

Advanced Program

2012 Asia-Pacific Workshop on Fundamentals and Applications of Advanced Semiconductor Devices

Wed, Jun 27 AM Opening Session (08:40 - 08:50), Room A

----- Opening Address (10 min.) -----

Wed, Jun 27 AM Plenary Session (08:50 - 10:50), Room A

(1) 08:50 - 09:30

[Keynote Address]

TCAD challenges and opportunities for predictive development

Yongwoo Kwon, *Dae Sin Kim, Young-Kwan Park (Samsung Electronics)

(2) 09:30 - 10:10

[Keynote Address]

More-than-Moore Devices based on Advanced CMOS Technologies

*Hitoshi Wakabayashi (Sony)

(3) 10:10 - 10:50

[Keynote Address]

Recent Advance of GaN Power Electronics

*Daisuke Ueda (Panasonic)

----- Short Break (10 min.) -----

Wed, Jun 27 AM Si-based Power Device Technology (11:00 - 12:00), Room A

(4) 11:00 - 11:15

Electrical characteristics of IGBT using a field stop trench gate structure

Ey Goo Kang (Far East Univ.), Eun Sik Jung (Maplesemiconductor Incorporated), Young Hwan Kim, Yong
Tae Kim (KIST)

(5) 11:15 - 11:30

Optimization and characterization of 600V super junction power MOSFET using a deep trench structure
Yong Tae Kim (KIST), Ey Goo Kang (Far East Univ.), Eun Sik Jung (Maplesemiconductor Inc.), Man
Young Sung (Korea Univ.)

~~(6) 11:30 - 11:45~~

~~Scaling and electrical effects of deep trench field ring on 600V super junction power MOSFET
Yong Tae Kim (KIST), Ey Goo Kang (Far East Univ.), Eun Sik Jung (Maplesemiconductor Inc.), Man
Young Sung (Korea Univ.)~~ **Withdrawn on May 30.**

(7) 11:30 - 12:00 (was 11:15 - 12:15)

[Invited Talk]

Gate Stack Technologies for Silicon Carbide Power MOS Devices

Takuji Hosoi, Takashi Kirino, Yusuke Uenishi, Daisuke Ikeguchi, Atthawut Chanthaphan (Osaka Univ.),
Akitaka Yoshigoe, Yuden Teraoka (JAEA), Shuhei Mitani, Yuki Nakano, Takashi Nakamura (ROHM),
Takayoshi Shimura, Heiji Watanabe (Osaka Univ.)

Wed, Jun 27 AM Detectors and Sensors (11:00 - 12:15) , Room B

(8) 11:00 - 11:30

[Invited Talk]

III-nitride-based Visible-blind and Solar-blind Photodetectors

Hai Lu (School of ESE, Nanjing Univ.)

(9) 11:30 - 11:45

The Very Fast Transferred Pixel with a Multi-Pinchoff Photodiode for Wafer-Scale X-Ray Sensor

Won-Young Jung, Joonghyeok Byeon, Jongmin Kim (Dongbu Hitek), Ji-Hoon Lim, Jae-Kyung Wee
(Soongsil Univ.)

(10) 11:45 - 12:15

[Invited Talk]

Plasmonic Terahertz Wave Detectors Based on Silicon Field-Effect Transistors

Kyung Rok Kim, Min Woo Ryu, Sunhae Shin, Hee Cheol Hwang, Kibog Park (UNIST)

----- Lunch Break (60 min.) -----

Wed, Jun 27 PM MOSFETs and Memory Technology (13:15 - 15:15), Room A

(11) 13:15 - 13:30

Investigation and Optimization of the n-channel and p-channel L-shaped Tunneling Field-Effect Transistors

Sang Wan Kim (Seoul National Univ.), Woo Young Choi (Sogang Univ.), Min-Chul Sun, Hyun Woo Kim, Byung-Gook Park (Seoul National Univ.)

(12) 13:30 - 13:45

The Asymmetric I-V Characteristics of Vertical MOSFET Induced by Tapered Silicon Pillar

Takuya Imamoto, Tetsuo Endoh (Tohoku Univ.)

(13) 13:45 - 14:00

A High Performance SRAM Sense Amplifier with Vertical MOSFET

Hyoungjun Na, Tetsuo Endoh (Tohoku Univ.)

