab. (United States of America)</p>		<p>11:15 K-6-03 A Mixing-mode Matrix-Vector-Multiplication Architecture for Large-scale Perceptron Operation °Yu-Yu Lin¹, Feng-Min Lee¹, Ming-Hsiu Lee¹, Keh-Chung Wang¹, Chih-Yuan Lu¹,¹Macronix International Co., Ltd. (Taiwan)</p> <p>11:30 K-6-04 HfO₂ ReRAM Based Opionic Reservoir for Image Classification °Jiayi Li¹, Haider Abbas¹, Asif Ali¹, Xin Ju², Diing Shenp Ang¹,¹Nanyang Technological Univ. (Singapore),²Agency for Sci., Tech., and Res. (A*STAR) (Singapore)</p>	<p>11:15 M-6-03 Ab Initio Study for Adsorption-Desorption Behavior on AlN(0001) Surface with Steps and Kinks °Toru Akiyama¹, Takahiro Kawamura¹,¹Mie University (Japan)</p> <p>11:30 M-6-04 Investigation of precipitation conditions of perovskite crystals into widegap semiconductor nanotrench structures °Tomoaki Momma¹, Akihiko Kikuchi^{1,2,3},¹Sophia Univ. (Japan),²Sophia Photonics Reserch Center (Japan),³Sophia Semiconductor Reserch Institute (Japan)</p>	<p>11:15 N-6-02 Normally-Off Operation in Vertical Diamond MOSFETs Using Oxidized Si Termination Diamond Channel Formed by Si Molecular Beam Deposition Approaches °Kento Narita¹, Kosuke Ota¹, Yu Fu¹, Chiyuki Wakabayashi¹, Atushi Hiraiwa¹, Hiroshi Kawarada^{1,2},¹School of Fundamental Science & Engineering Waseda Univ. (Japan),²The Kagami Memorial Research Inst. for Materials Science and Technology (Japan)</p> <p>11:30 N-6-03 Radiation Effects on 2DHG Diamond MOSFETs with Boron-doped Source and Drain Layers °Xuezheng Jia¹, Yukiko Suzuki¹, Sukeyasu Deguchi², Fuga Asai¹, Akira Takahashi¹, Atsushi Hiraiwa¹, Junichi Kaneko², Hiroshi Kawarada^{1,3},¹School of Fundamental Science and Engineering Waseda Univ. (Japan),²School of Engineering Hokkaido Univ. (Japan),³Kagami Memorial Research Inst. for Materials Science and Technology, Waseda Univ. (Japan)</p>

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<p>Area 8:Low Dimensional Devices and Materials A-6:Device Application II: Low Dimensional Devices and Materials</p> <p>11:45 A-6-04 Artificial Excitatory and Inhibitory Neuron Enabled by a Single Threshold-Switching Double-Gate MoS₂ Transistor ^oHanxi Li¹, Jiayang Hu¹, Anzhe Chen¹, Yishu Zhang¹, Yang Xu¹, Bin Yu¹, ¹Zhejiang university (China)</p> <p>12:00 A-6-05 (Late News) Ultra Flexible and Highly Integrated All Solid-State Artificial Synapse Arrays Based on van der Waals 2D/ Solid Electrolyte Heterostructures for Wearable Edge Computing ^oYonghun Kim¹, ¹Korea Institute of Materials Science (Korea)</p>	<p>Area 9:Novel Functional / Quantum / Spintronic Devices and Materials B-6:Neuromorphic devices and materials</p> <p>11:45 B-6-04 Giant electrostatic modulation of transient characteristics in metal-to-insulator VO₂ transition ^oSatoshi Hamasuna¹, Satya Prakash Pati¹, Takeaki Yajima², ¹Kyushu Univ. (Japan)</p> <p>12:00 B-6-05 Novel WN₂/C Interfacial Layer on Hf_{0.5}Zr_{0.5}O₂ Ferroelectric Memory ^oAbhijit Aich¹, Asim Senapati¹, Zhao-Feng Lou², Fu-Sheng Chang², Yu-Rui Chen², Yi-Pin Chen^{1,3}, Shih-Yin Huang^{3,4}, Siddheswar Maikap^{1,3}, Chee-Wee Liu², Min-Hung Lee², ¹Chang Gung Univ. (Taiwan), ²National Taiwan Univ. (Taiwan), ³Keelung Chang Gung Memorial Hospital (Taiwan), ⁴Chang