

Thursday, September 29

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A-5:Fully Depleted Structures (9:30-11:00) Chairs: T. Matsukawa (AIST), Y. Fukuzaki (Sony Corp.)	B-5:Memory Hierarchy (9:30-10:50) Chairs: K. Hamada (Micron Memory Japan Inc.), W.T. Sun (eMemory Technology Inc.)	C-5:Electro / Spintronics Optical Devices (9:30-11:00) Chairs: N. Nishiyama (Tokyo Tech), Y. Suzuki (Osaka Univ.)	D-5:Growth of Germanium-based Semiconductors (9:30-10:45) Chairs: T. Sadoh (Kyushu Univ.), T. Hoshi (NTT Device Tech. Labs.)		F-5:Solution Processed Devices (9:30-10:45) Chairs: K. Fujita (Kyushu Univ.), K. Ishida (Kobe Univ.)	G-5:II-VI and III-V Compound Photovoltaics (9:30-10:45) Chairs: T. Negami (Panasonic Corp.), T. Hoshii (Tokyo Tech)
9:30 A-5-01(Invited) Enabling Hetero-integration of III-V and Ge-based Transistors on Silicon with Ultra-thin Buffers formed by Interfacial Misfit Technique °X. Gong ¹ , S. Yadav ¹ , K. Goh ¹ , K. Tan ² , A. Kumar ¹ , K. Low ¹ , B. Jia ² , S. Yoon ² , G. Liang ¹ , Y. Ye ¹ , ¹ National Univ. of Singapore (Singapore), ² Nanyang Technological Univ. (Singapore)	9:30 B-5-01(Invited) Technology Challenges for Future DRAM and NAND and Technology Break through with Emerging Memories, MRAM and PRAM °J.C. Park ¹ , J.K. Kim ¹ , K.H. Yoon ¹ , K.S. Shin ¹ , ¹ Samsung Electronics Co., Ltd. (Korea)	9:30 C-5-01(Invited) Barium Titanate Thin Films Embedded in Silicon Photonic Structures for Ultra-Efficient Electro-Optical Tuning °S. Abel ¹ , J. Nordlander ¹ , F. Eltes ¹ , D. Caimi ¹ , M. Sousa ¹ , L. Czornomaz ¹ , M.D. Rossell ¹ , B.J. Offrein ¹ , J. Fompeyrine ¹ , ¹ IBM Research - Zurich (Switzerland), ² Electron Microscopy Center, Empa, Swiss Federal Laboratories for Materials Science and Technology (Switzerland)	9:30 D-5-01(Invited) Formation and Characterization of Si Quantum Dots with Ge Core for Functional Devices °S. Miyazaki ¹ , D. Takeuchi ¹ , M. Ikeda ¹ , K. Makihara ¹ , ¹ Nagoya Univ. (Japan)		9:30 F-5-01(Invited) Doped Polymer Organic Semiconductor Films with Ultra Workfunctions °L. Chua ¹ , ¹ NUS (Singapore)	9:30 G-5-01(Invited) Cu(In,Ga)(Se,S)₂ Solar Cell Research in Solar Frontier K.K. with 22.3% World-Record Efficiency °K.F. Tai ¹ , R. Kamada ¹ , T. Yagioka ¹ , A. Handa ¹ , S. Adachi ¹ , T. Kato ¹ , H. Sugimoto ¹ , ¹ Atsugi Research Center, Solar Frontier K.K. (Japan)
10:00 A-5-02 Theoretical Investigation and Benchmarking of Intrinsic Drain-Induced-Barrier-Lowering (DIBL) for Ultra-Thin-Body III-V-on-Insulator n-MOSFETs °C.-L. Yu ¹ , C.-H. Yu ¹ , P. Sit ¹ , ¹ NCTU (Taiwan)	10:00 B-5-02(Invited) Near-future Memory Hierarchy with Emerging Nonvolatile Memories and a Case Study of e-STT-MRAM Applications °S. Fujita ¹ , H. Noguchi ¹ , K. Ikegami ¹ , S. Takeda ¹ , K. Nomura ¹ , K. Abe ¹ , ¹ Toshiba Corp. (Japan)	10:00 C-5-02(Invited) Preparation of Ce:YIG Thin Films on Si and Application to Integrated Optical Isolator on Si Substrate °T. Goto ^{1,2,3} , M.C. Onbasli ² , X.Y. Sun ² , D.H. Kim ² , V. Singh ² , M. Inoue ² , L.C. Kimerling ² , C.A. Ross ² , ¹ Toyohashi Univ. of Tech. (Japan), ² Massachusetts Inst. of Tech. (USA), ³ JST-PRESTO (Japan)	10:00 D-5-02 Low Temperature (250 °C) Crystallization of Amorphous Ge Thin Film on Insulator through Ag-induced Layer