SSDM 2001 Advance Program
General Information

DATE
Conference: September 26-28, 2001
Short Course: September 25, 2001(in Japanese)

LOCATION
DAIAMOND HOTEL
25 Ichiban-cho, Chiyoda-ku, Tokyo 102-0082 Japan
TEL:+81-3263-2211 FAX:+81-3263-2222
Web site: http://www.diamond-hotel.co.jp/ (in Japanese)

REGISTRATION
The registration desk will be open from Tuesday to Friday. The registration hours are as follows.

September 25	11:00-16:00	(ｼｮｰﾄｺｰｽ)	1FLobby
25	18:00-20:00	(Conference)	2FLobby
26	8:00-18:00		"
27	8:30-18:00		"
28	8:30-15:00		"

Pre-registration is recommended due to the expected large number of participants. In order to pre-register for SSDM 2001, the enclosed Registration Form should be returned with your payment by August 31 to the SSDM 2001 Secretariat. Payment should be made in Japanese yen by bank transfer or bank draft payable to the SSDM 2001 Secretariat. **Credit cards are acceptable from every attendee**: Diners, Master Card, VISA and AMEX. No personal checks will be accepted. After your remittance has been received, the receipt and a voucher for the participant's kit will be sent by the secretariat early in September. Students' contribution is encouraged. We are pleased to discount the student registration fee (5,000 yen).

Bank transfer to SSDM A/C No. 075- 2374600
Daiichi Kangyo Bank, Hongo Branch, Tokyo
第一勧業銀行　本郷支店(店番号(075)　(普) 2374600
口座名：SSDM

	Registration Fee		Short Courses in Japanese	Banquet
	By August 31	After September 1		
Regular	¥35,000	¥40,000	¥10,000	¥6,000
Student	¥5,000		¥1,000	¥3,000
Accompanying Person				¥3,000

1) The conference registration fee covers the conference attendance and includes a copy of the Extended Abstracts.
2) Student fee of Short Course has been changed discounted from ¥5,000 to ¥1,000.
3) Most lecture of the short course are given Japanese (No Translation), while their texts are prepared in English.

REGISTRATION CANCELLATION
Conference:
Cancellation fee of ¥3,000 will be deducted from the refund. Cancellation should be made in writing to the SSDM 2001 Secretariat. No cancellation will be allowed after September 10, 2001. Extended Abstracts will be sent to absent registrants after the Conference.

Short Course:

Regular:¥2,000 will be deducted.,
Student: No fee will be refund.
Cancellations should be made in writing to the SSDM 2001 Secretariat. No cancellation will be allowed after September 10. A text will be sent to absent registrants after the Conference.

BANQUET

A buffet dinner will be held at "Diamond Hall" of the conference site (1F) on September 26 from 18:00-20:00. Tickets (Regular ¥6,000 / Student ¥3,000) can be purchased at the registration desk.

LATE NEWS PAPERS (Deadlines was changed)

Late News Paper Deadline is August 6, 2001.

Late news papers describing important new developments may be submitted. A two-page description must be sent in the camera-ready format as required for the regular papers. The accepted papers will be included in the Extended Abstracts.
Original 2-page manuscript, 5 copies of printed or photocopied on both sides of a sheet with attached author's application form and copyright form should be sent to SSDM 2001 Secretariat.
Notice of acceptance will be mailed by the middle of August.

EXTENDED ABSTRACTS AND PUBLICATION

Authors of papers accepted for SSDM 2001 are encouraged to submit the original and significant part of the papers to the Special Issue of the Japanese Journal of Applied Physics. The special issue will be published in April, 2002.

AGREEMENT NOT TO PRE-PUBLISH ABSTRACTS

Submission of an abstract for review and subsequent acceptance is considered by the committee as an agreement that the work will not be published by the author prior to the presentation at the conference. This policy will be enforced by automatic withdrawal of the paper by the conference committee.

AWARDS

"SSDM Awards" will be given to excellent papers presented in the previous conferences.

SSDM Award
for the paper outstandingly contributed to the field of solid state devices and materials, among the papers presented prior to 1995.

SSDM Paper Award
for the best paper presented at the last conference.

SSDM Young Researcher Award
for a few excellent papers by young researchers presented at the last conference.

FINANCIAL SUPPORT

Limited financial support for presentations by students and by researchers from newly industrializing countries are available. People who are interested in the support should directly contact to the Steering Committee, *c/o Business Center for Academic Societies Japan, e-mail: ssdm@bcasj.or.jp.*

VISA REQUIREMENT

All foreign participants must have valid passport. Participants from countries where a visa is required to enter Japan are recommended to apply at the nearest Japanese embassy in their countries as soon as possible.

HOTEL ACCOMMODATIONS

	Room Rates		
Diamond Hotel	Single with bath	Twin with bath	25 Ichiban-cho, Chiyoda-ku, Tokyo 102-0082 Japan Phone: +81-3-3263-2211 Fax: +81-3-3263-2222 E-mail:FJP00503@nifty.com
	¥9,240	¥16,940	

Notes:
*Room rates include service charge. But a 5% tax will be added to your bill.
*Room rates include no meals.
*The hotel reservations run the first-come, first-serve basis; therefore, the bookings will close as soon as all the rooms are reserved.

APPLICATION AND PAYMENT FOR HOTELS

Participants wishing to reserve hotel accommodations should complete the application form and return it by fax or by mail to reach Diamond Hotel **no later than August 25, 2001**.
All payment must be in Japanese yen.
Payment should be in the form of:
-- The following credit cards are acceptable:
1. Visa Card 2. MasterCard 3. Diners Club 4. AMEX
Please bear in mind that you will be required to present the credit card once again upon check-in.

INSURANCE

The organizer cannot accept responsibility for accidents that might occur. Delegates are encouraged to obtain travel insurance (medical, personal accident, and luggage) in their home country prior to departure.

CLIMATE

The temperature in Tokyo during the period of the Conference ranges between 18 °C and 24 °C.

ELECTRICAL APPLIANCES

Japan operates on 100 volts for electrical appliances. The frequency is 50 Hz in eastern Japan including Tokyo and 60 Hz in western Japan including Kyoto and Osaka.

RUMP SESSIONS

September 27 (Thursday) 18:30-20:30
Rump session A (Room A)
Organizer: T. Kikkawa (Hiroshima Univ.)
Title : Next Generation ULSI: Challenge and Breakthrough The challenge and breakthrough technologies for the next generation ULSIs will be discussed from various aspects such as transistors, circuts, RF clock distribution, lithography, ferroelectric materials and nonvolatile memories.

Rump session B (Diamond Hall)
Title:

SHORT COURSES

Two Short courses will be held on September 25 (Tuesday) for young engineers and students. All lectures are given in Japanese.
Secretariat of SSDM
c/o Business Center for Academic Societies Japan
5-16-9 Honkomagome, Bunkyo-ku, Tokyo 113-8622, Japan
Phone: ＋81-3-5814-5800 FAX: ＋81-3-5814-5823
E-mail: ssdm@bcasj.or.jp

Wednesday, September 26

Diamond Hall

PL: Opening Session (9:30 - 12:30)
Chairpersons: Y. Arakawa, Univ. of Tokyo and N. Yokoyama, Fujitsu Labs.

9:30 PL-0
Welcome Address and Award Presentation,
Y. Horiike, Univ. of Tokyo, Organizing Committee Chairperson

9:45 PL-1 (Plenary) ***#2002***
WebTop Collaboration and Semiconductor Industry
S. Kohyama , *Toshiba, Japan*

10:30 PL-2 (Plenary) ***#2003***
Prospects of Si ULSI Devices for the Next Ten Years
Y. Taur , *IBM, USA*

11:15 PL-3 (Plenary) ***#2001***
Nanotechnology Strategy and Grand Challenges in U.S
M.C. Roco, *NSF, USA*

12:00 Lunch

Room A

A-1: Silicon Process/Materials Technologies I (13:00 - 15:10)
Chairpersons: T. Kikkawa, Hiroshima Univ.
S. Saito, NEC

13:00 A-1-1 (Invited) ***#2008***
Recent Progress in High-k Dielectric Films for ULSIs
S.I. Lee
Samsung Electronics, Korea

13:30 A-1-2 ***#188***
Periodic Mesoporous Silicate Glass as Low-k Thin Film
Y. Oku, A. Kamisawa, N. Nishiyama* and K. Ueyama*
*ROHM and *Osaka Univ., Japan*

13:50 A-1-3 ***#73***
Global Planarization with Viscosity Control for an Advanced STP Process
N. Sato, K. Machida, M. Yano*, K. Kudou* and H. Kyuragi
*NTT and *NTT-AT, Japan*

Room B

B-1: System-Level Integration and Packaging Technologies I (13:30 - 15:30)
Chairpersons: A. Matsuzawa, Matsushita Electronics
T. Suga, Univ. of Tokyo

13:30 B-1-1 (Invited) ***#2037***
Issues of Current LSI Technology and an Expectation for New System-Level Integration
T. Sakurai
Univ. of Tokyo, Japan

14:00 B-1-2 ***#309***
Three-Dimensional Integration of Fully Depleted SOI Devices
T. Morooka, T. Nakamura, Y. Yamada, Y. Igarashi, K.W. Lee*, K.T. Park, H. Kurino and M. Koyanagi
*Tohoku Univ. and *JST, Jaapn*

14:15 B-1-3 ***#263***
Electroplating Cu Filling Study for Thorough Electrode in Silicon Wafer of Three Dimensional LSI Chip Stacking
M. Tomisaka, H. Yonemura, M. Hoshino and K. Takahshi
ASET, Japan

Room C

C-1: SiGe/III-V/III-N Devices and Circuits for Wireless and Optical Communications I (13:30 - 15:15)
Chairpersons: M. Kuzuhara, NEC
Y. Tateno, Fujitsu Quantum Device

13:30 C-1-1 (Invited) ***#2030***
RF Power Performance of AlGaN/GaN HJFETs
N. Hayama, K. Kunihiro, Y. Okamoto, K. Kasahara, T. Nakayama, Y. Ohno, K. Matsunaga, H. Miyamoto, Y. Ando and M. Kazuhara
NEC, Japan

14:00 C-1-2 ***#283***
Studies of AlGaN/GaN High Electron Mobility Transistors on Semi-Insulating Silicon Carbide and Sapphire Substrates
S. Arulkumaran, T. Egawa, H. Ishikawa and T. Jinbo
Nagoya Inst. of Technol., Japan

14:15 C-1-3 ***#360***
Elmination of Kink Phenomena in InP-Based HEMTs by Forming Direct Ohmic Contacts in the Channel
K. Sawada, T. Arai, T. Takahashi and N. Hara
Fujitsu Labs., Japan