Gung University College of Medicine (Taiwan)</p>	<p>Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-6:Battery&Energy harvesting</p> <p>11:45 C-6-04 Surface Passivation and Charge Transfer at TiO₂/Si Interface ^oXiaolong Liu¹, Ramsha Khan², Hannu P. Pasanen², Harri Ali-Löytty², Ville Vähänissi¹, Mika Valden², Nikolai V. Tkachenko², Hele Savin¹, ¹Electron Physics Group, Aalto Univ. (Finland), ²Photonic Compounds and Nanomaterials Group, Tampere Univ. (Finland), ³Surface Science Group, Tampere Univ. (Finland)</p>	<p>Area 7:Organic / Molecular / Bio-electronics D-6:Advanced organic devices</p> <p>11:45 D-6-05 Thermoelectric Properties Temperature Dependence of Electrical Conductivity and Seebeck Coefficient in Electrochemically Electrochemically-Doped Conducting Polymer PBTTT ^oShun-ichiro Ito¹, Kaito Kanahashi², Hisaaki Tanaka¹, Binjie Chen², Hiromichi Ohta⁴, Taishi Takenobu¹, ¹Nagoya Univ. (Japan), ²Univ. of Tokyo (Japan), ³IST-Hokkaido Univ. (Japan), ⁴RIES-Hokkaido Univ. (Japan)</p> <p>12:00 D-6-06 (Late News) Blended MXene-Polythiophene Semiconducting Network for Solution-Processed Nanocomposite Field-Effect Transistor ^oYU-SHENG ZHOU¹, Gen-Wen Hsieh¹, ¹Univ. of National Yang Ming Chiao Tung (Taiwan)</p>	<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-6:Thin films for sensors and gate insulators</p> <p>11:45 E-6-05 Controlling SiO₂ Thin Film Charge and Interface Defect Density on Germanium ^oHanchen Liu¹, Toni P. Pasanen¹, Oskari Leiviskä¹, Joonas Isometsä¹, Tsun Hang Fung¹, Marko Yli-Koski¹, Mikko Miettinen², Pekka Laukkanen², Ville Vähänissi¹, Hele Savin¹, ¹Aalto Univ. (Finland), ²Univ. of Turku (Finland)</p>	

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Focus Session (Area 1&3) G-6:Heterogenous Integration for High Performance Computing; System, Material, Process and Chiplet II	Area 5:Photonics: Devices / Integration / Related Technology H-6:Advanced light sources		Area 2:Advanced and Emerging Memories / New Applications K-6:In-Memory and Unconventional Computing 1	Area 11:Advanced Materials: Synthesis / Crystal Growth / Characterization M-6:Advanced Materials, Nanofabrication, and Thin Films II	Area 4:Power / High-speed Devices and Materials N-6:Diamond-based Devices
11:45 G-6-03 Effect of Passivation Layer on Wafer Warpage <i>Wei Feng¹, Haruo Shimamoto¹, Katsuya Kikuchi¹, ¹National Inst. of Advanced Indus. Sci. and Tech. (AIST) (Japan)</i>	11:45 H-6-05 Phonon-assisting injection three quantum-levels terahertz quantum cascade lasers for high-temperature operation <i>Li Wang¹, Mingxi Chen¹, Tsung-Tse Lin¹, Ke Wang², Hideki Hirayama¹, ¹Terahertz quantum device research team, RIKEN center for advanced photonics (Japan), ²Nanjing university (China)</i>		11:45 K-6-05 (Late News) Improvement in HZO FeFET-based Reservoir Computing Capacities through Operating Voltage Optimization <i>Shinyi Min¹, Kasidit Toprasertpong¹, Eishin Nako¹, Ryosho Nakane¹, Mitsuru Takenaka¹, Shinichi Takagi¹, ¹Univ. of Tokyo (Japan)</i>	11:45 M-6-05 Manipulation of Local Band Alignment Distribution by Controlling the Stacking Sequence in Dipole Layer at Perovskite Oxide Interface Characterized by Conductive AFM <i>Atsushi Tamura¹, Takashi Onaya², Koji Kita^{1,2}, ¹Dept. of Materials Engineering, Univ. of Tokyo (Japan), ²Dept. of Advanced Materials Science, Univ. of Tokyo (Japan)</i>	