(14) 14:00 - 14:15

Effects of Random Dopant Fluctuations on NAND Flash Memory Cells

Jungeun Kang, Boram Han (Sogang Univ.), Kyoung-Rok Han, Chung sung Jae, Gyu-Seog Cho, Sung-Kye Park, Seok-Kiu Lee (SK Hynix), Woo Young Choi (Sogang Univ.)

(15) 14:15 - 14:30

Control Effect of New Optimized Structure of Planar Thin Floating Gate (FG) NAND Flash to Fringing Field

Do-Bin Kim, Yoon Kim, Se Hwan Park, Wandong Kim, Joo Yun Seo, Seung-Hyun Kim, Byung-Gook Park (Seoul National Univ.)

~~(16) 14:30 - 14:45~~

~~Reduce the channel resistance in NAND Flash memory with vertical channel device using TCAD-simulation~~

~~Seung Dong Yang (Chungnam National Univ.), Jae Sub Oh (National Nanofab Center), Ho Jin Yun, Kwang Seok Jeong, Yu Mi Kim, Sang Youl Lee, Hee Deok Lee, Ga Won Lee (Chungnam National Univ.)~~

~~Withdrawn on June 8.~~

(17) 14:30 - 14:45 (was 14:45 - 15:00)

A Novel CMOS-Based PNP BJT Structure for Analog Applications

Seon-Man Hwang, Yi-Jung Jung, Hyuk-Min Kwon, Jae-Hyung Jang, Ho-Young Kwak, Sung-Kyu Kwon (Chungnam National Univ.), Yi-Sun Chung, Da-Soon Lee, Jong-Kon Lee (Magnachip Semiconductor Inc.), Hi-Deok Lee (Chungnam National Univ.)

(18) 14:45 - 15:00 (was 15:00 - 15:15)

100nm-gate-length Normally-off Accumulation-Mode FD-SOI MOSFETs for Low Noise Analog/RF Circuits

Hidetoshi Utsumi, Ryohei Kasahara, Yukihiisa Nakao, Rihito Kuroda, Akinobu Teramoto, Shigetoshi Sugawa, Tadahiro Ohmi (Tohoku Univ.)

----- Break (15 min.) -----

Wed, Jun 27 PM TFT Technology I (15:15 - 16:45), Room A

(19) 15:15 - 15:30 (was 15:30 - 15:45)

Field-induced degradation of organic field effect transistors under vacuum condition

Hoonsang Yoon, Youngjin Kang, Jongsun Choi, Hyungtak Kim (Hongik Univ.)

(20) 15:30 - 15:45 (was 15:45 - 16:00)

Nonvolatile Memory Thin-Film Transistors Using Solution-Processed Oxide Semiconducting Channel and Ferroelectric Polymer Gate Insulator

Jun-Yong Bak (Kyung Hee Univ.), Soon-Won Jung, Ho-Jun Ryu, Sang-Hee Ko Park, Chi-Sun Hwang (ETRI), Sung-Min Yoon (Kyung Hee Univ.)

(21) 15:45 - 16:00 (was 16:00 - 16:15)

Influence of co-sputtered HfO₂-Ti gate dielectric in IZO-based Transparent thin film transistors

Jungil Yang, Dongkyu Cho, Sanghyun Woo, Donghee Lee, Yoosung Lim, Sungmin Park, Daekuk Kim, Moonsuk Yi (PNU.)

(22) 16:00 - 16:15 (was 16:15 - 16:30)

A New RSD Bottom Gate Poly-Si Thin Film Transistor With Inside Spacer

Yi-Hsiang Chiu, Shan-Jen Yang, Feng-Tso Chien (Feng Chia Univ.), Chii-Wen Chen (Minghsin Univ.)

(23) 16:15 - 16:30 (was 16:30 - 16:45)

The study on A Novel Asymmetric Poly-Si Thin Film Transistor With Low Drain Electric Field

Meng-Shan Chi, Tzung-Ju Lin, Feng-Tso Chien (Feng Chia Univ.), Chii-Wen Chen (Minghsin Univ.)