Wednesday, September 26

Room D	Room E	Room F
D-1: Advanced Concepts in Circuits and Systems (13:30 - 15:20) Chairpersons: T. Aoki, Tohoku Univ. M. Mizuno, NEC	**E-1: III - V LEDs and Detectors** (13:30 - 15:30) Chairpersons: R.D. Dupuis, Univ. of Texas H. Amano, Meijo Univ.	**F-1: Advanced Silicon Devices and Device Physics I** (13:30 - 15:30) Chairpersons: D. Hisamoto, Hitachi K. Ishimaru, Toshiba
13:30 D-1-1 (Invited) ***#2005*** Bio-Inspired VLSIs Based on Analog/Digital Merged Technologies A. Iwata, T. Morie and M. Nagata *Hiroshima Univ., Japan*	**13:30 E-1-1** (Invited) ***#2015*** Present and Future Nitride-Based Devices H. Amano and I. Akasaki *Meijo Univ., Japan*	**13:30 F-1-1** ***#362*** Carrier Transport of SiN Gate Dielectrics for Dual-Gate CMOSFETs H. Fukui, M. Takayanagi, S. Mori, T. Shimizu and Y. Toyoshima *Toshiba, Japan*
14:00 D-1-2 ***#88*** A 1-D CMOS PWM Cellular Neural Network Circuit and Resistive-Fuse Network Operation T. Morie, M. Miyake, M. Nagata and A. Iwata *Hiroshima Univ., Japan*	**14:00 E-1-2** ***#236*** High Brightness Green Light Emitting Diode with Charge Asymmetric Resonance Tunneling Structure C.H. Chen, Y.K. Su, S.J. Chang, G.C. Chi*, J.K. Sheu* and J.F. Chen *National Cheng Kung Univ. and *National Central Univ., Taiwan*	**13:50 F-1-2** ***#197*** Saturation Phenomenon of Stress Induced Gate Leakage Current S. Ueno, T. Kuroi, A. Teramoto, H. Umeda, Y. Inoue and M. Inuishi *Mitsubishi Electric, Japan*
14:20 D-1-3 ***#329*** Optimizing Associative Processor Architecture for Intelligent Internet Search Applications H. Xu, Y. Mita and T. Shibata *Univ. of Tokyo, Japan*	**14:15 E-1-3** ***#280*** Intense Ultraviolet Electro-luminescence Properties of the High-Power InGaN-Based LEDs Fabricated on Patterned Sapphire Substrates H. Kudo, K. Murakami, R. Zheng, Y.	**14:10 F-1-3** ***#13*** Monitoring Degradation of Source/Drain Extension in Sub-Quarter-Micron MOSFET's G. Chen, M.F. Li, X.M. Li and X. Yu* *National Univ. of Singapore and *Chartered Semiconductor Manufacturing, Singapore*

Yamada, T. Taguchi, K. Tadatomo*, H. Okagawa*, Y. Ohuchi*, T. Tsunekawa*, Y. Imada* and M. Kato**
*Yamaguchi Univ., *Mitsubishi Cable and **Stanleley Electric, Japan*

Room A	Room B	Room C
14:10 A-1-4 ***#333*** Dishing-Free Cu Chemical Mechanical Polishing Process Based on Endpoint Detection with Laser Beam Y. Tokuyama, H. Ogawa, M. Yanagisawa*, J. Kikuchi*, H. Nakagawa*** and Y. Horiike *Univ. of Tokyo, *Speedfam, **Axiomatec and ***Matsushita Electric, Japan*	**14:30 B-1-4** ***#66*** Feasibility of Direct Bonding Between CMP-Cu Films at Room Temperature for Bumpless Interconnect A. Shigetou, N. Hosoda, T. Itoh and T. Suga *Univ. of Tokyo, Japan*	**14:30 C-1-4** ***#10*** Investigation of Low-Frequency Noise Behavior of $In_{0.52}Al_{0.48}As/In_{0.60}Ga_{0.40}As$ Metamorphic High Electron Mobility Transistors J.H. Kim, H.-S. Yoon*, J.-H. Lee*, K.H. Lee* and J.-I. Song *KJIST and *ETRI, Korea*
14:30 A-1-5 ***#104*** CMP Using Fixed Abrasive Tool (FX-CMP) for Dielectric Planarization S. Katagiri, K. Yasui, Y. Kawamura, U. Yamaguchi, M. Nagasawa, F. Kanai, R. Kawai, M. Tokuda, S. Moriyama* and N. Yamada** *Hitachi, *Inst. of Technologists and **Nihon Tokushu Kento, Japan*	**14:45 B-1-5** ***#71*** New Plasma Surface Treatment for Wire Bonding Process -Effect of Sublimation with Alkyl Group Radicals- K. Honsho, H. Terai, H. Yamazoe, T. Tatsuta and O. Tsuji *Samco International, Japan*	**14:45 C-1-5** ***#350*** Theoretical and Experimental Study on Thermal Characteristics of InP/InGaAs Single Heterojunction Bipolar Transistors T. Kim, Y. Song, H.-M. Park, M. Kim, S. Hong and K. Yang *KAIST, Korea*
14:50 A-1-6 ***#213*** A Study on Reclaimed Photoresist Developer Using an Electrodialysis Method H. Sugawara, Y. Tajima* and T. Ohmi *Tohoku Univ. and *Organo, Japan*	**15:00 B-1-6** ***#128*** Oxygen Plasma Activated Silicon Direct Bonding in PECVD Mode T.H. Kim, M.M.R. Howlader, T. Itoh and T. Suga *Univ. of Tokyo, Japan*	**15:00 C-1-6** ***#163*** A Trial of Dual Emitter HBT for MMIC Power Amplifier Application Y.S. Lee and C.S. Park *Information and Communications Univ., Korea*
	15:15 B-1-7 ***#134*** Influence on Electrical Characteristic of Direct Au-Bumping on MOSFET N. Watanabe and T. Asano *Kyushu Institute of Technol., Japan*	
15:10-15:15 Break	15:30-15:45 Break	15:15-15:45 Break
A-2: Silicon Process/Materials Technologies II (15:15 -17:55) Chairpersons: M. Hori, Nagoya Univ. N. Kobayashi, Selete	**B-2: System-Level Integration and Packaging Technologies II** (15:45 - 17:00) Chairpersons: K. Takahashi, ASET H. Kasuga, NEC	**C-2: SiGe/III-V/III-N Devices and Circuits for Wireless and Optical Communications II** (15:45 - 17:45) Chairpersons: Y. Itoh, Mitsubishi Electric H. Tokuda, Toshiba
15:15 A-2-1 ***#45*** Ruthenium Film Etching and Cleaning Process Using Cerium Ammonium Nitrate (CAN)-Nitric Acid H. Aoki, K. Watanabe, T. Iizuka, N. Ishikawa* and K. Mori* *NEC and *Kanto Chemical, Japan*	**15:45 B-2-1** (Invited) ***#*** M. Swaminathan *Georgia Inst. of Technol, USA* *（論文タイトル未着）*	**15:45 C-2-1** (Invited) ***#2032*** Evoloution and Current Status of RF Microwave Semiconducrtor Devices J.J. Liou *USA*

15:35 A-2-2 ***#184***
Spin-Drying with CO_2 Gas Purge for 0.13 μm DRAM's Contact Process
Y. Ogawa, H. Okuchi, H. Tomita, K. Miyazaki, K. Takase and S. Nadahara

Toshiba, Japan

16:15 B-2-2 ***#334***
Interconnect Length Distribution

in Si System ULSI
N. Takagi, H. Shinoki, T. Tsushima, Y .Yokoyama and K. Masu
Tokyo Inst. of Technol., Japan

16:15 C-2-2 ***#199***
A Low Distortion pHEMT with Newly Developed Composite Channel Structure
Y. Tateno, M. Nagahara, J. Nikaido, T. Igarashi, H.A. Ebrahim, Y. Nakasha* and K. Joshin
*Fujitsu Quantum Devices and *Fujitsu Labs., Japan*

Room D

14:40 D-1-4 ***#230***
A High-Performance Time-Domain Winner-Take-All Circuit

Employing OR-Tree Architecture
K. Ito, M. Ogawa and T. Shibata
Univ. of Tokyo, Japan

15:00 D-1-5 ***#40***
Physical Random-Number Generator Using Schottky MOSFET
T. Asano, Y. Maeda, G. Nakagawa and Y. Arima
Kyushu Inst. of Technol., Japan

15:20-15:45 Break

D-2: Low Power and High Performance Circuits (15:45 - 17:35)
Chairpersons: T. Shibata, Univ. Tokyo
T. Morie, Hiroshima Univ.

15:45 D-2-1 (Invited) ***#2004***
Low Power Technologies for High Performance Systems
T. Kuroda
Keio Univ., Japan

Room E

14:30 E-1-4 ***#234***
A p-down InGaN/GaN MQW LED Structure Grown by MOVPE
C.H. Ko, S.J. Chang, Y.K. Su, C.I. Chiang*, W.J. Lin*, W.H. Lan* and Y.T. Cherng*
*National Cheng Kung Univ. and *Chung-Shan Inst. of Sci. & Technol., Taiwan*

14:45 E-1-5 ***#328***
Photocurrent Properties of AlGaN/GaN/AlGaN Photodetecters on Si
R.L. Jiang, Z.M. Zhao, P. Chen, D.J. Xi, B. Shen, R. Zhang and Y.D. Zheng

Nanjing Univ., China

15:00 E-1-6 ***#322***
Interface Properties between Ni and p-GaN Studied by Photoemission Spectroscopy
Y. Hagio, T. Maruyama*, Y. Nanishi*, K. Akimoto, T. Miyajima** and S. Kijima**
*Univ. of Tsukuba, *Ritsumeikan Univ. and **Sony, Japan*

15:15 E-1-7 ***#150***
10-16 um Broadband 640x512 GaAs/AlGaAs Quantum Well Infrared Photodetector (QWIP) Focal Plane Array
S.D. Gunapala, S.V. Bandara, J.K. Liu, S.B. Rafol, J.M. Mumolo, F.M. Reininger, J.M. Fastenau and A.K. Liu
Jet Propulsion Lab. USA

15:30-15:45 Break

E-2: Spin-Electronics Materials

(15:45 - 17;30)
Chairpersons: A. Yoshino, Tokyo Inst. of Technol.
H. Ohno, Tohoku Univ.

15:45 E-2-1 (Invited) ***#2016***
Electric Field Control of Ferromagnetism in Semiconductors
H. Ohno
Tohoku Univ., Japan

Room F

14:30 F-1-4 ***#133***
Quantum Mechanical Analysis of Accumulation Layers in MOS

Structures
S. Saito and K. Torii
Hitachi, Japan

14:50 F-1-5 ***#123***
Impact of Two-Dimensional Structure of nMOSFETs on Direct Tunnel Gate Current
H. Watanabe, K. Matsuzawa and S. Takagi
Toshiba, Japan

15:10 F-1-6 ***#12***
A Physical Model for Hole Direct

Tunneling Currents Through Ultrathin Gate Dielectrics in Advanced CMOS Devices
Y.T. Hou, M.F. Li, W.H. Lai and Y. Jin*

*National Univ. of Singapore and *Chartered Semiconductor Manufacturing, Singapore*

15:30-15:45 Break

F-2: Advanced Silicon Devices and Device Physics II (15:45 - 17:35)
Chairpersons: K. Takeuchi, NEC
T. Kuroi, Mitsubishi Electric

15:45 F-2-1(Invited) ***#2006***
Sub-50 nm Local Channel MOSFETs by SALVO Process
C.-P. Chang, H.-H. Voung, M.R. Baker,

C.S. Pai, F.P. Klemens, J.F. Miner, S.N.