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<p>Area 8:Low Dimensional Devices and Materials A-7:Device Application III: Low Dimensional Devices and Materials</p> <p>(13:30-14:45) Session Chair: Shengnan Wang (NTT Basic Research Laboratories), Yusuke Hoshi (Tokyo City Univ.)</p>		<p>Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-7:Thermoelectric devices</p> <p>(13:30-15:00) Session Chair: Masahiro Nomura (The Univ. of Tokyo), Shinnya Kato (Nagoya Institute of Technology)</p>		<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-7:Advanced LTPS TFTs and related technologies</p> <p>(13:45-15:00) Session Chair: Shin-ichiro Kuroki (Hiroshima Univ.), Wenchang Yeh (Shimane Univ.)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-7:Advanced CMOS: Device Technology 1</p> <p>(13:30-15:15) Session Chair: Anabela Veloso (imec), Seungkwon Kim (Samsung Electronics)</p>
		<p>13:30 C-7-01 (Invited) Large-scale Integrated Silicon Thermoelectric Device °Takanobu Watanabe¹, ¹Waseda Univ. (Japan)</p>			<p>13:30 F-7-01 (Invited) Channel and Transistor Stacking of Nanosheets Chien-Te Tu¹, Wan-Hsuan Hsieh¹, Yi-Chun Liu¹, Yu-Rui Chen¹, Bo-Wei Huang¹, Chun-Yi Cheng¹, °Chee Wee Liu¹, ¹National Taiwan Univ. (Taiwan)</p>
				<p>13:45 E-7-01 (Invited) System-on-Glass Technology with LTPS TFTs °Yoshiharu Nakajima¹, ¹Japan Display Inc. (Japan)</p>	
<p>14:00 A-7-02 A Ballistic Transport Investigation of High Performance CNTFETs with Interface Engineering: Virtual Source Parameter Extraction and SPICE Circuit Analysis °Yuchen Gu¹, Mengyu Zhao², Zhihan Liu², Junru Qu¹, Ying Sun¹, Yinfan Ouyang², Wei Sun², Ran Cheng¹, ¹Univ. of Zhejiang (China), ²Univ. of Peking (China)</p>		<p>14:00 C-7-02 Large Thermoelectric Power Generation in Ag₂S - Composite Effect of Spatially Separated Layers of Low- and High-Temperature Phases - °Kosuke Sato¹, Anoop Mampazhasseri Divakaran^{1,2}, Gareoung Kim^{1,2,3}, Koki Murase¹, Saurabh Singh^{1,2}, Keisuke Hirata¹, Dogyun Byeon^{1,2,3}, Masaharu Matsunami^{1,2,3}, Tsunehiro Takeuchi^{1,2,3}, ¹Toyota Tech. Inst. (Japan), ²CREST (Japan), ³MIRAI (Japan)</p>			<p>14:00 F-7-02 Epi Source/Drain Damage Mitigation with Inner Spacer and Buffer Optimization in Stacked Nanosheet Gate-All-Around Transistors °Curtis S Durfee¹, Ivo Otto², Subhadeep KaP, Shanti Pancharatnam¹, Matthew Flaugh¹, Toshiki Kanaki², Matthew Rednor², Huimei Zhou¹, Liqiao Qin¹, Juntao Li¹, Luciana Meli¹, Nicolas Loubet¹, Peter Biolsi², Nelson Felix¹, ¹IBM (United States of America), ²TEL (United States of America)</p>
<p>14:15 A-7-03 Stack control of Bi/Au bilayer electrodes toward p-type WSe₂ FET °Ryuichi Nakajima¹, Tomonori Nishimura¹, Keiji Ueno², Yasumitsu Miyata³, Kosuke Nagashio¹, ¹The Univ. of Tokyo (Japan), ²Saitama Univ. (Japan), ³Tokyo Metropolitan Univ. (Japan)</p>		<p>14:15 C-7-03 High Heat Flux Sensitivity of a Large-scale Integrated Cavity-free Micro Thermoelectric Device °Md Mehdee Hasan Mahfuz¹, Watanabe Takanobu¹, Takeo Matsuki², ¹Waseda University (Japan), ²National Inst. of Advance