(24) 16:30 - 16:45 (was 16:45 - 17:00)

Influence of grain size deviation on device characteristics of TFTs and displays for OLED driving

Katsuya Shirai, Katsuya Shirai (Univ. of the Ryukyus)

----- Break (30 min.) -----

Wed, Jun 27 PM TFT Technology II (17:15- 18:45), Room C

(25) 17:15 - 17:30

Crystallization of a-Si Films with Smooth Surface Using Blue-Multi-Laser-Diode-Annealing

Tatsuya Okada, Jean de Dieu Mugiraneza, Katsuya Shirai, Takuma Nishinohara, Tomoyuki Mukae,
Keisuke Yagi, Takashi Noguchi (Univ. Ryukyus)

(26) 17:30 - 17:45

Characterization of Optimized Sputtered Poly-Si Films by Blue-Multi-Laser-Diode Annealing for High
Performance Displays

Takuma Nishinohara, J. D. Mugiraneza, Katsuya Shirai, Tatsuya Okada, Takashi Noguchi (Univ. of the
Ryukyus)

(27) 17:45 - 18:00

Effective Annealing of Si Films as an advanced LTPS

Takashi Noguchi, Takuma Nishinohara, Jean de Dieu Mugiraneza, Katsuya Shirai, Tatsuya Okada (Univ.
Ryukyus)

(28) 18:00 - 18:15

Improvement of Low-Temperature-Deposited SiO₂ and Si/SiO₂ interface Properties by Thermal-Plasma-Jet
Annealing and Heat Treatment in High-Pressure H₂O Vapor

Shunki Koyanagi, Syouhei Hayashi, Tsubasa Mizuno, Kouhei Sakaike, Hiroaki Hanafusa, Seiitiro Higashi
(Hiroshima Univ.)

(29) 18:15 - 18:30

Multi-Layered SiGe-on-Insulator Structures by Rapid-Melting-Growth

Yuki Tojo, Ryo Matsumura, Hiroyuki Yokoyama, Masashi Kurosawa, Kaoru Toko, Taizoh Sadoh,
Masanobu Miyao (Kyushu Univ.)

(30) 18:30 - 18:45

Formation of (111)-oriented large-grain Ge on insulator at low-temperature by gold-induced crystallization
technique

Jonghyeok Park, Tsuneharu Suzuki, Masanobu Miyao, Taizoh Sadoh (Kyushu Univ.)

Wed, Jun 27 PM Interconnects and Integration Technologies (13:15 - 15:00), Room B

(31) 13:15 - 13:30

Loss characteristic of Comb-type Capacitive Transmission Line on MMIC

Eui-Hoon Jang, Jang-Hyeon Jeong, Sung-Jo Han, Ki-Jun Son, Young Yun (Korea Maritime Univ.)

(32) 13:30 - 13:45

Loss characteristic of Coplanar Waveguide Employing Periodic Structure on RFIC

Jang-Hyeon Jeong, Eui-Hoon Jang, Sung-Jo Han, Ki-Jun Son, Young Yun (Korea Maritime Univ.)

(33) 13:45 - 14:00

A Simple Dual-Loop Optoelectronic Oscillator with Reduced Spurious Tones Using a Multi-Electrode Semiconductor Laser

Jun-Hyung Cho, Seo-Weon Heo, Hyuk-Kee Sung (Hongik Univ.)

(34) 14:00 - 14:15

A chip scale wafer level packaging for LED using surface aligning technique.

Jin Kwan Kim, Hee Chul Lee (KAIST)

(35) 14:15 - 14:30

Stress Measurement Errors induced by the Strain Effects in Resistor-based Stress Sensors on (111) silicon

Chun-Hyung Cho, Ho-Young Cha (Hongik Univ.)

(36) 14:30 - 14:45

Comparison of thin film properties of WN diffusion barrier prepared by atomic layer deposition using metal organic and metal halide reactant gases

Yeong hyeon Hwang (KIST), Won-Ju Cho (Kwangwoon Univ.), Yong Tae Kim (KIST)

(37) 14:45 - 15:00

Fabrication of β -FeSi₂ thin films on Si using solid-phase growth reaction from Fe and FeSi sources

Katsuaki Momiyama, Kensaku Kanomata, Takahiko Suzuki, Shigeru Kubota, Fumihiko Hirose (Yamagata Univ.)