Rogers, W.W. Tai, M. Bude, E.J. Lloyd, M. Frei, W.M. Mansfield, A. Kornblit, J.T.-C. Lee and C.S. Rafferty
Agera Systems, USA

16:15 D-2-2 ***#207***
Low -Power Data-Preserving Complementary Pass-Transistor-Based Circuit for Power-Down Circuit Scheme
K.-T. Park, T. Mizukusa, H.-S. Won*,

K.-M. Choi*, J.-T. Kong*, H. Kurino and M. Koyanagi
*Tohoku Univ., Japan and *Samsung Electronics, Korea*

16:15 E-2-2 ***#368***
Photo-Carrier Induced Magnetism in III-V Magnetic Alloy Semiconductor Heterostructures
A. Oiwa, T. Slupinski and H. Munekata*

*Kanagawa Academy of Sci. and Technol. and *Tokyo Inst. of Technol., Japan*

16:15 F-2-2 ***#196***
80nm High Peformance CMOSFET with Low Gate Leakage Current Using Convention

-al Thin Gate Nitric Oxide
K. Ota, H. Sayama, H. Oda, Y. Inoue, M. Inuishi, H. Nakaoka*, K. Nakanishi*, G. Fuse*, A. Kajiya* and M. Ogura *
*Mitsubishi Electric amd *Matsushita Electric, Japan*

Room A

15:55 A-2-3 ***#105***
The Effect of Organic Contaminations Molecular Weights in the Cleanroom Air on

MOS Devices Degradation -a Controlled Laminar Air Flow Experiment
T. Ohkawa, Y. Wakayama, S. Kobayashi*, S. Sugawa, H. Aharoni and T. Ohmi
*Tohoku Univ. and *Taisei, Japan*

16:15 A-2-4 ***#57***
Impact of Gate Etch Damage and

Profile in High Density DRAM Cell
I.-G. Kim, J.-W. Bae, J.-H. Choy, N.-S. Kim, Y.-W. Kweon, S.-K. Choi, S.-C. Kim, J.-S. Park and J.-B. Kim
Hynix Semiconductor, Korea

16:35 A-2-5 ***#56***
Effect of Poly Metal Gate Etch Post-Cleaning on the Tail Distribution of DRAM Data Retention Time
N.-S. Kim, I.-G. Kim, J.-H. Choy, S.-K. Choi, J.-B. Choi, Y.-W. Kweon, S.-C. Kim, J.-S. Park and J.-B. Kim
Hynix Semiconductor, Korea

16:55 A-2-6 ***#60***
A Thermally Robust Ti-Rich TiNx Contact Metallization Realizing an Interconnect System Suitable to 0.10-μm DRAMs and Beyond
I. Asano, Y. Nakamura, H. Aoki*, N.

Fukuda*, S. Yamada and T. Sekiguchi
*ELPIDA MEMORY and *Hitachi, Japan*

17:15 A-2-7 ***#100***

Room B

16:30 B-2-3 ***#247***
Effects of On-Chip Capacitor on

Switching Noise and Radiated Emission
T. Sudo, K. Nakano, J. Kudo and S. Haga
ASET, Japan

16:45 B-2-4 ***#336***
GHz Clock Distribution Using Transmission Line Interconnect and CMOS Differential Driver Circuit in Si ULSI
Y. Yokoyama, T. Tsushima, H. Shinoki, N. Takagi and K. Masu
Tokyo Inst. of Technol., Japan

Room C

16:30 C-2-3 ***#103***
A 2W High Efficiency 4-12 GHz GaAs HFET MMIC Power

Amplifier
H. Yukawa, M. Nii, Y. Tsukahara, Y. Itoh and Y. Ikeda
Mitsubishi Electric, Japan

16:45 C-2-4 ***#162***
AlGaAs/GaAs PHEMT MMIC Broadband Power Amplifier from 17GHz to 36GHz for K/Ka-Band Applications
Y.C. Lee and C.S. Park
Information and Communications Univ., Korea

17:00 C-2-5 ***#91***
Ku-Band Multi-Stage MMIC Low-Noise Amplifier Loaded with Double Gain-Equalizing Circuits
K. Yamanaka, K. Sugaya, T. Yamaguchi, N. Tanahashi, Y. Itoh and

T. Takagi
Mitsubishi Electric, Japan

17:15 C-2-6 ***#14***
A Ultra Broadband SPST GaAs PIN Diode Switch with 30 dB Isolation and 1.0 dB Insertion Loss
H. Takasu, F. Sasaki and J. Ozaki
Toshiba, Japan

17:30 C-2-7 ***#306***

240-nm Pitch Aluminum Interconnects Formation by UHF-ECR Plasma Etching Incorporating TM Bias and Novel-Gas Chemistry
N. Kofuji, T. Tsutsumi, E. Matsumoto, *K. Fujimoto, N. Itabashi, M. Izawa, T. Fujii and S. Tachi
*Hitachi and *Hitachi Technol. Eng., Japan*

17:35 A-2-8 ***#348***
Filling of Tungsten into Deep Trench Using Time-Modulation CVD Method
Y. Igarashi, T. Morooka, Y. Yamada, T. Nakamura, K.W. Lee*, K.T. Park, H. Kurino and M. Koyanagi
*Tohoku Univ. and *JST, Japan*

RF Integrated Spiral Inductor with Double-Sided Ferromagnetic Layers
M. Yamaguchi, M. Baba and K. Arai
Tohoku Univ., Japan

18:00 - 20:00 Banquet , Diamond Hall

Room D	Room E	Room F
16:35 D-2-3 ***#144*** An Independent-Source Overdriven Sense Amplifier for Multi-Gigabit DRAM Array R. Takemura, T. Sekiguchi, H. Fujisawa*, T. Takahashi*, T. Sakata and M. Nakamura* *Hitachi and *Elpida Memory, Japan*	**16:30 E-2-3** ***#223*** Characterization of Ferromagnetic Electrodes for Spin Injection into Semiconductor Using Local Hall Effect J. Nitta, T. Schapers*, H.B. Heersche**, T. Koga, Y. Sato*** and H. Takayanagi *NTT, Japan, *Forschungszentrum Julich, Germany, **Univ. of Groningen, The Neterlands and ***JAIST, Japan*	**16:35 F-2-3** ***#147*** Elevated Extension Structure for 35nm MOSFETs Y. Kamata, M. Ono and A. Nishiyama *Toshiba, Japan*
16:55 D-2-4 ***#298*** Gain-Boosted Operational Amplifier for Low Supply Voltage S. Hatanaka, T. Ogawa and K. Taniguchi *Osaka Univ., Japan*	**16:45 E-2-4** ***#250*** Conditions for the Spin Rectification Phenomena Predicted for Semiconducting Triple Barrier Structures in the Presence of Rashba Spin-Orbit Coupling T. Koga, J. Nitta, T. Akazaki and H. Takayanagi *NTT, Japan*	**16:55 F-2-4** ***#317*** A T-Gate MOSFET with Reduced Channel Length by Inverted Sidewalls for Sub-100nm RF Applications K.H .To and J.C.S. Woo *Univ. of CA, USA*
17:15 D-2-5 ***#320*** Origin of Critical Substrate Bias in Variable Threshould Voltage CMOS T. Inukai, H. Im and T. Hiramoto *Univ. of Tokyo, Japan*	**17:00 E-2-5** ***#372*** Material Design and Growth of "Zinc-Blende CrAs" M. Mizuguchi, H. Akinaga, T. Manago*, K. Ono, M. Oshima and M. Shirai** *JRCAT, *Univ. of Tokyo and **Osaka Univ., Japan* **17:15 E-2-6** ***#361*** Magnetic and Optical Properties of (Ga,Mn)N T. Kondo, H. Owa, S. Kuwabara and H. Munekata *Tokyo Inst. of Technol., Japan*	**17:15 F-2-5** ***#173*** Side-Gate Design for 50nm Electrically Induced Source/Drain MOSFETs W.Y. Choi, B.Y. Choi, J.D. Lee and B.-G. Park *Seoul National Univ., Korea*

18:00 - 20:00 Banquet , Diamond Hall

Thursday, September 27

Room A	Room B	Room C
A-3: Silicon Process/Materials Technologies III (9:00 - 10:40) Chairpersons: K. Yamabe, Univ. of Tsukuba T. Aoyama, Fujitsu Labs.	**B-3: Characterization** (9:00 - 10:30) Chairpersons: S. Takagi, Toshiba M. Miyao, Kyushu Univ.	**C-3: Silicon-on-Insulator Technologies I** (9:00 - 10:30) Chairpersons: M. Yoshimi, Toshiba K. Mitani, Shi-Etsu Handoutai
9:00 A-3-1 ***#221*** Analysis of Non-Uniform Boron Penetration of Nitrided Oxide in PMOSFETs Considering Two-Dimensional Nitrogen Distribution T. Aoyama, H. Fukutome, S. Ohkubo, K. Suzuki, H. Tashiro, Y. Tada, H. Arimoto, K. Horiuchi, S. Hasegawa* and H. Nakashima* *Fujitsu Labs. and *Osaka Univ., Japan*	**9:00 B-3-1** ***#2010*** High-Spacial-Resolution Microanalysis Using Micorcalorimeter EDS (Invited) S.W. Nam *NIST, USA*	**9:00 C-3-1** ***#2026*** Future SOI Technology and Devices (Invited) J.-P. Colinge and J.-T. Park* *Univ. of CA, USA and *Univ. of Inchon, Korea*
9:20 A-3-2 ***#97*** Interface Structures Generated by Negative-Bias Temperature Instability in Si/SiO_2 and Si/SiOxNy Interfaces J. Ushio, K. Kushida-Abdelghafar and T. Maruizumi *Hitachi, Japan*	**9:30 B-3-2** ***#215*** High-Resolution Stress Mapping of 100-nm Devices Measured by Stress TEM M. Koguchi, K. Nakamura and K. Umemura *Hitachi, Japan*	**9:30 C-3-2** ***#41*** Novel SOI Fabrication Process by Light Ion Implantation and Annealing in Oxygen Including Atmosphere A. Ogura *NEC, Japan*
9:40 A-3-3 ***#51*** Ultrathin Nitride/Oxide Stack Gate Dielectric (14.9A to 20.3A) for Sub-0.13 μm CMOS and Beyond W.H. Lin, K.L. Pey, Z. Dong*, S.Y.M. Chooi*, M.S. Zhou*, T.C. Ang*, C.H. Ang* and W.S. Lau*	**9:50 B-3-3** ***#22*** A Decoupled Capacitance Measurement Technique for Characterization of Small-Geometry MOSFETs with Ultra-Thin Gate Oxides C.-H. Liu, M.T. Lee, Y.-C. Cheng and J. Chen *United Microelectronics, Taiwan*	**9:50 C-3-3** ***#148*** Novel Fabrication Technique for Relaxed SiGe-on-Insulator Substrates without Thick SiGe Buffer Structures T. Mizuno, N. Sugiyama, T. Tezuka and S. Takagi *Toshiba, Japan*

National Univ. of Singapore and
**Chartered Semiconductor Mfg., Singapore*

10:00 A-3-4 ***#219***
Improved J-E Characteristics and

Stress Induced Leakage Currents

(SILC) in Oxynitride Films Grown at 400 ºC by Microwave-Excited High-Density $Kr/O_2/NH_3$ Plasma
K. Ohtsubo, Y. Saito, M. Hirayama, S. Sugawa, H. Aharoni and T. Ohmi
Tohoku Univ., Japan

10:20 A-3-5 ***#177***
A New Defect Engineering for Improving nMOSFETs Hot Carrier Immunity by a Low Temperature UHV H_2 Annealing

Process
J.W. Park, J.M. Ha, J.R. Ryu, C.S. Kim, S.M. Kim, B.C. Lee, S. Choi, K.