Indus. Sci. and Tech. (Japan)</p>		<p>14:15 E-7-02 Threshold Voltage Control of LTPS TFTs with MONOS Structure °TETSUYA GOTO^{1,2}, TOMOYUKI SUWA^{1,2}, KEITA KATAYAMA³, SHU NISHIDA³, HIROSHI IKENOUE¹, SHIGETOSHI SUGAWA¹, ¹Tohoku Univ. (Japan), ²FAIS (Japan), ³Kyushu Univ. (Japan), ⁴Kochi Tech (Japan)</p>	<p>14:15 F-7-03 Ferroelectric Hf_{0.5}Zr_{0.5}O₂ Omega FET and CMOS Inverter with SiGe/Si Super-Lattice channel °Yi-Ju Yao¹, Ting-Yu Tseng², Ching-Ru Yang², Tsai-Jung Lin¹, Heng-Jia Chang², Guang-Li Luo², Fu-Ju Hou², Yung-Chun Wu², ¹College of Semiconductor Research, National Tsing Hua University (Taiwan), ²Department of Engineering and System Science, National Tsing Hua University (Taiwan), ³Taiwan Semiconductor Research Institute (Taiwan)</p>
<p>14:30 A-7-04 Ultra-Steep-Slope P-Type Threshold Switch Field-Effect Transistors °Jiayang Hu¹, Hanxi Li¹, Yishu Zhang¹, Yang Xu¹, Bin Yu¹, ¹Zhejiang Univ. (China)</p>		<p>14:30 C-7-04 Demonstration of Scalability of a Planar Silicon Integrated Thermoelectric Device °Shuhei Arai¹, Md Mehdee Hasan Mahfuz¹, Takeo Matsuki^{1,2}, Takanobu Watanabe¹, ¹Waseda Univ. (Japan), ²Agency of Indus. Sci. and Tech. (Japan)</p>		<p>14:30 E-7-03 Low Ni Accumulation Symmetric S/D Vertical n-Channel Poly-Si Thin-Film Transistors Fabricated Using Dual Offset Ni Seeding Windows and Discrete Ni Formation Technology °Po-Yi Kuo¹, Ching-Long Huang², Guan-Lin Guo², Hao-Yu Wang², Yu-Cheng Chou², Yu-Ming Chiu², Zhen-Jie Hong², ¹National Chin Yi Univ. of Tech. (Taiwan), ²Feng Chia Univ. (Taiwan)</p>	<p>14:30 F-7-04 Monolithic heterogeneous Integration Inverter Consisting of Si (100) PMOSFET and Normally-off Al₂O₃/GaN NMOSFET °Yutong Fan^{1,2}, Weihang Zhang^{1,2}, Xi Liu¹, Yu Wen¹, Zhihong Liu^{1,2}, Shenglei Zhao¹, Jincheng Zhang^{1,2}, Yue Hao^{1,2}, ¹Lab. of Wide Band-Gap Semiconductor Materials and Devices, School of Microelectronics, Univ. of Xidian (China), ²Guangzhou wide bandgap semiconductor innovation center, inst. of Guangzhou technology, Univ. of Xidian (China)</p>

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	<p>Area 5: Photonics: Devices / Integration / Related Technology H-7: Si Photonics</p> <p>(13:30-15:00) Session Chair: Mizuki Shirao (Mitsubishi Electric Corporation), Hideki Ono (OKI)</p>		<p>Area 2: Advanced and Emerging Memories / New Applications K-7: MRAM, FeRAM, and ReRAM</p> <p>(13:30-15:00) Session Chair: Xu Bai (NanoBridge Semiconductor, Inc.), Wein-Town Sun (eMemory Technology Inc.)</p>	<p>Area 11: Advanced Materials: Synthesis / Crystal Growth / Characterization M-7: Advanced Materials, Nanofabrication, and Thin Films III</p> <p>(13:30-15:15) Session Chair: Akihiko Kikuchi (Sophia Univ.), Kentaro Watanabe (Shinshu Univ.)</p>	<p>Area 4: Power / High-speed Devices and Materials N-7: Ga2O3-based Devices</p> <p>(13:30-15:00) Session Chair: Yongzhao Yao (Japan Fine Ceramics Center), Joel T. Asubar (Univ. of Fukui)</p>