----- Break (15 min.) -----

Wed, Jun 27 PM Circuit Technology I (15:15 – 17:00), Room B

(38) 15:15 - 15:45

[Invited Talk]

CIS in high-end mobile phone camera

kangbong seo, kyoungin lee, siwook yoo, sangdong yoo, kyoungdong yoo (SK hynix)

(39) 15:45 - 16:15

[Invited Talk]

Nonlinear Three Branch Nano-Junction Devices and Their Application to Logic Circuits

Seiya Kasai (Hokkaido Univ.), Shaharin Fadzli Abd Rahman (UTM/Hokkaido Univ.), Masaki Sato, Xiang Yin (Hokkaido Univ.), Toshihiko Maemoto (Osaka Inst. Tech.)

(40) 16:15 - 16:30

A 140-GHz Fully Differential Common-Source Amplifier in 65nm CMOS

Hyunchul Kim, Daekeun Yoon, Jae-Sung Rieh (Korea Univ.)

(41) 16:30 - 16:45

An Area-Efficient CMOS Delay-Locked Loop

Sungkeun Lee, Se-Weon Heo, Jongsun Kim (Hongik Univ.)

(42) 16:45 - 17:00

A Wide Range and High Resolution CMOS DCC

Sangwoo Han, Jongsun Kim (Hongik Univ.)

----- Break (15 min.) -----

Wed, Jun 27 PM Circuit Technology II (17:15 - 19:00), Room B

(43) 17:15 - 17:30

A 0.5-V 2.4-GHz CMOS Voltage-Controlled Oscillator for Wireless Sensor Network Application

Seunghyeon Kim, Hyunchol Shin (Kwangwoon Univ.)

(44) 17:30 - 17:45

A 2.4-GHz CMOS Single-Chip OOK Transceiver for Wireless Sensor Network Applications

Seunghyeon Kim, Hyun Kim, Hyunchol Shin (Kwangwoon Univ.)

(45) 17:45 - 18:00

The Robust Cgd/Cgs Measurement Method of 85V nLDMOS

Won-Young Jung, Jin-Soo Kim, Taek-Soo Kim (Dongbu Hitek)

(46) 18:00 - 18:15

Design of Small-Area and High-Reliability 512-Bit EEPROM IP and its Measurement

Liyan Jin, Geon-Soo Yonn, Dong-Hoon Lee, Ji-Hye Jang, Mu-Hun Park, Pan-Bong Ha, Young-Hee Kim
(Changwon National Univ.)

(47) 18:15 - 18:30

Design of a Differential Paired eFuse One-Time Programmable Memory IP and its Measurement

Huiling Yang, Min-Sung Kim, Ji-Hye Jang, Mu-hun Park, Pan-Bong Ha, Young-Hee Kim (Changwon
National Univ.)

(48) 18:30 - 18:45

A Design of 5 - 6 GHz Band Rat-Race Hybrid Ring Coupler with Improved Phase-Error for Microstrip
Structure

Kyunghoon Kim, Dohyung Kim, Junghyun Shin, Jinwook Burm (Sogang Univ.)

(49) 18:45 - 19:00

A Power-Efficient 4-PAM Serial Link Receiver using a fully differential Rail-to-Rail input Dynamic Latch
for Wide Dynamic Range

Junan Lee, Daeho Yun, Bongsub Song, Jinwook Burm (Sognag Univ.)

Thu, Jun 28 AM Memory Technology (08:30 - 10:15), Room A

(50) 08:30 - 08:45

Modified Model of Sacrificial Layer Residue Effect in Nano-electro-mechanical Nonvolatile Memory

Min Su Han, Yeong Hwan Kim, Kyung Soo Kim, Jae Min Lee, Youngcheol Oh, Woo Young Choi
(Myongji Univ.), Woo Young Choi (Sogang Univ.), Il Hwan Cho (Myongji Univ.)

(51) 08:45 - 09:00

Evaluation of Chemical Composition and Bonding Features of Pt/SiO_x/Pt MIM Diodes and Its Impact on
Resistance Switching Behavior

Akio Ohta (Hiroshima Univ.), Katsunori Makihara (Nagoya Univ.), Mitsuhisa Ikeda, Hideki Murakami,
Seiichiro Higashi (Hiroshima Univ.), Seiichi Miyazaki (Nagoya Univ.)