Fujihara, H.K. Kang and J.T. Moon
Samsung Electronics, Korea

10:10 B-3-4 ***#146***
Extraction of Interface State Density in Ultra-Thin Gate Dielectrics: A Composition Method of Ideal CV Curves in High-Frequency CV Analysis
N. Yasuda and H. Satake
Toshiba, Japan

10:10 C-3-4 ***#287***
Thinner SOI Using Plasma Hydrogenation
A.Y. Usenko, A.G. Ulyashin*, W.N. Carr***, W.R. Fahrner*, A.V. Frantskevichi**, R. Job*
*Silicon Wafer Technol., *New Jersey Inst. of Technol., USA, **Belarussian*

*State Polytechnic Academy, Belarus and ***Hagen Univ., Germany*

10:40-10:45 Break

10:30-10:45 Break

10:30-10:45 Break

Thursday, September 27

Room D

D-3:Image Sensing and Processing (9:00 - 10:20)
Chairpersons: T. Kuroda, Keio Univ.
M. Fujishima, Univ. of Tokyo

9:00 D-3-1 ***#79***
Advanced Sensing Circuit and Sensor Structure for a High-Sensitive Capacitive Fingerprint Sensor LSI
H. Morimura, S. Shigematsu, T. Shimamura, N. Sato, K. Machida and

H. Kyuragi
NTT, Japan

9:20 D-3-2 ***#96***
Wide Dynamic Range Photo Detector for Smart Position Sensor Using Log-Response and Correlation Circuit
Y. Oike, M. Ikeda and K. Asada
Univ. of Tokyo

Room E

E-3:Growth and Characteristics

I (9:00 - 10:30)
Chairpersons: K. Akimoto, Univ.

of Tsukuba
T. Yamamoto, Kochi Univ. of Technol.

9:00 E-3-1 ***#2014***
Materials Design for the Development of ZnO-Based Devices (Invited)
T. Yamamoto
Kouchi Univ. of Technol., Japan

9:30 E-3-2 ***#217***
Atomistic Crystal Growth Process of Metal Oxide Electronics Materials: Theoretical

Simulation Studies
M. Kubo, T. Yokosuka, H. Kurokawa,

K. Suzuki, S. Takami, A. Miyamoto,

Room F

F-3: SiGe/III-V/III-N Devices and Circuits for Wireless and Optical Communications III
(9:15 - 10:30)
Chairpersons: I. Toyoda, NEL
M. Madihian, NEC, USA

9:15 F-3-1 ***#2031***
InP HBT Device technologies for

Ultra High-Speed Optical Communication Ics (Invited)
T. Tanoue
Hitachi, Japan

9:45 F-3-2 ***#46***
A Fully Monolithic Integrated 43-Gbit/s Clock and Data Recovery Circuit Using InAlAs/InGaAs/InP HEMTs
K. Murata, K. Sano, E. Sano, S. Sugitani and T. Enoki
NTT, Japan

M. Kawasaki, M. Yoshimoto* and H. Koinuma*
*Tohoku Univ. and *Tokyo Inst. of Technol., Japan*

9:40 D-3-3 ***#117***
Proposal of Application of Pulsed Vision Chip to Retinal Prosthesis
J. Ohta, N. Yoshida, K. Kagawa and M. Nunoshita
Nara Inst. of Sci. and Technol., Japan

9:45 E-3-3 ***#224***
Growth of GaAs/InAs Anti-Dot Structure by Solid Source MBE
D. Okada, H. Hasegawa, Y. Horikoshi and *T. Saito
*Waseda Univ. and *NTT, Japan*

10:00 F-3-3 ***#119***
HCI-Free Selective Epitaxial SiGe Growth by LPCVD for 80-GHz BiCMOS Production
Y. Kiyota, T. Udo, T. Hashimoto, A. Kodama, H. Shimamoto, R. Hayami, E. Ohue and K. Washio
Hitachi, Japan

10:00 D-3-4 ***#55***
A New Photodiode Structure with Spacer Window for High Sensitivity 0.35-μm CMOS Imagers
H.-Y. Cheng, H.-C. Chang, S.-R. Li, L.-W. Lai, S.-S. Lin and Y.-C. King
National Tsing-Hua Univ., Taiwan

10:00 E-3-4 ***#301***
Formation of InAs Dots on AlGaAs Ridge Wires Structure by Selective Area MOVPE Growth
T. Kusuhara, F. Nakajima, J. Motohisa and T. Fukui
Hokkaido Univ., Japan

10:15 E-3-5 ***#86***
Fabrication of Quantum Dots for Wavelength Converter Using Four-Wave Mixing
K. Yamazaki, R. Fukuoka and K. Shimomura
Sophia Univ., Japan

10:15 F-3-4 ***#238***
A Noble Capacitive-Peaking Transimpedance Amplifier with High Linearity Gain Active Feedback Design
F.-T. Chien, C.-L. Cheng and K.-W. Tu
Chino-Excel Technol., Taiwan

10:40-10:45 Break

10:30-10:45 Break

10:30-10:45 Break

Room A	Room B	Room C
A-4: Silicon Process/Materials Technologies IV (10:45 - 12:25) Chairpersons: T. Aoyama, Fujitsu Labs. K. Yamabe, Uni. of Tsukuba	**B-4: Gate Oxide Reliability** (10:45 - 12:25) Chairpersons: S. Miyazaki, Hiroshima Univ. T. Maruizumi, Hitachi	**C-4: Silicon-on-Insulator Technologies II** (10:45 - 12:05) Chairpersons: T. Tsuchiya, Shimane Univ. T. Hiramoto, Univ. of Tokyo
10:45 A-4-1 ***#288*** Highly Reliable MOS Trench Gate FET by Oxygen Radical Oxidation N. Ueda, Y. Saito*, M. Hirayama*, Y. Yamauchi, S. Sugawa* and T. Ohmi* *Sharp and *Tohoku Univ., Japan*	**10:45 B-4-1** ***#59*** Enhanced Negative-Bias-Temperature Instability of P-Channel MOSFET by Plasma Charging Damage D.-Y. Lee, H.-C. Lin*, M.-F. Wang, M.-Y. Tsai, T.-Y. Huang and T. Wang *National Chiao Tung Univ. and *National Nano Device Labs., Taiwan*	**10:45 C-4-1** ***#300*** New SOI Flash Memory with Side Channel and Side Floating Gate H. Choi, T. Tanabe, N. Kotaki, K.W. Koh, K.T. Park, H. Kurino and M. Koyanagi *Tohoku Univ., Japan*
11:05 A-4-2 ***#246*** Repeated Spike Technology Employed in Rapid Thermal Processing C.-C. Hong, C.-Y. Chang, C.-H. Chen	**11:05 B-4-2** ***#82*** Mechanism of Threshold Voltage Shift ($\triangle V_{th}$) Caused by Negative Bias Temperature Instability	**11:05 C-4-2** ***#135*** CMOS Image Sensor Using SOI-MOS/Photodiode Composite Photodetector Device Y. Uryu and T. Asano

and J.-G. Hwu
National Taiwan Univ., Taiwan

(NBTI) in Deep Sub-Micron pMOSFETs
C.H. Liu, M.T. Lee, C.-Y. Lin, J. Chen.

K. Schruefer*, T. Schiml*, A.A. Katsetos**, Z. Yang**, N. Rovedo**, T.B. Hook** and C. Wann**
*United Microelectronics, *Infineon Technologies and **IBM, Taiwan*

Kyushu Inst. of Technol., Japan

11:25 A-4-3 ***#254***
Improved Transconductance and

Gate Insulator Integrity of MISFETs with Si3N4 Gate Dielectric Fabricated by Microwave-Excited High-Density Plasma 400ºC
I. Ohshima, H. Shimada*, W. Cheng,

*Y. Ono, M. Hirayama, S. Sugawa, H. Aharoni and T. Ohmi
*Tohoku Univ. and *Seko Epson, Japan*

11:25 B-4-3 ***#32***
Post-Soft-Breakdown Characteristics of Deep Sub-Micron NMOSFETs with Ultra=Thin Gate Oxide
D.-Y. Lee, H.-C. Lin*, M.-Y. Tsai, T.-Y. Huang and T. Wang
*National Chiao Tung Univ. and *National Nano Device Labs., Taiwan*

11:25 C-4-3 ***#187***
The Influence of the Device Miniaturization on the I_{on} Enhancement in the Intrinsic Silicon Body (*i-body*) SOI-MOSFET, s
R. Koh, H. Takemura, K. Takeuchi and T. Mogami
NEC, Japan

11:45 A-4-4 ***#259***
A Comparative Examination of Polyoxide Films Performance Grown by Conventional Dry Thermal (900 ºC) or Plasma Assisted (400 ºC) Oxidation Techniques
F. Imaizumi, T. Hamada, S. Sugawa, H. Aharoni and T. Ohmi
Tohoku Univ., Japan

11:45 B-4-4 ***#303***
Analysis of Oxide Voltage and Field Dependence of Time-Dependent Dielectric Soft Breakdown in Ultrathin Gate Oxides
W. Mizubayashi, Y. Yoshida, S. Miyazaki and M. Hirose*
*Hiroshima Univ. and *AIST, Japan*

11:45 C-4-4 ***#270***
A Simple Method to Fabricate Double-Gate SOI MOSFET with

Diffusion Layer on Bulk Silicon Wafer as the Bottom Gate
X. Lin, C. Feng, S. Zhang, W.-H. Ho

and M. Chan
Hong Kong Univ. of Sci. and Technol., Hong Kong

12:05 A-4-5 ***#54***
A Study on the Germano-Silicide

Formation in the Ni/Si_1-xGex System for CMOS Device Applications
H.-J. Choi, D.-H. Ko, J.-H. Ku*, C.-J.

Choi*, S. Choi*, K. Fujihara*, H.-K. Kang* and C.-W. Yang**
*Yonsei Univ., *Samsung Electron. and

**Sungkyunkwan Univ., Korea*

12:05 B-4-5 ***#50***
Current-Voltage Characteristics of Gate Oxides after Hard Breakdown
T. Bearda, P.H. Woerlee*, H. Wallinga*, P.W. Mertens and M.M. Heyns
*IMEC, Belgium and *Univ. of Twente, The Netherlands*

12:25-13:30 Lunch

Room D

D-4:SCII Quantum Nano-structures/Devices/Physics I (10:45 - 12:15)
Chairpersons: T. Ogino, NTT
S. Nomura, Univ. of Tsukuba

10:45 D-4-1 (Invited) ***#2035***
Quantum Dot Intersubband Devices
P. Bhattacharya, S. Krishna and A.

12:25-13:30 Lunch

Room E

E-4:Compound Semiconductor

HBTs and Related Technologies

(10:45 - 12:00)
Chairpersons: T. Kikkawa, Fujitsu Labs.
H. Miyamoto, NEC

10:45 E-4-1 (Invited) ***#2012***
Growth and Characteristics of AlGaN/GaN HBTs
R.D. Dupuis, D.J.H. Lambert, U.