	<p>13:30 H-7-01 (Invited) Paradigm Shift of Photonics with Silicon °Koji Yamada¹, ¹Natl Inst. of Adv. Indus. Sci. and Tech. (Japan)</p>		<p>13:30 K-7-01 (Invited) Innovative SOT-MRAM Structure Design and Device Fabrication °Kai-Shin Li¹, ¹Taiwan Semiconductor Research Institute (Taiwan)</p>	<p>13:30 M-7-01 Theoretical Study of the Gas-Phase Reaction of Hexachlorodisilane by Thermodynamic Analysis and Kinetics Calculation °Tomoya Nagahashi^{1,2}, Hajime Karasawa², Ryota Horike², Kenji Shiraiishi^{1,3}, ¹Nagoya Univ. (Japan), ²KOKUSAI ELECTRIC (Japan), ³IMaSS (Japan)</p> <p>13:45 M-7-02 Formation of b-FeSi₂ NDs by SiH₄-Exposure to Fe-NDs °Haruto Saito¹, Katsunori Makihara¹, Noriyuki Taoka², Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan), ²Aichi Institute of Tech. (Japan)</p>	<p>13:30 N-7-01 (Invited) Recent Progress towards high-performance lateral Ga2O3 FETs °Andrew Green¹, ¹Air Force Res. Lab. (United States of America)</p>
	<p>14:00 H-7-02 Compact passive waveguides using mosaic-based device with triangular lattice photonic crystal-like structure °Takuya Mitarai^{1,2}, Takeshi Fujisawa², Yusuke Sawada^{1,2}, Takuya Okimoto^{1,2}, Naoya Kono², Naoki Fujiwara^{1,2}, Taichi Muratsubaki³, Takanori Sato³, Kunimasa Saitoh¹, Hideki Yagi^{1,2}, ¹Photonics Electronics Tech. Res. Assoc. (Japan), ²Sumitomo Electric Industries, Ltd. (Japan), ³Hokkaido Univ. (Japan)</p>		<p>14:00 K-7-02 Switching Characteristics of MgO Based MTJ with Intermediate State °Yiya Miyazaki¹, Chihiro Watanabe¹, Junichi Tsuchimoto², Hiroyuki Hosoya², Yoshiteru Amemiya², Akinobu Teramoto^{1,2}, ¹Grad. Sch. of Adv. Sci. and Eng., Hiroshima Univ. (Japan), ²Res. Inst. of Nanodevices, Hiroshima Univ. (Japan), ³CANON ANELVA Corp. (Japan)</p>	<p>14:00 M-7-03 Si Diffusion Control by Inserting SiO₂ Layer at Hf-Oxide/Si Interface for Transforming Hf-Oxide Crystalline Phase °Yunosuke Sano¹, Wataru Yasuda¹, Noriyuki Taoka², Akio Ohta², Katsunori Makihara¹, Seiichi Miyazaki¹, ¹Nagoya Univ. (Japan), ²Aichi Inst. of Tech. (Japan), ³Fukuoka Univ. (Japan)</p>	<p>14:00 N-7-02 Trap Analysis of Normally-off Ga₂O₃ MOSFET Enabled by Charge Trapping Layer Using Photon Stimulated Characterization °Minghao He^{1,2}, Mujun Li², Xiaohui Wang², Qing Wang², Hongyu Yu², Kah-Wee Ang¹, ¹National Univ. of Singapore (Singapore), ²Southern Univ. of Sci. and Tech. (China)</p>
	<p>14:15 H-7-03 Port switching of topological edge transmission using phase interference on Si-topological waveguide °Sho Okada¹, Tomohiro Amemiya¹, Itsuki Sakamoto¹, Ken Hattori¹, Nobuhiko Nishiyama^{1,2}, Xiao Hu³, ¹Tokyo Tech. (Japan), ²IR (Japan), ³NIMS (Japan)</p>		<p>14:15 K-7-03 Twin-bit Via RRAM with Unique Diode State in Cross-bar Arrays by Advanced CMOS Cu BEOL Process YU-CHENG - LIN¹, Yao-Hung Huang¹, °Kai-Ching Chuang¹, Yu-Der Chih¹, Jonathan Chang¹, Chrong-Jung Lin¹, Ya-Chin King¹, ¹Institute of Electronics Engineering, National Tsing Hua University (Taiwan), ²Design Technology Platform (DTP), Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan (Taiwan)</p>	<p>14:15 M-7-04 Enhancement of the Polarization Properties in Thin Ferroelectric Hf_{0.5}Zr_{0.5}O₂ Films by Two-Step Flash Lamp Annealing °Hideaki Tanimura¹, Yuto Ota², Hikaru Kawarazaki¹, Shinichi Kato¹, Takumi Mikawa¹, Yasuo Nara², ¹SCREEN Semiconductor Solutions Co., Ltd. (Japan), ²Univ. of Hyogo (Japan)</p>	<p>14:15 N-7-03 High Performance Ga₂O₃ Schottky Barrier Diode with Patterned Mg-CBL Rings Fabricated using a Damage-Free Doping Technique °Mujun Li¹, Minghao He^{2,1}, Xiaohui Wang¹, Qing Wang¹, Kah-Wee Ang², Hongyu Yu¹, ¹Southern Univ. of Sci. and Tech. (China), ²National Univ. of Singapore (Singapore)</p>