(52) 09:00 - 09:15

Characterization of Resistive Switching of Pt/Si-rich Oxide/TiN System

Motoki Fukusima (Nagoya Univ.), Akio Ohta (Hiroshima Univ.), Katsunori Makihara, Seiichi Miyazaki (Nagoya Univ.)

(53) 09:15 - 09:30

Nonvolatile Polymer Memory-cell embedded with Ni Nanocrystals Surrounded by NiO in Polystyrene

Jong-Dae Lee, HyunMin Seung, Chang-Hwan Kim, Jea-Gun Park (Hanyang Uni.)

~~(54) 09:30 - 09:45~~

~~Conductive Filament (CF) Modulation Effect in Highly Scaled RRAM Cell for Low Power Memory Application~~

~~Kyung-Chang Ryoo, Sungjun Kim, Jeong-Hoon Oh, Sunghun Jung, Byung-Gook Park (SNU)~~ Withdrawn on June 8.

(55) 09:30 - 09:45 (was 09:45 - 10:00)

Characterization of Local Electronic Transport through Ultrathin Au/Highly-dense Si Nanocolumar structures by Conducting-Probe Atomic Force Microscopy

Daichi Takeuchi, Katsunori Makihara (Nagoya Univ.), Mitsuhsa Ikeda (hiroshima Univ.), Seiichi Miyazaki (Nagoya Univ.), Hirokazu Kaki, Tsukasa Hayashi (NISSIN ELECTRIC Co. Ltd.,)

(56) 09:45 - 10:00 (was 10:00 - 10:15)

Photoexcited Carrier Transfer in NiSi-Nanodots/Si-Quantum-Dots Hybrid Floating Gate in MOS Structures

Mitsuhsa Ikeda (Hiroshima Univ.), Katsunori Makihara, Seiichi Miyazaki (Nagoya Univ.)

----- Break (40 min.) -----

Thu, Jun 28 AM Energy Harvesting (08:30 - 09:45), Room B

(57) 08:30 - 09:00

[Invited Talk]

Voltage Multiplier Circuits and Radio Wave Generation Module for Energy Harvesting System

Saejeong Choi, Changsun Kim, Hyunshin Lee, Inyoung Kim, Dongchul Park (MJU), Sooyoung Min, Yunsik Lee (KETI), Taikyeong Jeong (MJU)

(58) 09:00 - 09:30

[Invited Talk]

Exploitation of Hierarchical Nanomaterials for Improving Light-Harvesting and Charge Collecting Properties of Dye-sensitized Solar Cells

Hyun Suk Jung (SKKU)

(59) 09:30 - 09:45

Lead Zirconate Titanate Acoustic Energy Harvesters for use in high sound pressure environments

Tomohiro Matsuda, Saori Hagiwara, Shuntaro Miyake, Kazuki Tomii, Satoshi Iizumi, Shungo Tomioka, Shu Kimura, Kyohei Tsujimoto, Yusuke Uchida, Yasushiro Nishioka (Nihon Univ.)

Thu, Jun 28 AM Gate Stack Technology (09:45 - 10:30), Room B

(60) 09:45 - 10:00

Control of Interfacial Reaction of HfO_2/Ge Structure by Insertion of Ta Oxide Layer

Kuniaki Hashimoto, Akio Ohta, Hideki Murakami, Seiichiro Higashi (Hiroshima Univ.), Seiichi Miyazaki (Nagoya Univ.)

(61) 10:00 - 10:15

Effects of Light and Air Exposures on Electrical Properties of GeO_2/Ge and $\text{Al}_2\text{O}_3/\text{Ge}$ Gate Stack Structures

Kusumandari, Wakana Takeuchi, Kimihiko Kato, Shigehisa Shibayama, Mitsuo Sakashita, Noriyuki Taoka, Osamu Nakatsuka, Shigeaki Zaima (Nagoya Univ.)