Exchange °R. Yoshimine ¹ , K. Toko ¹ , T. Suemasu ¹ , ¹ Univ. of Tsukuba (Japan)		10:00 F-5-02 Reliability Enhancement of Air-Stable Organic Vertical Transistor °H.C. Lin ¹ , K. Kawashima ² , H.W. Zan ¹ , H.F. Meng ¹ , K. Takimiya ² , ¹ NCTU (Taiwan), ² RIKEN CEMS (Japan)	10:00 G-5-02 Crystallographic and Optical Properties and Band Diagrams of CuGaS₂, CuGa₂S₃, and CuGa₂S₅ Phases in Cu-poor Cu₂S-Ga₂S₃ Pseudo-binary System °T. Maeda ¹ , Y. Yu ¹ , T. Wada ¹ , ¹ Ryukoku Univ. (Japan)
10:20 A-5-03 An Investigation of the Parasitic RC Effects in Nano-scaled FinFETs and Its Impact on SRAM Cells °B.R. Huang ¹ , F.H. Meng ¹ , Y.C. King ¹ , C.J. Lin ¹ , ¹ National Tsing Hua Univ. (Taiwan)	10:30 B-5-03 8.9-times Performance Improvement by Tri-Hybrid Storage System with SCM and MLC/TLC NAND Flash Memory °C. Matsui ¹ , Y. Yamaga ¹ , Y. Sugiyama ¹ , K. Takeuchi ¹ , ¹ Chuo Univ. (Japan)	10:30 C-5-03 Observation of Electro-Optic Effect in ErYSiO Crystalline Waveguide Mach-Zehnder Interferometer °S. Takabe ¹ , G. Nakamura ¹ , Y. Tsuyuki ¹ , F. Kondo ¹ , H. Isshiki ¹ , ¹ The Univ. of Electro-Communications (Japan)	10:15 D-5-03 Low-Temperature Gold-Induced Lateral Crystallization of Sn-Doped Ge on Insulator for Flexible Electronics °T. Sakai ¹ , T. Sadoh ¹ , R. Matsumura ¹ , M. Miyao ¹ , ¹ Kyushu Univ. (Japan)		10:15 F-5-03 Solution-processed Top-gate Nonvolatile Organic Vertical Transistor Memory Devices with Soluble Fullerene-polymer Composite as Charge Storage Layers °F. Shiono ¹ , T. Nagase ¹ , T. Kobayashi ¹ , H. Naito ¹ , ¹ Osaka Pref. Univ. (Japan)	10:15 G-5-03 Demonstration of InP/InGaP Quantum Dot Solar Cells °T. Aihara ¹ , T. Tayagaki ¹ , Y. Nagato ^{1,2} , Y. Okano ² , T. Sugaya ¹ , ¹ AIST (Japan), ² Tokyo City Univ. (Japan)
10:40 A-5-04 On the Characterization of Hot Carrier Effect in Fully Depleted SOI and GeOI MOSFETs under Circuit-Speed Random Stress °R. Cheng ¹ , W. Chen ¹ , D.-W. Wang ¹ , J. Lu ² , R. Zhang ¹ , W.-Y. Yin ¹ , Y. Zhao ¹ , ¹ Zhejiang Univ. (China), ² Human Univ. (China)		10:45 C-5-04 Highly Efficient Helicity-dependent Photocurrent at Room Temperature Using a Fe/x-AlO₂/p-GaAs Schottky Junction °R.C.I. Roca ¹ , N. Nishizawa ¹ , K. Nishibayashi ¹ , H. Munekata ¹ , ¹ Tokyo Tech (Japan)	10:30 D-5-04 Thickness-Controlled Low-Temperature (~380°C) Solid-Phase Crystallization of Sn-Doped Poly-Ge/Insulator for High Carrier Mobility (~320 cm²/Vs) °K. Moto ¹ , T. Sadoh ¹ , Y. Kai ¹ , R. Matsumura ¹ , M. Miyao ¹ , ¹ Kyushu Univ. (Japan)		10:30 F-5-04 Polymer Semiconductor Homo-Junction Diode Fabricated by Wet Process °S. Sakiyama ¹ , T. Komura ¹ , N. Mizutani ¹ , K. Fujita ¹ , ¹ Kyushu Univ. (Japan),	10:30 G-5-04(Late News) Effects of Alkali Treatments and Thermal Annealing on the Property of CIGS Solar Cell °Y. Kamikawa ¹ , J. Nishinaga ¹ , S. Ishizuka ¹ , H. Shibata ¹ , S. Niki ¹ , K. Matsubara ¹ , ¹ AIST (Japan)

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H-5:Nanosensing & Microfluidic Systems (9:30-11:00) Chairs: T. Sakata (Univ. of Tokyo), H. Tanaka (Panasonic Corp.)	J-5:Advanced Functional Devices and System Architectures (9:30-10:50) Chairs: J. Akita (Kanazawa Univ.), K. Johguchi (Shinshu Univ.)	K-5:III-V Nanowires (9:30-10:45) Chairs: G. Zhang (NTT Basic Res. Labs.), K. Kawaguchi (Fujitsu Labs. Ltd.)	M-5:Bonding Technologies (9:30-11:00) Chairs: M. Fujino (Univ. of Tokyo), M. Kodera (Toshiba Corp.)	N-5:Novel Wide-Gap Materials & Devices (9:30-10:45) Chairs: H. Umezawa (AIST), Y. Miyamoto (Tokyo Tech)	O-5:Ultrathin Channel Engineering (9:30-10:45) Chairs: S. Yoshida (Sony Corp.), L. Grenouillet (CEA-Leti)