12:05-13:30 Lunch

Room F

F-4:Advanced Silicon Devices and Device Physics III (10:45 - 11:55)
Chairpersons: A. Hiroki, Matsuhsita Electronics
S. Deleonibus, LETI

10:45 F-4-1 (Invited) ***#2007***
Device Physics of sub-100nm Transistors
M. Lundstrom

Stiff
Univ. of Michigan, USA

Chowdhury, M.M. Wond, T.G. Zhu, B.S. Shelton, J.J. Huang*, D. Caruth* and M. Feng*
*Univ. of Texas and *Univ. of Illinois, USA*

Purdue Univ., USA

11:15 D-4-2 ***#153***
Reduced Dark Current Characteristics of a Norman-Incident In $_{0.2}$Ga $_{0.8}$As/GaAs QWIP Employing a p-i-n-i-p Camel Diode Structure
J. Park, H. Son, S. Hong, S.-J. Jo*, J.H. Kim* and J.-I. Song*
*KAIST and *KJIST, Korea*

11:15 E-4-2 ***#28***
DC Characteristics of InP HBTs under High-Temperature and Bias Stress
K. Kurishima, M. Ida, N. Watanabe, H. Nakajima, Y. Yamane and E. Sano

NTT, Japan

11:15 F-4-2 ***#205***
Experimental Evidence of Inversion-Layer Mobility Lowering in Ultrathin Gate Oxide MOSFETs with Direct Tunneling Current
S. Takagi and M. Takayanagi
Toshiba, Japan

11:30 D-4-3 ***#228***
Ultrafast Coherent Control of Excitons in Quantum Nano-Structures
K. Komori, G. Hayes*, T. Okada**, B. Deveaud*, X.-L. Wang, M. Ogura and M. Watanabe
*AIST, Japan, *Swiss Federal Inst. of Technol. Lausanne, Switzerland and **Tokai Univ. Junior College, Japan*

11:30 E-4-3 ***#239***
A Novel HBT with Composite Collector for Power Amplifier Application
S.-T. Su, K.-W. Tu, C.-L. Cheng, F.-T. Chien, T.-H. Chien, J.-H. Dung and Y.-M. Hsin*
*Chino-Excel Technol. and *National Central Univ., Taiwan*

11:35 F-4-3 ***#142***
Comprehensive Understanding of Electron and Hole Mobility Limited by Surface Roughness Scattering in Pure Oxides and Oxynitrides Based on Correlation Function of Surface Roughness
T. Ishihara, K. Matsuzawa, M. Takayanagi and S. Takagi
Toshiba, Japan

11:45 D-4-4 ***#354***
A Photo-Detector Having a Silicon Quantum Wire Embedded in Silicon Dioxide
H. Kim, S.-I. Chang, M.-K. Je, H.-C. Shin and Y. Nagamune*
*KAIST, Korea and *AIST, Japan*

11:45 E-4-4 ***#101***
Optimization of Overgrown Ex-Situ Processed GaAs Interfaces for a Resonant Tunneling PBT
E. Lind, I. Pietzonka, W. Seifert and L.-E. Wernersson
Lund Univ., Sweden

12:00 D-4-5 ***#351***
Optical Properties of Strain-Balanced Si0.73Ge0.27 Planar Microcavities on Si Substrates
K. Kawaguchi, K. Konishi, S. Koh, Y. Shiraki and J. Zhang*
*Univ. of Tokyo, Japan and *Imperial College of Sci., UK*

12:15-13:30 Lunch

12:00-13:30 Lunch

11:50-13:30 Lunch

Room A	Room B	Room C
A-5: Silicon Process/Materials Technologies V (13:30 - 15:30) Chairpersons: K. Hieda, Toshiba M. Okuyama, Osaka Univ.	**B-5: MRAM/Contact Metallization** (13:30 - 15:00) Chairpersons: S. Zaima, Nagoya Univ. K. Goto, Fujitsu Labs.	**C-5: Silicon-on-Insulator Technologies III** (13:30 - 15:30) Chairpersons: A.O. Adan, Sharp Y. Kado, NTT
13:30 A-5-1 ***#274*** Ultrathin Dy-Doped HfO_2 for Gate Dielectric Application	**13:30 B-5-1** (Invited) ***#2009*** MRAM Materials and Devices W.J. Gallagher	**13:30 C-5-1** (Invited) ***#2025*** SOI Technology for MPU Applicastions

H. Lee, H. Yang, H. Chang, S. Jeon and H. Hwang
KJIST., Korea

IBM, USA

M.A. Mendicino
Motorola, USA

13:50 A-5-2 ***#272***
Electrical Characteristics of Ultrathin Pr-Silicate for Gate Dielecrtric Applications
S. Jeon, W. Lee and H. Hwang
KJIST, Korea

14:00 B-5-2 ***#61***
Intrinsic Junction Leakage by Co

In-Diffusion during $CoSi_2$ Formation Characterized with Damage Free n+/p Silicon Diodes
M. Tsuchiaki and K. Ohuchi
Toshiba, Japan

14:00 C-5-2 (Invited) ***#2024***
Low Voltage SOI Circuit Technology
T. Douseki
NTT, Japan

14:10 A-5-3 ***#276***
Ultrathin Nitrided-Nanolaminate

($Al_2O_3/ZrO_2/Al_2O_3$) for Gate Dielectrics Application
S. Jeon, H. Yang, D.-G. Park*, K.-Y. Lim*, I.-S. Yeo* and H. Hwang
*KJIST and *Hynix Semiconductor, Korea*

14:20 B-5-3 ***#266***
Characterization of the Co-Silicide Penetration Depth into the Junction Area
H.-D. Lee, K.-K. Kang*, M.-J. Jang**,

J.-H. Lee**, S.-H.. Park**, K.-M. Lee**, K.-S. Yoon**, J.-H. Choi**, G.-S. Park** and Y.-J. Park**
*Chungnam National Univ., *Chungbuk National Univ. and **Hynix Semiconductor, Korea*

14:30 C-5-3 ***#346***
Highly Stable Microprocessor Using SiGe Inserted SOI MOSFET
H.-S. Kang, Y.-W. Kim, K.-S. Chung,

K.-M. Nam, G.-J. Bae, N.-I. Lee and K.-P. Suh
Samsung Electronics, Korea

14:30 A-5-4 ***#186***
New Charge Control Technology

by Stencil Mask Ion Implantation
T. Shibata, K. Suguro, K. Sugihara, K. Okumura, T. Nishihashi*, K. Kashimoto*, J. Fujiyama* and Y. Sakurada*
*Tohsiba and *ULVAC, Japan*

14:40 B-5-4 ***#131***
Electrical Properties and Solid-Phase Reactions in Ni/Si(100) Contacts
Y. Tsuchiya, A. Tobioka, O. Nakatsuka, H. Ikeda, A. Sakai, S. Zaima and Y. Yasuda
Nagoya Univ., Japan

14:50 C-5-4 ***#23***
Effects of Gate-to-Body Tunneling Current on PD/SOI CMOS Circuits
C.T. Chuang, R. Puri and K. Bernstein

IBM, USA

14:50 A-5-5 ***#183***
Flash Lamp Anneal Technology for Effectively Activating Ion Implanted Si
T. Ito, T. Iinuma, A. Murakoshi, H. Akutsu, K. Suguro, T. Arikado, K. Okumura, M. Yoshioka*, T. Owada*,

Y. Imaoka**, H. Murayama** and T. Kusuda**
*Toshiba, *Ushio and **Dainippon Screen, Japan*

15:10 C-5-5 ***#75***
A 0.5-V, Over 1-GHz, 1-mW MUX/DEMUX Core with Multi-Threshold Zero-Vth CMOS/SIMOX Technology
T. Douseki, F. Morisawa, S. Nakata and Y. Ohtomo
NTT, Japan

15:10 A-5-6 ***#241***
Influence of Extension Formation

Process on Indium Halo Profile
D. Onimatsu and K. Shibahara
Hiroshima Univ., Japan

Room D	Room E	Room F
D-5:SCII Quantum Nano-structures/Devices/Physics II (13:30 - 15:30) Chairpersons: Y. Arakawa, Univ.	**E-5:Compound Semiconductor** **FETs and Related Technologies** (13:30 - 15:30)	**F-5:Advanced Silicon Devices and Device Physics IV** (13:30 - 15:30) Chairpersons: N. Sano, Univ. of

of Tokyo
N. Koguchi, NIMS

Chairpersons: T. Ishibashi, NEL
H. Kobayashi, Osaka Univ.

Tsukuba
A. Hiroki, Matsushita Electric

13:30 D-5-1 (Invited) ***#2033***
Two-Dimensional Friedel Oscillations and Electron Confinement to Nanostructures at a Semiconductor Surface
K. Kanisawa, M.J. Butcher, Y. Tokura, H. Yamaguchi and Y. Hirayama
NTT, Japan

13:30 E-5-1 (Invited) ***#2011***
HBTs and HEMT Based on InGaP/GaAs Heterostructures
T. Kikkawa
Fujitsu Labs., Japan

13:30 F-5-1 ***#242***
70nm MOSFET Device Simulation Considering Two Dimensional Channel Quantization and Self-Consistent

Non-Equilibrium Carrier Transport
T. Ezaki, P. Werner and M. Hane
NEC, Japan

14:00 D-5-2 (Invited) ***#2036***
Quantum Ratchets and Room Temperature Nano-Devices
P. Omling
Lund Univ., Sweden

14:00 E-5-2 ***#307***
Robust 0.13-μm Gate HJFET with Low Fringing Capacitance
T. Inoue, A. Wakejima, K. Y amanoguchi and N. Samoto
NEC, Japan

13:50 F-5-2 ***#294***
Enhanced Quantum Effect for Sub-0.1μm Pocket Technologies

and Its Relevance for the On-Current Condition
K.Morikawa, H. Ueno, D. Kitamaru, M. Tanaka, T. Okagaki, M. Miura-Mattausch, H.J. Mattausch, S. Kumashiro*, T. Yamaguchi*, K. Yamashita* and N. Nakayama*
*Hiroshima Univ. and *Semiconductor Technol. Academic Res. Center, Japan*

14:30 D-5-3 ***#98***
Near-Field Scanning Optical Microscopy of Quantum Dot Arrays
S. Nomura, K. Matsuda*, T. Saiki* and Y. Aoyagi**
*Univ. of Tsukuba, *Kanagawa Academy of Science & Technol. and **RIKEN, Japan*

14:15 E-5-3 ***#167***
Lateral p-n Junction in High Electron-Mobility Structure
B. Kaestner, D.G. Hasko and D.A. Williams*
*Univ. of Cambridge and *Hitachi Cambridge Lab., UK*

14:10 F-5-3 ***#120***
High-Accuracy Analysis of Interconnect Capacitance for Floating Metal Fills
T. Tameshige, Y. Takemura, K. Yamaguchi, N. Konishi, S. Fukada and T. Maruizumi
Hitachi, Japan

14:45 D-5-4 ***#292***
A Novel GaAs Binary Decision Diagram Device Having Quantum Wire Branch-Switches

Controlled by Wrap Gates
M. Yumoto, S. Kasai and H. Hasegawa
Hokkaido Univ., Japan

14:30 E-5-4 ***#151***
A Depletion-Mode In$_{0.53}$Ga$_{0.47As}$ MOSFET with a Liquid Phase Oxidized Gate
S.-J. Kang, J.-C. Han, S.-J. Jo, J.H. Kim, S.-W. Park* and J.-I. Song
*K-JIST and *NEOPTEK, Korea*

14:30 F-5-4 ***#225***
Minimum Value of the Specific Contact Resistance of Si-Metal Contacts -the Origin and the Magnitude-
K. Natori, T. Shimizu and N. Sano
Univ. of Tsukuba, Japan

15:00 D-5-5 ***#195***
Characterization of Tunnel-Barriers in Polycrystalline Si Point-Contact Single-Electron Transistors
Y. Furuta, H. Mizuta, K. Nakazato, T.