(62) 10:15 - 10:30

Effect of Si surface roughness on EOT reduction for HfON gate insulator formed by ECR plasma oxidation of HfN

Dae-Hee Han, Shun-ichiro Ohmi (Tokyo Tech))

----- Short Break (10 min.) -----

Thu, Jun 28 AM Poster Session (10:40 - 12:00), Room A

P-1 [Poster Presentation]

Rigorous Design for Gate-Dielectric and n-Pocket Region of Tunneling Field-Effect Transistors and Its High Performances.

Jae Hwa Seo, Jae Sung Lee, Yun Soo Park, Jung-Hee Lee, In Man Kang (Kyunpook Nat'l Univ.)

P-2 [Poster Presentation]

Dependence of Schottky barrier height on the junction size of bcc-metal/n-Ge(111) contacts

Hiroataka Yoshioka, Kenji Kasahara, Toshihiro Nishimura, Shinya Yamada, Masanobu Miyao, Kohei Hamaya (Kyushu Univ.)

P-3 [Poster Presentation]

Effect of hydrofluoric acid treatment on InAlN surfaces

Takuma Nakano, Masamichi Akazawa (Hokkaido Univ.)

P-4[Poster Presentation]

The surface morphology and electrical properties of NiO with various RF power and O₂/(Ar+O₂) gas mixture

Jonghun Kim, Gyohun Koo (Kyungpook national Univ.), Youngchul Jung (Gyeongju Univ.), Yougsoo Lee, Sungho Hahm, ChangJu Lee (Kyungpook national Univ.)

P-5 [Poster Presentation]

Mold transfer processed organic light emitting diodes using patterned conductive polymer electrode

Hyun Jun Lee, Young Wook Park, Tae Hyun Park, Eun Ho Song, Se Joong Shin, Hakkoo Kim (korea univ.), Jinwoo Lee (Micobiomed. Ltd), Jinnil Choi (Hanbat National Univ.), Byeong-Kwon Ju (korea univ.)

P-6 [Poster Presentation]

Development of scanning nano-SQUIDs for local magnetic imaging.

Yusuke Shibata (Tsukuba Univ.), Ryosuke Ishiguro (Tokyo Univ. of Science), Hiromi Kashiwaya, Satoshi Kashiwaya (AIST), Hideaki Takayanagi (Tokyo Univ. of Science/NIMS), Shintaro Nomura (Tsukuba Univ.)

P-7 [Poster Presentation]

Degradation Characteristics of high voltage AlGaIn/GaN-on-Si Heterostructure FETs

Shinhyuk Choi, Hoonsang Yoon, Dongmin Keum, Jae-Gil Lee, Ho-Young Cha, Hyungtak Kim (Hongik U.)

----- Lunch Break (60 min.) -----

----- Excursion (300 min.) -----

----- Banquet (120 min.), Room A -----

Fri, Jun 29 AM Advanced Si Technology (08:15 - 10:30), Room A

(63) 08:15 - 08:45

[Invited Talk]

The Stability of Bandgap Reference Voltage with Device Structures

Sang-Gi Lee, Jun-Woo Song, Eun-Sang Jo, Kwang-Dong Yoo (Dongbu HiTek)

(64) 08:45 - 09:15

[Invited Talk]

Potential of GeSn Alloys for Application to Si Nanoelectronics

Shigeaki Zaima, Yosuke Shimura, Marika Nakamura, Wakana Takeuchi, Mitsuo Sakashita, Osamu Nakatsuka (Nagoya Univ.)

(65) 09:15 - 09:45

[Invited Talk]

III-V/Ge integration on Si platform for electronic-photonic integrated circuits

Takenaka Mitsuru, Takagi Shinichi (Univ. Tokyo)

(66) 09:45 - 10:15

[Invited Talk]

Silicon on Thin Buried Oxide (SOTB) Technology for Ultralow-Power (ULP) Applications

Nobuyuki Sugii, Toshiaki Iwamatsu, Yoshiki Yamamoto, Hideki Makiyama, Takaaki Tsunomura, Hirofumi Shinohara, Hideki Aono, Hidekazu Oda, Shiro Kamohara, Yasuo Yamaguchi (LEAP/Renesas), Tomoko Mizutani, Toshiro Hiramoto (IIS, The University of Tokyo)