9:30 H-5-01(Invited) Beyond the Debye Length: Direct Protein Detection in Human Serum with FETs and a Portable Biomedical System C.H. Chu ¹ , I. Sarangadharan ¹ , A. Regmi ¹ , C.P. Hsu ¹ , Y.W. Chen ¹ , Y.L. Wang ¹ , ¹ National Tsing Hua Univ. (Taiwan)	9:30 J-5-01 Area-Efficient NanoBridge-based FPGA with Optimized Architecture X. Bai ¹ , T. Sakamoto ¹ , Y. Tsuji ¹ , M. Miyamura ¹ , A. Morioka ¹ , R. Nebashi ¹ , M. Tada ¹ , N. Banno ¹ , K. Okamoto ¹ , N. Iguchi ¹ , H. Hada ¹ , T. Sugibayashi ¹ , ¹ NEC Corp. (Japan)	9:30 K-5-01(Invited) III-V Nanowires and Nanofins: Growth, Etching, and Devices X. Li ¹ , K. Chabak ^{1,2} , W. Choi ¹ , J. Kim ¹ , X. Miao ¹ , P. Mohseni ¹ , Y. Song ¹ , D.E. Walker ² , C. Zhang ¹ , ¹ Univ. of Illinois (USA), ² Air Force Research Laboratory (USA)	9:30 M-5-01(Invited) Room temperature Bonding using Thin Metal Films: Technical Potential and Current Status T. Shimatsu ¹ , M. Uomoto ¹ , ¹ Tohoku Univ. (Japan)	9:30 N-5-01(Invited) Planer Diamond P-channel MOSFETs with Breakdown Voltage $V_B > 1.8kV$ and High Drain Current Density by 2DHG H. Kawarada ¹ , Y. Kitabayashi ¹ , M. Syamsul N.S.B. ¹ , M. Shibata ¹ , D. Matsumura ¹ , T. Kudo ¹ , A. Hiraiwa ¹ , ¹ Waseda Univ. (Japan)	9:30 O-5-01 Demonstration of Ultra-Thin Buried Oxide Germanium-on-Insulator MOSFETs by Direct Wafer Bonding and Polishing Techniques Z. Zheng ¹ , X. Yu ¹ , M. Xie ¹ , R. Cheng ¹ , R. Zhang ¹ , Y. Zhao ¹ , ¹ Zhejiang Univ. (China)
10:00 H-5-02 Si Micro-Optical-Bench Combining with Fiber and Flow Channel for Absorption Spectroscopy of Cells in Suspension M. Yoshimi ¹ , S. Kumagai ¹ , Y. Ohishi ¹ , M. Sasaki ¹ , ¹ Toyota Tech. Inst. (Japan)	9:50 J-5-02 Voltage Tolerant Circuit Design for Fully CMOS Compatible Differential MTP Non-Volatile Memories C. Wu ¹ , H. Lin ¹ , H. Chiu ¹ , ¹ National Chung Hsing Univ. (Taiwan)	10:00 K-5-02 Single Photon Emission from InAsP Quantum Dots Embedded in Density-controlled InP Nanowires S. Yanase ¹ , H. Sasakura ¹ , S. Hara ¹ , J. Motohisa ¹ , ¹ Hokkaido Univ. (Japan)	10:00 M-5-02 Quality and Reliability Investigation of Asymmetric Low Temperature Bonding Structure Using Ultra-thin Buffer Layer Technique T.-Y. Yu ¹ , H.-W. Liang ¹ , Y.-J. Chang ¹ , K.-N. Chen ¹ , ¹ NCTU (Taiwan)	10:00 N-5-02 Dynamic Properties of Diamond High Voltage PIN Diode A. Traore ¹ , A. Nakajima ¹ , T. Makino ^{1,2} , D. Kuvabara ^{1,2,3} , H. Kato ^{1,2} , M. Ogura ^{1,2} , D. Takeuchi ^{1,2} , S. Yamasaki ^{1,2,3} , ¹ AIST (Japan), ² JST-CREST (Japan), ³ Univ. of Tsukuba (Japan)	9:50 O-5-02 Advanced Layer Transfer Technology for Ultra Thin Body Ge on Insulator T. Maeda ¹ , W. Chang ¹ , T. Irisawa ¹ , H. Ishii ¹ , H. Hattori ¹ , V. Pobortchi ¹ , Y. Kurashima ¹ , H. Takagi ¹ , N. Uchida ¹ , ¹ AIST (Japan)