Kamiya*, Y.T. Tan*, Z.A.K. Durrani*

and K. Taniguchi**
*Hitachi Europe, *Univ. of Cambridge,*

*UK and **Osaka Univ., Japan*

14:45 E-5-5 ***#11***
InGaP/InGaAs p-HEMTs Having

Channel Layers over the Crytical

Layer Thickness Grown on Patterned GaAs Substrates
S.-J. Jo, J.H. Kim, S.-S. Kim* and J.-I. Song
*KJIST and *Samsung Electronics., Korea*

14:50 F-5-5 ***#17***
Significant Impact of Transport Noise Enhancement in Scaled-Down MOSFET's
D. Sumino and Y. Omura
Kansai Univ., Japan

15:15 D-5-6 ***#302***
Charge Injection Characteristics of a Si Quantum Dot Floationg Gate in MOS Structures
M. Ikeda, E. Yoshida, A. Kohno*, S. Miyazaki and M. Hirose**
*Hiroshima Univ., *Fukuoka Univ. and*

15:00 E-5-6 ***#92***
Temperature Characteristics AlGaN/GaN Heterojunction Field Effect Transistors
T. Ide, M. Shimizu*, A. Suzuki**, X.-Q. Shen*, H. Okumura* and T. Nemoto
*Meiji Univ., *AIST and **Tokai Univ.,*

15:10 F-5-6 ***#324***
Investigation on Switching Kinetics of Interface Traps through MOSFETs with Ultra Narrow Channels
Y. Shi, B. Shen, H.M. Bu, X.L. Yuan,

S.L. Gu, P. Han, R. Zhang and Y.D.

15:30-15:45 Break

A-6: Silicon Process/Materials Technologies VI (15:45 - 18:05)
Chairpersons: T. Kikkawa, Hiroshima Univ.
K. Hieda, Toshiba

15:45 A-6-1 ***#175***
Rugged Metal Electrode (RME) for High Density Memory Devices
J.-H. Joo, W.-D. Kim, Y.-K. Jeong, S.-J. Won, S.-Y. Park, C.-Y. Yoo, S.-T. Kim and J.-T. Moon
Samsung Electronics, Korea

16:05 A-6-2 ***#3***
Manufacturable 0.13 μm DRAM Technology for 512M DDR DRAM
Y.-H. Kim, D.-Y. Kim, J.-B. Park, S.-H. Yi, B.-S. Hong, D.-G. Yim, J.-K. Kim, J.-M. Choi, D.-D. Lee and G.-H. Yoon
Hynix Semiconductor, Korea

16:25 A-6-3 ***#169***
Electrical Properties of MIS-Ta_2O_5/TiO_2 Capacitor for High Density DRAMs
I.-S. Park, J.-H. Yeo, J.-H. Chung, Y.-S. Kim, S.-T. Kim and J.-T. Moon
Samusung Electronics, Korea

16:45 A-6-4 ***#191***
A Technology for Suppressing Inter-Layer Dielectric Crack in a High Density DRAM
B.C. Kim, D.H. Kim, W.K. Huh, M.K. Bae, J.W. Nam, S.C. Lee, J.S. Kim, T.K. Kim, Y.J. Park, J.S. Park

15:00-15:45 Break

B-6: Oxidation and Nitridation (15:45 - 17:15)
Chairpersons: S.W. Nam, NIST
E. Tokumitsu, Tokyo Inst. of Technol.

15:15 B-6-1 ***#27***
Interfacial Silicon Emission in Dry Oxidation -the Effect of H and Cl
M. Uematsu, H. Kageshima and K. Shiraishi*
*NTT and *Univ. of Tsukuba., Japan*

15:35 B-6-2 ***#189***
Atomic-Scale Depth Profiling of Oxides/Si(111) and Oxynitrides/Si(100) Interface
T. Nakamura, K. Nishizaki, K. Takahashi, H. Nohira and T. Hattori
Musashi Inst. of Technol., Japan

15:55 B-6-3 ***#181***
High-Resolution Photoelectron Spectroscopy of Interfacial Nitrogen in Ultrathin Si Oxynitride Films
M. Oshima, J.H. Oh, K. Ono, H. Kiwata, K. Nakamura, M. Niwa*, K. Usuda*, N. Hirashita*, H.W. Yeom**, Y.D. Chung** and H.J. Shin***
*Univ. of Tokyo, *Semiconductor Technol. Academic Res. Center, Japan, **Yonsei Univ. and ***Pohang Accelerator Lab., Korea*

16:15 B-6-4 ***#31***
Electrical Characterization of Atomic-Scale Defects in an Ultrathin Si Oxynitride Layer
N. Miyata and M. Ichikawa
JRCAT, Japan

15:30-15:45 Break

C-6: Silicon-on-Insulator Technologies IV (15:45 - 18:05)
Chairpersons: T. Ipposhi, Mitsubishi Electric
T. Sugii, Fujitsu Labs.

15:45 C-6-1 ***#127***
Scenario of Source/Drain Extension and Halo Engineering for High Performance 50 nm SOI-pMOSFET
N. Horiguchi, Y. Tagawa, T. Yamamoto, M. Kojima and T. Sugii
Fujitsu Labs., Japan

16:05 C-6-2 ***#62***
Ultra-High Selectivity Sidewall-Spacer Etching and Contact Hole Etching Technologies for 0.1 μm FD-SOI Devices
N. Ikegami, H. Matsuhashi and J. Kanamori
Oki Electric, Japan

16:25 C-6-3 ***#58***
A Highly Reliable 0.18 μm SOI CMOS Technology for 3.3V/1.8V Operation Using Hybrid Trench Isolation and Dual Gate Oxide
S. Maeda, K. Shiga, H. Naruoka, N. Hattori, T. Iwamatsu, T. Matsumoto, Y. Hirano, Y. Yamaguchi, T. Ipposhi, S. Maegawa and M. Inuishi
Mitsubishi Electric, Japan

16:45 C-6-4 ***#24***
Impact of Hot Carrier Stress on Low-Frequency Noise Characteristics in Floating-Body SOI MOSFETs
T. Tsuchiya, T. Yoshida and Y. Sato*
*Shimane Univ. and *NTT, Japan*

and K.N. Kim
Samsung Electronics, Korea

Room D	Room E	Room F
	15:15 E-5-7 ***#136*** SiC/SiO_2 Structure Formed at ~200^{O}C with Excellent Electrical Characteristics T. Sakurai, J.W. Park, Y. Nishioka*, M. Nishiyama and H. Kobayashi *Osaka Univ. and *Japan Texas Instruments, Japan*	
15:30-15:45 Break	15:30-15:45 Break	15:30-15:45 Break
D-6: SCII Quantum Nano-structures/Devices/Physics III (15:45 - 17:45) Chairpersons: K. Hirakawa, Univ. of Tokyo P. Omiling, Lund Univ.	**E-6: Growth and Character - istics II** (15:45 - 17:30) Chairpersons: Y. Horikoshi, Waseda Univ. K. Yamaguchi, NTT	
15:45 D-6-1 ***#2034*** Direct Formation of GaAs/AlGaAs Quantum Dots by Droplet Epitaxy (Invited) N. Koguchi *National Inst. for Materials Sci., Japan*	**15:45 E-6-1** (Invited) ***#2013*** Application of InAs Free-Standing Membranes for Electromechanical Systems H. Yamaguchi, R. Dreyfus, S. Miyashita* and Y. Hirayama *NTT and *NTT Advanced Technol., Japan*	
16:15 D-6-2 ***#106*** Optical Investigation of High-Density InGaAs/AlGaAs Quantum Wire by Constant MOCVD Growth N. Tsurumachi, C.-S. Son, T.G. Kim, Y. Takasuka and M. Ogura *AIST, Japan*	**16:15 E-6-2** ***#115*** N/Ge Co-Implantation into GaN for N-type Doping Y. Nakano, T. Kachi and T. Jimbo* *Toyota Central Res. & Development Labs. and *Nagoya Inst. of Technol., Japan*	
16:30 D-6-3 ***#132*** Lattice Deformation and Ga Diffusion Concerning InAs Self-Assembled Quantum Dots on GaAs(100) as a Function of Growth Interruption Time N. Matsumura, T. Haga, S. Muto, Y Nakata*, N. Yokoyama*, K. Numata** and K. Yabuta** *Hokkaido Univ., *Fujitsu Labs. and **Kanagawa High-Technol. Foundation, Japan*	**16:30 E-6-3** ***#325*** Influence of the Ferroelectric Polarization on the Properties of the Two-Dimensional Electron Gas in $Pb(Zr_{0.53}Ti_{0.47})O_3$ /$AlxGa_1$-xN/GaN Structures B. Shen, W.P. Li, X.S. Wang, Z.X. Bi, R. Zhang, Y.G. Zhou, F. Yan, Y. Shi, Z.G. Liu, Y.D. Zheng. T. Someya* and Y. Arakawa* *Nanjing Univ., China and Univ. of Tokyo, Japan*	
16:45 D-6-4 ***#257*** Light-Illuminated STM Studies on InAs Nano-Structures K. Takada, M. Takeuchi* and T. Takahashi	**16:45 E-6-4** ***#327*** Investigation of the Polarization-Induced Charges in Modulation-Doped Alx- Ga_1 xN/ GaN Heterostructures through	

*Univ. of Tokyo and *Riken, Japan*

Capacitance-Voltage Profiling and Simulation
Y.G. Zhou, B. Shen, H.Q. Yu, R. Zhang, Y.D. Zheng, T. Someya* and Y. Arakawa*
*Nanjing Univ., China and *Univ. of Tokyo, Japan*

Room A	Room B	Room C
17:05 A-6-5 ***#198*** Advanced Retrograde Well Technology for 90-nm-node Embedded SRAM by High-Energy Parallel Beam T. Yamashita, M. Kitazawa, Y. Kawasaki, H. Takashino, T. Kuroi, Y. Inoue and M. Inuishi *Mitsubishi Electric, Japan*	**16:35 B-6-5** ***#251*** Monolayer Nitridation of Si(001) Surfaces Y. Morita, T. Ishida* and H. Tokumoto *JRCAT and *AIST, Japan*	**17:05 C-6-5** ***#95*** RF Noise Characteristics of SOI MOSFET's A.O. Adan, M. Fukumi and S. Shitara *Sharp, Japan*
17:25 A-6-6 ***#220*** Source/Drain Dopant Deactivation and Junction Degradation by Energetic Ions in Plasma Processes Y. Tamai and T. Ohmi *Tohoku Univ., Japan*	**16:55 B-6-6** ***#129*** Growth Processes and Electrical Characteristics of Silicon Nitride Films Formed on Si(100) by Radical Nitrogen H. Ikeda, D. Matsushita, S. Naito, K. Ohmori, A. Sakai, S. Zaima and Y. Yasuda *Nagoya Univ., Japan*	**17:25 C-6-6** ***#268*** Low Frequency Noise Degradation Caused by STI Edge Effect in SOI MOSFETs H. Lee, K.-S. Chun, J.H. Lee*, Y.J. Park and H.S. Min *Seoul National Univ. and *Wonkwang Univ., Korea*
17:45 A-6-7 ***#171*** New STI Scheme to Compensate Gate Oxide Thinning at STI Corner Edge for the Devices Using Thick Dual Gate Oxide S.-H. Kim, S.-H. Kim, S.-E. Kim, M.-S. Kim, J.-H. Park and E.-S. Kim *Samsung Electronics, Korea*		**17:45 C-6-7** ***#33*** Conduction Mechanisms for Off-State Leakage Current of Schottky Barrier Thin-Film Transistors (SBTFT) K.-L. Yeh, H.-C. Lin*, R.-G. Huang, R.-W. Tsai and T.-Y. Huang *National Chiao Tung Univ. and *National Nano Devices Labs., Taiwan*