	<p>14:30 H-7-04 Numerical Evaluation of Modulation Bandwidth and Insertion Loss in InP-EOPolymer Hybrid Optical Modulator with Doping Optimization °Hiroya Sakumoto¹, Taketoshi Nakayama¹, Yuto Miyatake¹, Kasidit Toprasertpong¹, Shinichi Takagi¹, Mitsuru Takenaka¹, ¹Univ. of Tokyo (Japan)</p>		<p>14:30 K-7-04 Synergetic FeRAM/OxRAM memory array operation induced by oxygen vacancy interface engineering in Si:HfO₂ ferroelectric films °Laurent Grenouillet¹, Simon Martin¹, Julie Laguerre¹, Justine Barbot¹, Nicolas Vaxelaire¹, Pierre-Marie Deleuze², Olivier Renault¹, Rabah Kies¹, Catherine Carabasse¹, Pattamon Dezest¹, Francois Aussencac¹, Richard Souil¹, Olivier Billoint¹, Elisa Vianello¹, Wassim Hamouda², Nick Barret², Francois Andrieu¹, Jean Coignus¹, ¹CEA-Leti (France), ²SPEC-CEA (France)</p>	<p>14:30 M-7-05 Low-voltage operation of floating-gate type nonvolatile memory utilizing N-doped LaB₆ metal and LaB₆N₃ insulator stacked structure °Eun-Ki Hong¹, Shun-ichiro Ohmi¹, Secyaryary Ohmi¹, ¹Tokyo Institute of Tech. (Japan)</p>	<p>14:30 N-7-04 A Simulation Study of Vertical Ga₂O₃ Schottky Barrier Diodes Using Field Plate Termination °Yohei Yuda¹, Kohei Ebihara¹, Takuma Nanjo¹, Masayuki Furuhashi¹, Tatsuro Watahiki¹, Kazuyasu Nishikawa¹, ¹Mitsubishi Electric Corp. (Japan)</p>

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Area 8:Low Dimensional Devices and Materials A-7:Device Application III: Low Dimensional Devices and Materials		Area 6:Photovoltaics / Energy Harvesting / Battery-related Technology C-7:Thermoelectric devices		Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-7:Advanced LTPS TFTs and related technologies	Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-7:Advanced CMOS: Device Technology 1
		14:45 C-7-05 Impact of Heat Guide Structure on the Power Generation Performance of Integrated Cavity-free Micro Thermoelectric Generator <i>Keita Kuga¹, Md Mehdee Hasan Mahfiz¹, Takanobu Watanabe¹, Takeo Matsuki^{1,2}, ¹Waseda Univ. (Japan), ²AIST (Japan)</i>		14:45 E-7-04 Inversion Mode n-channel TFT on Polycrystalline Ge Formed by Solid-Phase Crystallization <i>Linyu Huang¹, Kenta Moto¹, Takamitsu Ishiyama², Kaoru Toko², Dong Wang¹, Keisuke Yamamoto¹, ¹Kyushu Univ. (Japan), ²Univ. of Tsukuba (Japan)</i>	14:45 F-7-05 (Late News) Device Characteristic Variability of GAA Si NS CFETs Induced by PVE and IPF <i>Sekhar Reddy Kola¹, Yiming Li¹, ¹National Yang Ming Chiao Tung University (Taiwan)</i>
					15:00 F-7-06 (Late News) Channel Trimming Process to Improve Electro-thermal Characteristics for Sub-3-nm Node Nanosheet Field-Effect Transistors with Laser Spike Annealing <i>Sanguk Lee¹, Jinsu Jeong¹, Seunghwan Lee¹, Junjong Lee¹, Jaewan Lim¹, Yonghwan Ahn¹, Rockhyun Baek¹, ¹Univ. of POSTECH (Korea)</i>

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	Area 5: Photonics: Devices / Integration / Related Technology H-7: Si Photonics		Area 2: Advanced and Emerging Memories / New Applications K-7: MRAM, FeRAM, and ReRAM	Area 11: Advanced Materials: Synthesis / Crystal Growth / Characterization M-7: Advanced Materials, Nanofabrication, and Thin Films III	Area 4: Power / High-speed Devices and Materials N-7: Ga₂O₃-based Devices