10:15 H-5-03 BEAMing (Beads, Emulsion, Amplification, Magetics) Digital PCR with Microfluidics A. Tagawa ¹ , K. Yamawaki ¹ , Y. Kawamoto ¹ , T. Nakano ¹ , ¹ Sysmex Corp. (Japan)	10:10 J-5-03 Cell-Scan-based Hardware Architecture for HOG-Feature Extraction X. Zhang ¹ , F. An ¹ , I. Nakashima ¹ , L. Chen ¹ , H.J. Mattausch ¹ , ¹ Hiroshima Univ. (Japan)	10:15 K-5-03(Invited) Nanowire Based Photovoltaics E. Barrigon ¹ , ¹ Lund Univ. (Sweden)	10:20 M-5-03 Reduction Reaction Analysis of Nanoparticle Copper Oxide by Formic Acid M. Fujino ¹ , M. Akaike ¹ , N. Matsuoka ¹ , T. Suga ¹ , ¹ Univ. of Tokyo (Japan)	10:15 N-5-03(Invited) Single Crystal β-Ga₂O₃ Substrates A. Kuramata ^{1,2} , K. Koshi ^{1,2} , S. Watanabe ¹ , Y. Yamaoka ^{1,2} , T. Masui ^{1,2} , S. Yamakoshi ^{1,2} , ¹ Tamura Corp. (Japan), ² Novel Crystal Technology, Inc (Japan), ³ Koha Co., Ltd. (Japan)	10:10 O-5-03 Novel Band Structure Modulations in Two/Three-Dimensional Silicon Carbon Alloys T. Mizuno ¹ , Y. Nagamine ¹ , Y. Omata ¹ , M. Yokoyama ¹ , T. Aoki ¹ , T. Sameshima ² , ¹ Kanagawa Univ. (Japan), ² Tokyo Univ. of Agri. & Tech. (Japan)
10:30 H-5-04(Late News) Direct Observation of Epigenetic Modifications along Intact Chromatin Fibers of Individual Chromosomes Isolated from Single Cells in a Microfluidic Channel T. Takahashi ¹ , K. Omondi Okeyo ¹ , M. Washizu ¹ , J. Ueda ² , H. Oana ¹ , ¹ Univ. of Tokyo (Japan), ² Chubu Univ. (Japan)	10:30 J-5-04 Real-Time Haar-like Feature Extraction Coprocessor with Pixel-Based Pipelined Hardware Architecture for Flexible Low-Power Object Detection and Recognition A. Luo ¹ , F. An ¹ , Y. Fujita ¹ , X. Zhang ¹ , L. Chen ¹ , H. Mattausch ¹ , ¹ Hiroshima Univ. (Japan)		10:40 M-5-04 Dynamics of Ultrasonic Cu Ball Bonding Measured <i>in-situ</i> by Using Piezoresistive Linear Array Sensors K. Iwanabe ¹ , K. Nakadozono ¹ , T. Asano ¹ , ¹ Kyushu Univ. (Japan)		10:30 O-5-04(Late News) Nearly Pinning-free Ohmic Contact at Bismuth/n-Silicon Interface S. Matsumoto ¹ , T. Nishimura ¹ , T. Yajima ¹ , A. Toriumi ¹ , ¹ Univ. of Tokyo (Japan)
10:45 H-5-05(Late News) Development of Si Neural Probe with Piezoresistive Force Sensor for Insertion Force Monitoring T. Harashima ¹ , T. Morikawa ¹ , H. Kino ¹ , T. Fukushima ¹ , T. Tanaka ¹ , ¹ Tohoku Univ. (Japan)					

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A-6:TFETs (11:15-12:25) Chairs: T. Miyata (Toshiba Corp.), R. Huang (Peking Univ.)	B-6:Flash Memory (11:15-12:15) Chairs: H.J. Lim (Samsung Electronics Co., Ltd.), K. Yamamoto (Toshiba Corp.)	C-6:Novel Spintronics Phenomena (11:15-12:45) Chairs: S. Ohya (Univ. of Tokyo), H. Shimizu (Tokyo Univ. of Agri. & Tech.)	D-6:Nanostructures Synthesis and Properties (11:15-12:30) Chairs: T. Yokota (Nagoya Inst. of Tech.), Y. Hotta (Univ. of Hyogo)	E-6:Semiconductor Light Sources (11:15-12:30) Chairs: K. Kojima (Tohoku Univ.), K. Ohira (Toshiba Corp.)	F-6:Organic Light Emitting Devices (11:15-12:30) Chairs: H. Murata (JAIST), T. Shimada (Hokkaido Univ.)	G-6:Silicon Photovoltaics II (11:15-12:30) Chairs: K. Ohdaira (JAIST), A. Masuda (AIST)