(67) 10:15 - 10:30

Novel Tunneling Field-Effect Transistor with Sigma-shape Embedded SiGe Sources and Recessed Channel
Min-Chul Sun (SNU and SEC), Sang Wan Kim, Garam Kim, Hyun Woo Kim, Hyungjin Kim, Jong-Ho Lee, Hyungcheol Shin, Byung-Gook Park (SNU)

----- Break (15 min.) -----

Fri, Jun 29 AM MOSFET Reliability (10:45 - 12:30), Room A

(68) 10:45 - 11:15

[Invited Talk]

Decomposition analysis of on-current variability of FinFETs

Takashi Matsukawa, Yongxun Liu, Kazuhiko Endo, Shinichi O'uchi, Meishoku Masahara (AIST)

(69) 11:15 - 11:45

[Invited Talk]

Thermal-Aware Device Desing of Nanoscale MOS Transistors

Ken Uchida (Keio Univ.), Tsunaki Takahashi, Nobuyasu Beppu (Tokyo Tech)

(70) 11:45 - 12:00

Statistical Analysis of Current Onset Voltage (COV) Distribution of Scaled MOSFETs

Tomoko Mizutani, Anil Kumar, Toshiro Hiramoto (Univ. of Tokyo)

(71) 12:00 - 12:15

Reliability Measurement of PFETs under Post Fabrication Self-Improvement Scheme for SRAM

Nurul Ezaila Alias, Anil Kumar, Takuya Saraya (Univ. of Tokyo), Shinji Miyano (STARC), Toshiro Hiramoto (Univ. of Tokyo)

(72) 12:15 - 12:30

The Effects of Fluorine Implantation on 1/f noise and reliability characteristics of NMOSFET

Jae-Hyung Jang, Hyuk-Min Kwon, Ho-Young Kwak, Sung-Kyu Kwon, Seon-Man Hwang, Jong-Kwan Shin (Chungnam National Univ.), Yi-Sun Chung, Da-Soon Lee, Jong-Kon Lee (Magnachip Semiconductor Inc), Hi-Deok Lee (Chungnam National Univ.)

Fri, Jun 29 AM Widegap and III-V Semiconductor Devices (08:15 - 10:30), Room B

(73) 08:15 - 08:45

[Invited Talk]

Integrated Design Platform for Power Electronics Applications with GaN Devices

Kenji Mizutani, Hiroaki Ueno, Yuji Kudoh, Shuichi Nagai, Kaoru Inoue, Nobuyuki Otsuka, Tetsuzo Ueda, Tsuyoshi Tanaka, Daisuke Ueda (Panasonic)

(74) 08:45 - 09:15

[Invited Talk]

Current Status of GaN Technologies in ETRI

Jae Kyoung Mun, Jong-Won Lim, Sang Choon Ko, Eun Soo Nam (ETRI)

(75) 09:15 - 09:45

[Invited Talk]

New widegap semiconductor Ga₂O₃ MESFETs and Schottky barrier diodes

Masataka Higashiwaki (NICT/JST), Kohei Sasaki (Tamura Corp./NICT), Akito Kuramata (Tamura Corp.), Takekazu Masui (Koha Co., Ltd.), Shigenobu Yamakoshi (Tamura Corp.)

(76) 09:45 - 10:15

[Invited Talk]

InAs Quantum-Well MOSFET for Logic and High-frequency Applications

Tae-Woo Kim, Richard Hill, Chad D. Young, Dmitry Veksler, Chang Yong Kang (SEMATECH), Dae-Hyun

Kim (Teledyne), Jesus A. del Alamo (MIT), Jungwoo Oh (Yonsei Univ.), Chris Hobbs, Paul D. Kirsch, Raj Jammy (SEMATECH)

(77) 10:15 - 10:30

Vertical InGaAs MOSFET with HfO₂ gate

Jun Hirai, Tomoki Kususaki, Shunsuke Ikeda, Yasuyuki Miyamoto (Tokyo Tech)

----- Break (15 min.) -----

Fri, Jun 29 AM Widegap and Nanowire Devices (10:45 - 12:15), Room B

(78) 10:45 - 11:00

ICPCVD SiO₂ for AlGaIn/GaN MISHFET application

Bong-Ryeol Park, Jae-Gil Lee, Hyungtak Kim, Chun-Hyung Cho, Ho-Young Cha (Hongik Univ.)