	<p>14:45 H-7-05 Development of a 200 mm Wafer Silicon Nitride PIC Environment for Graphene Electro-Absorption Modulators <i>°Rasuole Lukose¹, Marco Lisker^{1,2}, Pawan Kumar Dubey¹, Md Ashraf Islam Raju¹, Anna Peczek¹, Aleksandra Kroh¹, Mindaugas Lukosius¹, Andreas Mai^{1,2}, ¹IHP- Leibniz Institut für innovative Mikroelektronik (Germany), ²Technical University of Applied Science Wildau (Germany)</i></p>		<p>14:45 K-7-05 Enhancing ReRAM MLC Stability Through Reduction of Oxygen Vacancies Mobility Using Verification Algorithm <i>°Lucas Reganaz^{1,2}, Carine Jahan¹, Damien Deleruyelle³, Quentin Raffay², Djohan Bonner¹, Niccolo Castellani¹, Elisa Vianello¹, Alessandro Bricalli¹, Giuseppe Piccolboni⁴, Gabriel Molas¹, Francois Andrieu¹, ¹CEA Leti (France), ²Université Grenoble Alpes, Université Savoie Mont Blanc, CNRS, Grenoble INP, IMEP LAHC, 38000, Grenoble (France), ³INL CNRS, INSA Lyon (France), ⁴Weebit Nano Ltd (Israel)</i></p>	<p>14:45 M-7-06 High-quality Multilayer Graphene Formed by Layer Exchange with Alloy Catalysts <i>°Reno Ito¹, Takashi Suemasu¹, Kaoru Toko¹, ¹Univ. of Tsukuba (Japan)</i></p> <p>15:00 M-7-07 (Late News) Significant Difference in Ferroelectric Phase Formation Kinetics in Post-deposition and Post-metallization Annealing of HZO Films <i>°Tianning - Cui¹, Zhipeng - Xue¹, Danyang - Chen¹, Yiyang - Fan¹, Jingquan - Liu¹, Xiuyan - Li¹, ¹Shanghai Jiao Tong University (China)</i></p>	<p>14:45 N-7-05 Theoretical Investigation of β-(Al_{1-x}Ga_x)₂O₃/Ga₂O₃ Modulation-Doped Field-Effect Transistors with Dual-Metal Gate Structure <i>°Xiaole Jia¹, Yibo Wang^{1,2}, Cizhe Fang¹, Yan Liu¹, Yue Hao¹, Genquan Han¹, ¹Xidian University (China), ²Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences (China)</i></p>

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<p>Area 8:Low Dimensional Devices and Materials A-8:Characterization III: Low Dimensional Devices and Materials (15:30-16:15) Session Chair: Takamasa Kawanago (Tokyo Tech), Mahito Yamamoto (Kansai Univ.)</p>				<p>Area 10:Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process E-8:Group IV crystal growth and applications (15:30-16:15) Session Chair: Kenta Moto (Kyushu Univ.), Toshiya Murakami (KIOXIA)</p>	<p>Area 1:Advanced CMOS: Material Science / Process Engineering / Device Technology F-8:Advanced CMOS: Device Technology 2 (15:30-16:30) Session Chair: Keisuke Yamamoto (Kyushu Univ), Anabela Veloso (imec)</p>
<p>15:30 A-8-01 Dual gating of hBN/bilayer-graphene superlattices: band-engineering and doping a Dirac material °Yoshifumi Morita¹, Takuya Iwasaki², Kenji Watanabe², Takashi Taniguchi¹, ¹Gunma Univ. (Japan), ²National Inst. for Material Sci. (Japan)</p>				<p>15:30 E-8-01 Compressive Strain Dependence on the Photoluminescence of Epitaxial Ge_{1-x}Sn_x Grown on Ge(100) °Rahmat Hadi SAPUTRO^{1,2}, Tatsuro Maeda³, Ryo Matsumura¹, Naoki Fukata^{1,2}, ¹NIMS (Japan), ²Univ. of Tsukuba (Japan), ³AIST (Japan)</p>	<p>15:30 F-8-01 (Invited) Vertical-Transport Nanosheet Technology for Scaling beyond the Lateral-Transport Devices CMOS Era °Hemanth Jagannathan¹, ¹IBM Research (United States of America)</p>