11:15 A-6-01(Invited) Bias Temperature Instability in Tunnel FETs ^{W. Mizubayashi¹, T. Mori¹, K. Fukuda¹, Y. Ishikawa¹, Y. Morita¹, S. Migita¹, H. Ota¹, Y.X. Liu¹, S. Ouchi¹, J. Tsukada¹, H. Yamauchi¹, T. Matsukawa¹, M. Masahara¹, K. Endo¹, ¹AIST (Japan)}	11:15 B-6-01 47% Data-Retention Error Reduction of TLC NAND Flash Memory by Introducing Stress Relaxation Period with Round-Robin Wear-leveling ^{Y. Deguchi¹, A. Kobayashi¹, K. Takeuchi¹, ¹Chuo Univ. (Japan)}	11:15 C-6-01(Invited) Perpendicularly Magnetized Mn-based Binary Alloy Single-crystalline Films: A Kind of Promising Material for Novel Spintronic Devices ^{J. Zhao¹, ¹Chinese Academy of Sciences (China)}	11:15 D-6-01(Invited) Kinetics of Forming Silicides in Nanowires and Nano-Heterostructures ^{Y.C. Chou¹, ¹NCTU (Taiwan)}	11:15 E-6-01 Current-Injection Two-Color Lasing in a Wafer-Bonded Coupled Multilayer Cavity with InGaAs Multiple Quantum Wells ^{H. Ota¹, X.M. Lu¹, N. Kumagai¹, T. Kitada¹, T. Isu¹, ¹Tokushima Univ. (Japan)}	11:15 F-6-01(Invited) Design of Materials for Organic Light-Emitting Diodes ^{H. Kajii¹, ¹Kyoto Univ. (Japan)}	11:15 G-6-01 Effect of Anti-Reflection Coating on the Crystallization of Amorphous Silicon Films by Flash Lamp Annealing ^{Y. Sonoda¹, K. Ohdaira¹, ¹JAIST (Japan)}
11:45 A-6-02 Performance Improvement in Uniaxially Tensile Stressed GeSn FinTFET Investigated by Simulation: Impact of Stress Direction ^{H. Wang¹, G. Han¹, Y. Liu¹, C. Zhang¹, J. Zhang¹, Y. Hao¹, ¹Xidian Univ. (China)}	11:35 B-6-02 N₂O-Treated Crystalline ZrTiO₄ as Charge Trapping Layer for Flash Memory Applications Featuring Low Operation Voltage ^{Y.S. Shen¹, K.Y. Chen¹, P.C. Chen¹, Y.H. Wu¹, ¹National Tsing Hua Univ. (Taiwan)}	11:45 C-6-02 Control of the Electric Field Effect and Magnetic Behavior by Orbital Switch ^{C. Song¹, B. Cui¹, F. Pan¹, ¹Tsinghua Univ. (China)}	11:45 D-6-02 Magnetotransport Properties of FePt Alloy-NDs Stacked Structures ^{K. Makihara¹, T. Kawase¹, A. Ohta¹, M. Ikeda¹, S. Miyazaki¹, ¹Nagoya Univ. (Japan)}	11:30 E-6-02 Hydrothermal Growth of n-ZnO Films on Patterned p-GaN Epilayer and Its Application on Heterojunction Light Emitting Diodes ^{R.M. Ko¹, C.Y. Chen¹, C.H. Wu¹, Y.R. Lin², H.M. Lo², S.J. Wang¹, ¹National Cheng Kung Univ. (Taiwan), ²Ming Chi Univ. of Tech. (Taiwan), ³Aceplux Optotech Inc. (Taiwan)}	11:45 F-6-02 Thermally Activated Delayed Fluorescence of Bis(9,9-dimethyl-9,10-dihydroacridine) Dibenzothiophene-S,S-Dioxide Derivatives for Organic Light-emitting Diodes ^{J. Kim¹, L.S. Cui¹, H. Nomura¹, S. Hwang¹, D.H. Kim¹, S.S. Reddy², H. Nakanotani¹, S.H. Jin², C. Adachi¹, ¹Kyushu Univ. (Japan), ²Univ. of Pusan (Korea)}	11:30 G-6-02 Potential-Induced Degradation for Thin-Film Si Photovoltaic Modules ^{Y. Hara¹, A. Masuda¹, ¹AIST (Japan)}
12:05 A-6-03 Tunnel FinFET CMOS Inverter with Very Low Short-Circuit Current for Ultra-Low Power IoT Application ^{Y. Morita¹, K. Fukuda¹, Y. Liu¹, T. Mori¹, W. Mizubayashi¹, S. Ouchi¹, H. Fuketa¹, S. Otsuka¹, S. Migita¹, M. Masahara¹, K. Endo¹, H. Ota¹, T. Matsukawa¹, ¹AIST (Japan)}	11:55 B-6-03 Differential Multiple-Time-Programming Memory Cells by Laterally Coupled Floating Metal Gate FinFETs ^{C. Hsu¹, C. Liao¹, W. Chien¹, Y. Chih², C. Lin¹, Y. King¹, ¹National Tsing Hua Univ. (Taiwan), ²TSMC (Taiwan)}	12:00 C-6-03 Spin-orbit Coefficients under the Presence of Anisotropic Spin Dephasing in a (001)-oriented GaAs/AlGaAs Quantum Well ^{D. Iizasa¹, A. Aoki¹, M. Kohda¹, J. Nitta¹, ¹Tohoku Univ. (Japan)}	12:00 D-6-03 Use of Gold Nanoparticles to Tune the Heating Capacity (ILP) of Iron Oxide