(79) 11:00 - 11:15

Improved current stability in multi-mesa-channel AlGaIn/GaN HEMTs

Kota Ohi, Tamotsu Hashizume (Hokkaido Univ.)

(80) 11:15 - 11:30

Fabrication and Characterization of Asymmetric-Gate GaAs Nanowire Transistors for Electrical Brownian Ratchet

Takayuki Tanaka, Yuki Nakano, Toru Muramatsu, Seiya Kasai (Univ. Hokkaido)

(81) 11:30 - 12:00

[Invited Talk]

Carbon nanotube-based plastic electronics

Yutaka Ohno (Nagoya Univ.)

(82) 12:00 - 12:15

Solution-based high-frequency field-effect transistors with purified semiconductor carbon nanotubes

Masaki Inagaki, Kensuke Hata, Kazunari Shiozawa, Yasumitsu Miyata, Yutaka Ohno, Shigeru Kishimoto, Hisanori Shinohara, Takashi Mizutani (Nagoya Univ.)

----- Break (15 min.) -----

Fri, Jun 29 PM Closing session (12:30 - 12:40), Room A

----- Closing Remarks (10 min.) -----

Information for speakers

Keynote Address will have 30 minutes for presentation and 10 minutes for discussion.

Invited Talk will have 20 minutes for presentation and 10 minutes for discussion.

General Talk will have 10 minutes for presentation and 5 minutes for discussion.

Poster Presentation will have 80 minutes for presentation.

Thu, Jun 28 AM Poster Session (10:40 - 12:00), RoomA

(83) 10:40 - 12:00

[Poster Presentation]

Rigorous Design for Gate-Dielectric and n-Pocket Region of Tunneling Field-Effect Transistors and Its High Performances.

Jae Hwa Seo, Jae Sung Lee, Yun Soo Park, Jung-Hee Lee, In Man Kang (Kyunpook Nat'l Univ.)

(84) 10:40 - 12:00

[Poster Presentation]

Dependence of Schottky barrier height on the junction size of bcc-metal/n-Ge(111) contacts

Hirota Yoshioka, Kenji Kasahara, Toshihiro Nishimura, Shinya Yamada, Masanobu Miyao, Kohei Hamaya (Kyushu Univ.)

(85) 10:40 - 12:00

[Poster Presentation]

Effect of hydrofluoric acid treatment on InAlN surfaces

Takuma Nakano, Masamichi Akazawa (Hokkaido Univ.)

(86) 10:40 - 10:55

[Poster Presentation]

The surface morphology and electrical properties of NiO with various RF power and O₂/(Ar+O₂) gas mixture

Jonghun Kim, Gyohun Koo (Kyungpook national Univ.), Youngchul Jung (Gyeongju Univ.), Yougsoo Lee, Sungho Hahm, ChangJu Lee (Kyungpook national Univ.)

(87) 10:40 - 12:00

[Poster Presentation]

Mold transfer processed organic light emitting diodes using patterned conductive polymer electrode

Hyun Jun Lee, Young Wook Park, Tae Hyun Park, Eun Ho Song, Se Joong Shin, Hakkoo Kim (korea univ.), Jinwoo Lee (Micobiomed. Ltd), Jinnil Choi (Hanbat National Univ.), Byeong-Kwon Ju (korea univ.)

(88) 10:40 - 12:00

[Poster Presentation]

Development of scanning nano-SQUIDs for local magnetic imaging.

Yusuke Shibata (Tsukuba Univ.), Ryosuke Ishiguro (Tokyo Univ. of Science), Hiromi Kashiwaya, Satoshi Kashiwaya (AIST), Hideaki Takayanagi (Tokyo Univ. of Science/NIMS), Shintaro Nomura (Tsukuba Univ.)

(89) 10:40 - 12:00

[Poster Presentation]

Degradation Characteristics of high voltage AlGa_N/Ga_N-on-Si Heterostructure FETs

Shinhyuk Choi, Hoonsang Yoon, Dongmin Keum, Jae-Gil Lee, Ho-Young Cha, Hyungtak Kim (Hongik U.)