<p>15:45 A-8-02 Dual gating and manipulation of the quantum valley currents in hBN/bilayer-graphene superlattices °Takuya Iwasaki¹, Yoshifumi Morita², Kenji Watanabe², Takashi Taniguchi¹, ¹NIMS (Japan), ²Gunma Univ. (Japan)</p>				<p>15:45 E-8-02 Exploration of Underlayers for Improving Crystal and Electrical Properties of Polycrystalline Ge Thin Films °Kota Igura¹, Shintaro Maeda¹, Takamitsu Ishiyama¹, Takashi Suemasu¹, Kaoru Toko¹, ¹Univ. of Tsukuba (Japan)</p>	
<p>16:00 A-8-03 Exploiting Transport Properties of Colloidal Quantum Dots Thin Films to Operate Multiple Photodiodes Matrices Simultaneously °Loïc Baudoin¹, Arthur Arnaud¹, Sébastien Masseno², Pierre Magnan², ¹STMICROELECTRONICS (France), ²ISAE SUPAERO Univ. of Toulouse (France)</p>				<p>16:00 E-8-03 (Late News) Infinite Growth of (001) Single Crystal Strip in Ge Film on SiO₂ by Micro-Chevron Laser Scanning Method °Wenchang Yeh¹, Takashi Osato¹, ¹Shimane University (Japan)</p>	<p>16:00 F-8-02 Holistic Analysis of Asymmetry in Vertical Silicon Gate-all-around Nanosheet FETs °Jinsu Jeong¹, Sanguk Lee¹, Seunghwan Lee¹, Junjong Lee¹, Jaewan Lim¹, Rock-Hyun Baek¹, ¹Pohang Univ. of Sci. and Tech. (POSTECH) (Korea)</p>
					<p>16:15 F-8-03 3D Stack Ultra High Resistance Via Matrix by Cu BEOL Structures in Nano-scaled CMOS Processing Node Li-Yu Yeh¹, °Ya-Lin Chang¹, Yue-Der Chih², Jonathan Chang², Chrong-Jung Lin¹, Ya-Chin King¹, ¹National Tsing Hua University (Taiwan), ²Design Technology Platform, Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan (Taiwan)</p>

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			<p>Area 2:Advanced and Emerging Memories / New Applications K-8:In-Memory and Unconventional Computing 2</p> <p>(15:30-16:30) Session Chair: Kazuyuki Kouno (Nuvoton Technology Corporation Japan), Xu Bai (NanoBridge Semiconductor, Inc.)</p> <p>15:30 K-8-01 A Machine Learning Based System Exploring the Correlation between Process Parameters and Device Characteristics in a 3D NAND Flash Memory Technology <i>°Kuan Chih Chen¹, Ming Hsiu - Lee¹, Chia Hong - Lee¹, Yin Jen - Chen¹, Ke Chung - Wang¹, Chih Yuan - Lu¹, ¹MACRONIX INTERNATIONAL CO., LTD. (Taiwan)</i></p> <p>15:45 K-8-02 Hardware Implementation of Temporal Encoded Spiking Neural Networks and Its Application to Rapid Gas Detection. <i>°Jiseong Im^{1,2}, Donghee Kim^{1,2}, Woo Young Choi^{1,2}, Jong-Ho Lee^{1,2}, ¹Seoul National University (Korea), ²Inter-Univ. Semiconductor Res. Center (ISRC) (Korea)</i></p> <p>16:00 K-8-03 Compact Edge Vision Transformer with 86% Non-volatile Memory Bit Reduction by Percentile Clipping, Per Layer Quantization, and Quantization Aware Training <i>°Ryuhei Yamaguchi¹, Ayumu Yamada¹, Naoko Misawa¹, Chihiro Matsui¹, Ken Takeuchi¹, ¹The University of Tokyo (Japan)</i></p> <p>16:15 K-8-04 Noise Event Injection Training to Mitigate Inference Accuracy Degradation due to Non-Idealities of Event-based Vision Sensor and Computation-in-Memory <i>Kazuhide Higuchi¹, °Yinghao Sun¹, Chihiro Matsui¹, Ken Takeuchi¹, ¹Univ. of Tokyo (Japan)</i></p>		