Nanoparticles ^{G. Bell^{1,2}, L.K. Bogart¹, P. Southern¹, M. Olivo², Q.A. Pankhurst¹, I.P. Parkin¹, ¹Univ. College London (UK), ²A*STAR (Singapore)}	11:45 E-6-03 Circular Polarized Lasing Characteristics in Metal/GaN Double-Spiral Cavity Laser at Room Temperature ^{C.L. Yu¹, S.W. Liao¹, Y.H. Hsiao¹, H.C. Kuo¹, M.H. Shih^{1,2}, ¹NCTU (Taiwan), ²Academia Sinica (Taiwan)}	12:00 F-6-03 Optically Pumped Lasing in Solution-Processed Perovskite Semiconducting Materials: Self Assembled Fabry-Pérot Microcavity ^{F. Sasaki¹, Y. Zhou¹, Y. Sonoda¹, R. Azumi¹, H. Mochizuki¹, V.C. Nguyen², H. Yanagi², ¹AIST (Japan), ²NAIST (Japan)}	11:45 G-6-03 Transient Thermal Analysis of Si-based Solar Cell Using Electrical Junction-Temperature Measurement and Impedance Spectroscopy ^{Y.H. Chin¹, S.J. Wang¹, C.H. Hung¹, Y.C. Huang¹, C.H. Wu¹, N.S. Wu¹, H.P. Yan¹, ¹National Cheng Kung Univ. (Taiwan), ²Chung Hua Univ. (Taiwan)}
		12:15 C-6-04(Late News) Current-induced Magnetization Switching in a MnGa/Pt Film ^{R. Ranjbar¹, K. Suzuki¹, Y. Sasaki¹, L. Bainsla¹, S. Mizukami¹, ¹Tohoku Univ. (Japan)}	12:15 D-6-04 Criterion for Ballistic-electron Printing of Thin Metal and Group IV Films ^{R. Suda¹, M. Yagi¹, A. Kojima¹, N. Mori², J. Shirakashi¹, N. Koshida¹, ¹Tokyo Univ. of Agri. & Tech. (Japan), ²Osaka Univ. (Japan)}	12:00 E-6-04 Investigation of the Linewidth of a Tunable Laser Integrated with DFB Lasers and a Semiconductor Optical Amplifier ^{K. Enoki¹, Y. Horiguchi¹, K. Kojima², T. Koike-Akino², K. Akiyama¹, ¹Mitsubishi Electric Corp. (Japan), ²Mitsubishi Electric Research Labs. (USA)}	12:15 F-6-04(Late News) Frequency Dependent Electrical Response of Poly(triarylamine) with Triisopropylsilyl ethynyl-Pentance Organic Thin Film for Conduction Mechanisms ^{K.A. Mohamad¹, H.T. Hoh¹, A. Alias¹, B. Kumar Ghosh¹, I. Saad¹, H. Fukuda², ¹Univ. Malaysia Sabah (Malaysia), ²Muroran Inst. of Tech. (Japan)}	12:00 G-6-04 Optical Characterization of Double-side Textures Using Photonic Nanostructures for Thin-wafer c-Si Solar Cells ^{T. Tayagaki¹, D. Furuta², O. Aonuma², I. Takahashi², Y. Hoshi², Y. Kurokawa², N. Usami², ¹AIST (Japan), ²Nagoya Univ. (Japan)}
		12:30 C-6-05(Late News) High Magnetoresistance in Fully Epitaxial Magnetic Tunnel Junctions with a Semiconductor GaO_x Barrier ^{S.K. Narayananellor¹, N. Matsuo^{1,2}, N. Doko^{1,2}, H. Saito¹, S. Yuasa¹, ¹AIST (Japan), ²Chiba Inst. of Tech. (Japan)}		12:15 E-6-05(Late News) Growth and Characterization of ¹⁶⁷Er Doped-Y₂SiO₅ Single Crystal ^{H. Omi^{1,2}, T. Tawara^{1,2}, K. Shimizu¹, S. Saito¹, ¹NTT BRL (Japan), ²NTT Nanophotonics Center (Japan)}		12:15 G-6-05(Late News) Surface Modification of Evaporated BaSi₂ Films by In-situ Post-annealing and Amorphous Silicon Capping ^{K.O. Hara¹, C.T. Trinh², Y. Kurokawa², K. Arimoto¹, J. Yamanaka¹, K. Nakagawa¹, N. Usami², ¹Univ. of Yamanashi (Japan), ²Nagoya Univ. (Japan)}

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	<p>J-6:Advanced Low-Power Circuit Technologies for IoT Era (11:15-12:25) Chairs: H. Takao (Kagawa Univ.), H. Majima (Toshiba Corp.)</p>	<p>K-6:Functional Nanowires (11:15-12:30) Chairs: M. Arita (Univ. of Tokyo), S. Hara (Hokkaido Univ.)</p>		<p>N-6:Wide Band-Gap Devices (11:15-12:45) Chairs: T. Makino (AIST), T. Suzuki (JAIST)</p>	<p>O-6:Junction and Contact Technologies (11:15-12:40) Chairs: K. Yamamoto (Kyushu Univ.), G. Nakamura (Tokyo Electron Ltd.)</p>