Room D	Room E	Room F
17:00 D-6-5 ***#311*** Structural and Optical Properties of 10 nm-class InGaAs Ridge Quantum Wire Arrays with Sub-Micron Pitches Grown by Selective MBE on Patterned InP Substrate C. Jiang, T. Muranaka and H. Hasegawa *Hokkaido Univ., Japan*	**17:00 E-6-5** ***#111*** Thermodynamic Stability of GaAs/InAs Heterostructure S. Vannarat, M. Sluiter and Y. Kawazoe *Tohoku Univ., Japan*	
17:15 D-6-6 ***#310*** Reactive Ion Beam Etching of GaN and AlGaN for Nano-structure Fabrication Using Methane-Based Gas Mixtures M. Endo, Z. Jin, S. Kasai and H. Hasegawa *Hokkaido Univ., Japan*	**17:15 E-6-6** ***#293*** Strong Photoluminescence and Low Surface State Densities on Clean and Silicon Deposited (01) Surfaces of GaAs with (4x6) Reconstruction Y. Nakano, N. Negoro and H. Hasegawa *Hokkaido Univ., Japan*	
17:30 D-6-7 ***#335*** Strain Engineering for Control of Self-Organized Quantum Nanostructures T. Ogino, H. Omi, D. Bottomley, K. Sumitomo and Z. Zhang* *NTT, Japan and *Peking Univ., China*		

POSTER SESSION

Rose Room, 1F

P-1:Poster Session I (13:30-15:30)

P-1-1 ~ P-1-5 : Advanced Silicon Circuits and Systems
P-1-6 ~ P-1-15 : Silicon Process/Material Technologies
P-1-16 ~ P-1-22 : Novel Devices, Physics & Fabrication
P-1-23 ~ P-1-24 : SiGe/III-V/III-N Devices and Circuits for Wireless and Optical Communications

13:30 P-1-1 ***#355***
A New CMOS Passive Mixer with High Linearity
Y. Cho*, J. Gil, I. Kwon and H. Shin
*KAIST and *HAVIN, Korea*

13:30 P-1-2 ***#264***
A Programmable SIMD Processor for Universal Quantum-Circuit Simulator
S. O'uchi, M. Fujishima and K. Hoh
Univ. of Tokyo, Japna

13:30 P-1-3 ***#226***
Reaction-Diffusion Devices Using Minority-Carrier Transport in Semiconductors
Y. Nishimiya, T. Asai and Y. Amemiya
Hokkaido Univ., Japan

13:30 P-1-4 ***#364***
All Digital Wireless Modem LSI for Software Defined Radio
H. Nakase, S. Ueda and K. Tsubouchi
Tohoku Univ., Japan

13:30 P-1-5 ***#194***
Error Analysis on Simultaneous Data Transfers in CDMA Wired Interface
H. Iwamura, R. Yoshimura, T.B. Keat, T. Matsuoka and K. Taniguchi
Osaka Univ., Japan

13:30 P-1-6 ***#72***
Comprehensive Study on Reliability of Low-Temperature Poly-Si TFTs under Dynamic CMOS Operations
Y. Uraoka, H. Yano, T. Hatayama and T. Fuyuki
Nara Inst. of Sci. and Technol., Japan

13:30 P-1-7 ***#339***
Investigation of Interconnect Temperature Rise due to Joule Heating and Its Effect on Electromigration Reliability
S. Miyazaki, H. Sakaue, S. Shingubara and T. Takahagi
Hiroshima Univ., Japan

13:30 P-1-8 ***#200***
Low Temperature BST-CVD Process for the Concave-Type Capacitors Designed for Logic-Base-Embedded DRAMs
A. Tsuzumitani, Y. Okuno, H. Ogawa, Y. Mori, C.N. Dornfest*, X. Jin*, S. Kher*, J. Tao*, Y. Wang* and J. Zhao*
*Matsushita Electric, Japan and *Applied Materials, USA*

13:30 P-1-9 ***#68***
High-Performance Low-k Dielectric Using Advanced EB-Cure Process
M. Shimada, H. Miyajima, R. Nakata and T. Yoda
Toshiba, Japan

13:30 P-1-10 ***#313***
Effect of Plasma Nitridation on the Conduction Mechanism of Ta_2O_5 Gate Dielectric
W.H. Lee, K. Im, S. Joen and H. Hwang
KJIST, Korea

13:30 P-1-11 ***#344***
Nucleation and Growth Control of Al-CVD for Dual-Damascene Application
T. Iino, M. Sugiyama, H. Itoh*, J. Aoyama*, H. Komiyama and Y. Shimogaki

13:30 P-1-12 ***#49***
Novel Methods to Incorporate Deuterium in the MOS Structures and Isotope Effects on Soft Breakdown and Interface States
C.-H. Lin, M.H. Lee, B.-C. Hsu and

*Univ. of Tokyo and *Semiconductor Technol. Academic Res. Ctr, Japan*

C.W. Liu
National Taiwan Univ., Taiwan

13:30 P-1-13 ***#218***
Development of New Tight-Binding Molecular Dynamics Program to Simulate Chemical-Mechanical Polishing Processes
T. Yokosuka, H. Kurokawa, S. Takami, M. Kubo, A. Miyamoto and A. Imamura*
*Tohoku Univ. and Hiroshima *Kokusai Gakuin Univ., Japan*

13:30 P-1-14 ***#363***
Optimization of Low Power Shallow Trench Isolation BiCMOS Technology for Mixed Analog/Digital Application Systems
H. Nakajima, H. Kawai, C. Yoshino, H .Miyakawa, H. Sugaya, H. Takimoto, H. Nii, K. Inoh, Y. Katsumata and H. Ishiuchi
Toshiba, Japan

13:30 P-1-15 ***#84***
Ultrathin Silicon Oxynitride Layers with a Low Leakage Current Density Formed by Plasma Nitridation Using Low Energy Electron Impact and Chemical Oxidation
M. Takahashi, M. Tamura, A. Asano, O. Maida and H. Kobayashi
Osaka Univ., Japan

Rose Room, 1F

13:30 P-1-16 ***#296***
Single Electron Transistor Using GaN Coupled Quantum Dots Formed on SiO_2/Si Substrate
K. Kawasaki, D. Yamazaki, M. Suzuki*, K. Tsutsui and Y. Aoyagi
*Tokyo Institute of Technol. and *Riken, Japan*

13:30 P-1-17 ***#172***
Single Electron Memory with a Defined Poly-Si Dot Based on Conventional VLSI Technolgy
S.-K. Sung, J.-S. Sim, D.H. Kim, J.D. Lee and B.-G. Park
Seoul National Univ., Korea

13:30 P-1-18 ***#168***
Optimisation of Tunnel Barriers for nc-Si Single-Electron Transistors
Y.T. Tan, T. Kamiya, Z.A.K. Durrani and H. Ahmed
Univ. of Cambridge, UK

13:30 P-1-19 ***#77***
Three Dimensional Size Evaluation of Island in Si Single-Electron Transistor
M. Nagase, S. Horiguchi, A. Fujiwara and Y. Takahashi
NTT, Japan

13:30 P-1-20 ***#260***
Conduction Mechanism in Extremely Thin Poly-Si Wires - Width Dependence of Coulomb Blockade Effect -
K. Kawamura, T. Kidera, A. Nakajima and S. Yokoyama
Hiroshima Univ., Japan

13:30 P-1-21 ***#285***
High Frequency Applications of Polycrystalline Diamond Field-Effect Transistors
H. Umezawa, N. Fujihara, T. Arima, H. Taniuchi, H. Ishizaka, Y. Ohba, M. Tachiki, P. Koidl and H. Kawarada
Waseda Univ., Japan

13:30 P-1-22 ***#305***
AFM and KFM Measurements of Semiconductor Surface Using Carbon Nanotube Tip Fabricated by Electrophoresis
T. Maeda, N. Ozeki, S. Kishimoto, T. Sugai, T. Mizutani and H. Shinohara
Nagoya Univ., Japan

13:30 P-1-23 ***#178***
Physical Modeling of Substrate Resistance in RF CMOS
M. Kwon, M. Je, J. Han and H. Shin
KAIST, Korea

13:30 P-1-24 ***#269***
Evaluation of the Impact of Non-Quasi Static Effects in RF Applications
A.F.-L. Ng, P.K. Ko and M. Chan
Hong Kong Univ. of Sci. and Technol., Hong Kong

Friday, September 28

Room A	Room B	Room C
A-7: Special Session "Recent Development of RF-, Optical, Probe, Power, Bio-MEMS Technologies Changing Devices in 21 Century I" (9:00 - 11:20) Chairpersons: Y. Horiike, Univ. Tokyo Y. Aoyagi, Tokyo Inst. of Technol.	**B-7: SiGe (C) Heterostructure & Materials** (9:00 - 10:20) Chairpersons: M. Miyao, Kyushu Univ. S. Takagi, Toshiba	**C-7: Nonvolatile Memory Technologies I** (9:00 - 10:30) Chairpersons: K. Yoshikawa, Toshiba K. Takasaki, Fujitsu Labs.
9:00 A-7-1 ***#206*** Creation of High Performance Biocompatible Surface Y. Nagasaki, C. Kuwahara, M. Kaneko, K. Emoto, Y. Akiyama*, H. Otsuka* and K. Kataoka* *Science Univ. of Tokyo and *Univ. of Tokyo, Japan*	**9:00 B-7-1** ***#356*** Extremely High Hole Mobility in SiGe/Ge/SiGe/ Heterostructures Characterized by Mobility Spectrum Analysis T. Irisawa, O.A. Mironov*, M. Myronov*, S. Koh and Y. Shiraki *Univ. of Tokyo, Japan and *Univ. of Warwick, UK*	**9:00 C-7-1** (Invited) ***#2029*** Key Issues for Manufacturable FeRAM Devices T. Yamazaki *Fujitsu, Japan*
9:20 A-7-2 ***#252*** Electrolyte-Solution-Gate Diamond FETs Operated in Cl Ionic Solutions T. Sakai, Y. Araki, H. Umezawa, M. Tachiki and H. Kawarada *Waseda Univ., Japan*	**9:20 B-7-2** ***#118*** Novel SiGe-on-Insulator Virtual Substrate Fabricated by Self-Melt-Solidification N. Sugii, S. Yamaguchi and K. Washio *Hitachi, Japan*	**9:30 C-7-2** (Invited) ***#2027*** Multi-level Flash Memory Technology A. Modelli, A. Visconti and R. Bez *ST Microelectronics, Italy*
9:40 A-7-3 ***#358*** Micro-Liquid Handling Devices for Miniaturized Chemical Analysis Systems R. Miyake, A. Koide, Y. Sasaki and Y. Yoshimura *Hitachi, Japan*	**9:40 B-7-3** ***#102*** Mechanism of Improved Thermal Stability of B in Poly-SiGe Gate on SiON T. Sadoh, Fitrianto, A. Kenjo, A. Miyauchi*, H. Inoue* and M. Miyao *Kyushu Univ. and *Hitachi, Japan*	**10:00 C-7-3** (Invited) ***#2028*** Futuru Si-Dot NVM Technology J.de Blauwe, *Agere Systems, USA*
10:00 A-7-4 ***#331*** Micro- and Nanofabridcated Device Technology for Single Biomolecule Analysis	**10:00 B-7-4** ***#67*** P-Doping into Strain-Induced $Si_{1-y}C_y$ Epitaxial Films Grown by Low Temperature Chemical	