	<p>11:15 J-6-01(Invited) A Wearable Biomedical Sensing System with Normally-off Computing Architecture and Physical Activity Classification Algorithm °M. Yoshimoto¹, ¹Kobe Univ. (Japan)</p> <p>11:45 J-6-02 A 400-mV Bluetooth Low-Energy Transmitter Using a Capacitor Switch across a Transformer for achieving a Wide Tuning Range Voltage-Controlled Oscillator °Y. Miyahara¹, K. Ishikawa¹, T. Kuroda¹, ¹Keio Univ. (Japan)</p> <p>12:05 J-6-03 A Self-Biased Low-Dropout Linear Regulator for Ultra-low Power Battery Management °T. Ozaki¹, T. Hirose¹, H. Asano¹, N. Kuroki¹, M. Numa¹, ¹Kobe Univ. (Japan)</p>	<p>11:15 K-6-01(Invited) Metal Oxide Nanowires for Early Disease Diagnosis °T. Yasui^{1,2}, D. Takeshita¹, T. Yanagida^{3,4}, N. Kajii¹, M. Kanai³, K. Nagashima³, H. Yukawa¹, T. Kawai¹, Y. Baba^{1,5}, ¹Nagoya Univ. (Japan), ²JST- PRESTO (Japan), ³Kyushu, Univ. (Japan), ⁴Osaka, Univ. (Japan), ⁵AIST (Japan)</p> <p>11:45 K-6-02 Thermal Management of SnO₂ Nanowire Sensor utilizing “Microsecond Thermal Relaxation Time” and “Reduced Thermal Conductivity” M. Gang¹, K. Nagashima¹, M. Kanai¹, °T. Yanagida¹, ¹Kyushu Univ. (Japan)</p> <p>12:00 K-6-03 Anomalous Thermoelectric Characteristic of Silicon Nanowire Between Heavily Doped Silicon Pads °S. Hashimoto¹, S. Asada¹, T. Xu¹, S. Oba¹, T. Matsukawa², T. Watanabe¹, ¹Waseda Univ. (Japan), ²AIST (Japan)</p> <p>12:15 K-6-04 Diffused Back Surface Field Formation in Combination with Two-Step H₂ Annealing for Improvement of SiNW-Based Solar Cell Efficiency °W. Jevasuwan¹, C. Junyi¹, T. Subramani¹, K. Nakajima¹, Y. Sugimoto¹, N. Fukata¹, ¹NIMS (Japan)</p>		<p>11:15 N-6-01(Invited) The Ideal Chip is not Enough - Issues Retarding the Success of Wide Band-Gap Devices °N. Kaminski¹, ¹Univ. of Bremen (Germany)</p> <p>11:45 N-6-02 Vertical MOSFET using C-H Diamond with Trench-channel °T. Muta¹, T. Saito¹, M. Inaba¹, D. Matsumura¹, T. Kudo¹, Y. Kitabayashi¹, A. Hiraiwa¹, H. Kawarada¹, ¹Waseda Univ. (Japan)</p> <p>12:00 N-6-03 High Performance Enhancement-mode Al₂O₃/AlGaN/GaN MIS-HEMT Using Standard Fluorine Ion Implantation and Partial-gate-recess C.H. Wu¹, °P.C. Han¹, Q.H. Luc¹, S.C. Liu¹, Y.K. Lin¹, R.B. Lee¹, C.C. Huang¹, H.C. Wang¹, T.E. Hsieh¹, Y.C. Lin¹, E.Y. Chang¹, ¹NCTU (Taiwan)</p> <p>12:15 N-6-04(Late News) Normally-off Operation of Planar GaN MOS-HFET without using Etching Process °T. Nanjo¹, T. Hayashida¹, H. Koyama¹, A. Imai¹, A. Furukawa¹, M. Yamamuk¹, ¹Mitsubishi Electric Corp. (Japan)</p> <p>12:30 N-6-05(Late News) Impact of Rapid Cooling Process in Ultra-high-temperature Oxidation of 4H-SiC(0001) °M. Sometani^{1,2}, D. Nagai¹, T. Hosoi¹, T. Shimura¹, Y. Yonezawa², M. Takei³, H. Watanabe¹, ¹Osaka Univ. (Japan), ²AIST (Japan), ³Fuji Electric Co., Ltd (Japan)</p>	<p>11:15 O-6-01(Invited) Ultra-thin Dielectric Insertions for Contact Resistivity Lowering in Advanced CMOS: Promise and Challenges °L. Hutin¹, J. Borrel^{1,2}, Y. Morand², F. Nemouchi¹, M. Vinet¹, ¹CEA-LETI (France), ²STMicroelectronics (France)</p> <p>11:45 O-6-02 Control of Fermi Level Pinning at Metal/Ge Interface Based on a Reconsideration of Metal-induced Gap States Model °T. Nishimura¹, T. Yajima¹, A. Toriumi¹, ¹Univ. of Tokyo (Japan)</p> <p>12:05 O-6-03 Record-high On/Off Current Ratio in Ge Planar n⁺/p Junctions with Gate Stack Passivation Scheme °T.C. Liu¹, T. Nishimura¹, A. Toriumi¹, ¹Univ. of Tokyo (Japan)</p> <p>12:25 O-6-04(Late News) Achievement of Ultralow Contact Resistivity of Metal/Ge Contacts with Zr-N-Ge Amorphous Interlayer °H. Okamoto¹, K. Yamamoto¹, D. Wang¹, H. Nakashima¹, ¹Kyushu Univ. (Japan)</p>

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<p>A-7:TFET Variability / Late News (14:00-15:40) Chairs: P. Su (NCTU), M. Hane (Renesas Electronics Corp.)</p>	<p>B-7:Neuromorphic Computing (13:40-15:50) Chairs: T. Sakamoto (NEC Corp.), T. Tanamoto (Toshiba Corp.)</p>					
<p>14:00 A-7-01 On the Variability of Tunnel Field-Effect Transistors: Suppression of BTBT Fluctuation by Tunneling Probability Enhancement °T. Mori¹, S. Migita¹, K. Fukuda¹, H. Asai¹, Y. Morita¹, W. Mizubayashi¹, Y. Liu¹, S. Ouchi¹, H. Fuketa¹, S. Otsuka¹, T. Yasuda¹, M. Masahara¹, H. Ota¹, T. Matsukawa¹, ¹AIST (Japan)</p>	<p>13:40 B-7-01(Invited) Memory Devices for Brain-Inspired Computing S.B. Eryilmaz¹, H. Li¹, W. Wan¹, °H.S.P. Wong¹, ¹Stanford Univ. (USA)</p>					
<p>14:20 A-7-02 Drain-Bias Dependency on Statistical Variability for Tunnel Field-Effect Transistors °W.Y. Choi¹, S.H. Choi¹, J.W. Lee¹, I. Huh¹, ¹Sogang Univ. (Korea)</p>	<p>14:10 B-7-02(Invited) Emerging Memory Technologies for Neuromorphic Computing °D. Strukov¹, ¹Univ. of California, Santa Barbara (USA)</p>					
<p>14:40 A-7-03(Late News) A Study on the Correlation between SRAM Power-up State and Transistor Variation °K. Takeuchi¹, T. Mizutani¹, T. Saraya¹, H. Shinohara², M. Kobayashi¹, T. Hiramoto¹, ¹Univ. of Tokyo (Japan), ²Waseda Univ. (Japan)</p>	<p>14:40 B-7-03(Invited) Analog VLSI Circuits and Devices for Neuro-Inspired Time-Domain Computing °T. Morie¹, ¹Kyushu Inst. of Tech. (Japan)</p>					
<p>14:55 A-7-04(Late News) Parallel Programmable Non-volatile Memory Using Normal SRAM Cells °T. Mizutani¹, K. Takeuchi¹, T. Saraya¹, H. Shinohara², M. Kobayashi¹, T. Hiramoto¹, ¹Univ. of Tokyo (Japan), ²Waseda Univ. (Japan)</p>	<p>15:10 B-7-04 Investigation of variability in Vertical Resistive RAM (VRRAM): Physical Model °G. Piccolboni¹, G. Molas¹, D. Garbin¹, T. Werner¹, E. Vianello¹, B. DeSalvo¹, G. Ghibaud², L. Perniola¹, ¹CEA-LETI (France), ²IMEP-LAHC CNRS (France)</p>					
<p>15:10 A-7-05(Late News) The Experimental Observation of Soft-Error Enhanced NBTI Degradation in Trigate FinFETs for the near-Cosmic Exploration of Drones E. Hsieh¹, C. Wu¹, °S. Chung¹, R. Huang², C. Tsai², T. Yew², ¹NCTU (Taiwan), ²UMC (Taiwan)</p>	<p>15:30 B-7-05 Exploitation of RRAM Variability to Improve On-line Unsupervised Learning in Small-scale Spiking Neural Networks °T. Werner¹, E. Vianello¹, O. Bichler², B. Yvert³, B. DeSalvo¹, L. Perniola¹, ¹CEA-LETI (France), ²CEA-LIST (France), ³Inserm (France)</p>					
<p>15:25 A-7-06(Late News) Time-Domain Study on Reproducibility of Laser-Based Soft-Error Simulation °H. Itsuji^{1,2}, D. Kobayashi^{1,2}, N. Lourenco³, K. Hirose^{1,2}, ¹Univ. of Tokyo (Japan), ²ISAS/JAXA (Japan), ³GTRI (USA)</p>						

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