M. Ueda, K. Hirano, N. Kaji, A. Mizuno* and Y. Baba
*Univ. of Tokushima and *Toyohashi Univ. of Technol., Japan*

10:20 A-7-5 ***#271***
Integrated Photodiode DNA Identifications System for Genetic Chip Applications
M. Xue, W. Xu, R. Lenigk, M. Carles, N.J. Sucher and M. Chan
Hong Kong Univ. of Sci. and Technol., Hong Kong

10:40 A-7-6 ***#338***
A Portable Biochemical Analysis System Integrated with Microcapillary Electrophoresis and Microplasma Emission Spectroscopy
T. Ichiki, T. Koidesawa, M. Watanabe, T. Ujiie and Y. Horiike*
*Toyo Ujnv. and *Univ. of Tokyo, Japan*

Vapor Deposition
S. Yagi, K. Abe, T. Okabayashi, A. Yamada and M. Konagai
Tokyo Inst. of Technol., Japan

Friday, September 28

Room D	Room E	Room F
D-7:Single Electron Devices (9:00 - 10:30) Chairpersons: J.-S. Tsai, NEC K. Matsumoto, AIST	**E-7:Optical Interconnection and Processing Devices** (9:00 - 10:30) Chairpersons: Y. Nakano, Univ. of Tokyo K. Tanaka, Fujitsu Labs.	**F-6:Organic Electric Devices and Materials I** (9:00 - 10:30) Chairpersons: Y. Ohmori, Osaka Univ. H. Takahashi, Sanyo Electric
9:00 D-7-1 ***#76*** A Merged SET-MOSFET Logic for Interface and Multiple-Valued Functions H. Inokawa, A. Fujiwara and Y. Takahashi *NTT, Japan*	**9:00 E-7-1** (Invited) ***#2020*** Recent Progress of Long Wavelength VCSEL Research M. Ortsiefer and M.-C. Amann *Technical Univ. of Munchen, Germany*	**9:00 F-6-1** (invited) ***#2041*** Conjugated Polymer Thin Film Trasistor Circuits H. Sirringhaus *Univ. of Cambridge, Japan*
9:15 D-7-2 ***#74*** Observation of Negative Differential Conductance and its Impact on Single-Electron-Transistor Characteristics Y. Ono and Y. Takahashi *NTT, Japan*	**9:30 E-7-2** ***#345*** Optical Data Transfer in Multichip Module with Optical Interconnection T. Hashimoto, K.T. Park, H. Kurino and M. Koyanagi *Tohoku Univ., Japan*	**9:30 F-6-2** ***#113*** Control of FET Characteristics by Electric Field during CT Complex Deposition M. Iizuka, M. Nakamura and K. Kudo *Chiba Univ., Japan*
9:30 D-7-3 ***#174*** Single Electron Transistors with Sidewall Depletion Gates on a Silicon-On-Insulator Nano-Wire K.R. Kim, D.H. Kim, S.K. Sung, J.D. Lee, B.G. Park, B.H. Choi*, S.W. Hwang* and D. Ahn* *Seoul National Univ. and *Univ. of Seoul, Korea*	**9:45 E-7-3** ***#201*** Stacked Optical Branched Waveguides for Optical Interconnection on Si Chips S. Yokoyama, Y. Hara and K. Umeda *Hiroshima Univ., Japan*	**9:45 F-6-3** ***#190*** Electron Spectroscopy of Organic Thin Film FET Structures T. Shimada and A. Koma *Univ. of Tokyo, Japan*

9:45 D-7-4 ***#323***
Room Temperature Coulomb Diamond Caracteristic of Single Electron Transistor
Y. Gotoh, K. Matsumoto, M. Ishii* and T. Maeda**
*AIST, *Univ. of Tsukuba and **CREST, Japan*

10:00 D-7-5 ***#261***
Fabrication of Single Electron Transistors on Hydrogen-Terminated Diamond Surface Using Atomic Force Microscope
M. Tachiki, H. Seo, T. Fukuda, K. Sugata, T. Banno, H. Umezawa and H. Kawarada
Waseda Univ., Japan

10:15 D-7-6 ***#180***
Nano-Device Formation in a Multi-Wall Carbon Nanotube
N. Yoneya, E. Watanabe, K. Tsukagoshi and Y. Aoyagi
RIKEN, Japan

10:00 E-7-4 ***#70***
LPE-Garnet Base Magneto-Optic Spatial Light Modulator
J.H. Park, D.H. Lee*, T. Kuwabara, J.K. Cho* and M. Inoue
Toyohashi Univ. of Technol., Japan and Gyeongsang National Univ., Korea

10:15 E-7-5 ***#89***
Excess Noise Characteristics of a-Si:H p-i-n Photodiode Films
M. Akiyama, M. Hanada, H. Takao, K. Sawada and M. Ishida
Toyohashi Univ. of Technol., Japan

10:00 F-6-4 ***#114***
Fabrication of FET Using Charge-Transfer-Complex LB Films
H. Sakuma, M. Iizuka, M. Nakamura and K. Kudo
Chiba Univ., Japan

10:15 F-6-5 ***#154***
Hydrophobic Treatment Effect on Hole Mobility in Pentacene Thin Film Transistor
C.-K. Song, B.-W. Koo, S.-B. Lee and D.-H. Kim
Dong-A Univ., Kroea

Room A	Room B	Room C
11:00 A-7-7 ***#332*** Biochip Checking Health Condition from Analysis of Trace Blood Collected by Painless Needle A. Oki, H. Ogawa, Y. Takamura, M. Takai, T. Fukasawa, J. Kikuchi, Y. Ito**, T. Ichiki*** and Y. Horiike *Univ. of Tokyo, *Axiomatec, **Shindengen Kogyo and ***Toyo Univ., Japan*		
	10:20-10:40 Break	10:20-10:45 Break
A-8: Special Session "Recent Development of RF-, Optical, Probe, Power, Bio-MEMS Technologies Changing Devices in 21 Century II" (11:20 - 12:40) Chairpersons: Y. Horiike, Univ. Tokyo Y. Aoyagi, Tokyo Inst. of Technol.	**B-8: High-k Materials I** (10:40 - 12:20) Chairpersons: H. Iwai, Tokyo Inst. of Technol. S. Zaima, Nagoya Uinv.	**C-8: Nonvolatile Memory Technologies II** (10:45 - 12:05) Chairpersons: T. Nakamura, Rohm I. Kunishima, Toshiba
	10:40 B-8-1 ***#145*** The Relation between Dielectric Constant and Film Composition of Ultra-Thin Silicon Oxynitride Films: Experimental Evaluation and Analysis of Nonlinearity N. Yasuda, K. Muraoka, M. Koike and H. Satake *Toshiba, Japan*	**10:45 C-8-1** ***#182*** Novel PZT Crystallization Technique by Using Flash Lamp for FeRAM Embedded LSIs and 1Tr FeRAM Devices K. Yamakawa, K. Imai, O. Arisumi, T. Arikado, M. Yoshioka*, T. Owada and K. Okumura

*Toshiba and *Ushio, Japan*

11:00 B-8-2 ***#52***
Defect Termination by Nitrogen Bonding due to NO Nitridation in MOS Structures
K. Kushida-Abdelghafar, K. Watanabe, T. Kikawa, Y. Kamigaki and E. Murakami
Hitachi, Japan

11:05 C-8-2 ***#192***
Novel Capacitor Technology for Sub-Quarter Micron 1T1C FRAM
Y.J. Song, N.W. Jang, D.J. Jung, H.H. Kim, H.J. Joo, S.Y. Lee, K.M. Lee, S.H. Joo, S.O. Park and K. Kim
Samsung Electronics, Korea

11:20 A-8-1 (Invited) ***#2042***
RF-MEMS for Low-Power Communications
C.T.-C. Nguyen
Univ. of Michigan, USA

11:20 B-8-3 ***#170***
Physical and Electrical Characteristics of Poly-Si/ZrO_2/SiO_2/Si MOS Structures
K.-Y. Lim, D.-G. Park, H.-J. Cho, J.-J. Kim, J.-M. Yang, I.-S. Choi, J.-K. Ko, J.-Y. Kim, I.-S. Yeo, J.W. Park and H.-K. Yoon
Hyundai Electronics, Korea

11:25 C-8-3 ***#312***
Modeling of Polarization Relaxation Effects in Ferroelctric Memory
C.W. Tsai, S.Y. Lee*, S.L. Lung and T. Wang
*Macronix International and *National Chiao-Tung Univ., Taiwan*

12:00 A-8-2 (Invited) ***#2048***
Optical MEMS
H. Kuwano
NTT, Japan

11:40 B-8-4 ***#108***
Interfacial Reactions of ZrO_2/SiO_2/Si Layered Structures
H. Watanabe
NEC, Japan

11:45 C-8-4 ***#277***
Improved Retention Characteristics of Metal-Ferroelctric-Insulator-Semiconductor Structure Using a Post-Oxygen Annealing Treatment
K. Kodama, M. Takahashi, M. Noda and M. Okuyama
Osaka Univ., Japan

12:00 B-8-5 ***#278***
Preparation and Characterization of High-k Lanthanoid Oxide Thin Films Deposited by Pulsed Laser Deposition
S. Kitai, O. Maida, T. Kanashima and M. Okuyama
Osaka Univ., Japan

12:40-13:30 Lunch | 12:20-13:30 Lunch | 11:55-13:30 Lunch

Room D | **Room E** | **Room F**

10:30-10:45 Break | 10:30-10:45 Break | 10:30-10:45 Break

D-8:Scanning Probe (10:45 - 12:00)
Chairpersons: K. Matsumoto, AIST
Y. Miyamoto, Tokyo Inst. of Technol.

E-8: Semiconductor Photonic Devices (10:45 - 12:00)
Chairpersons: M. Ortsiefer, Tech. Univ. Munich
H. Wada, Oki Electric

F-7: Organic Electric Devices and Materials II (10:45 - 11:15)
Chairpersons: Y. Ohmori, Osaka Univ.
H. Takahashi, Sanyo Electric

10:45 D-8-1 (Invited) ***#2022***
Imaging Coherent Electron Flow
R.M. Westervelt
Harbard Univ., Japan

10:45 E-8-1 (Invited) ***#2018***
Integrated Light Sources for 40Gbit/s and Beyond
H. Takeuchi and Y. Akage
NTT, Japan

10:45 F-7-1 ***#155***
A New CO Gas Sensor Using Ferrocenyl Dendrimer
C.-K. Song, B.-W. Koo, S.-B. Lee and

D.-H. Kim
Dong-A Univ., Korea

11:15 D-8-2 (Invited) ***#2023***
Nanometer-Scale Characterization by Scanning Tunneling Microscopy
G. Meyer
Paul-Drude-Inst., Germany

11:15 E-8-2 ***#366***
Fabrication of InGaAsP/InP Twin-Guide Laser Diode with Rectangular Ring Cavity
S.K. Jeon, B.J. Kim, M.J. Kim, J.H. Cha, J.H. Kim and Y.S. Kwon
KAIST, Korea

11:00 F-7-2 ***#90***
Theoretical Study on Inclusion Complex of Polyaniline Covered by Cyclodextrins for Molecular Device
R.V. Belosludov, H. Mizuseki, K. Ichinoseki and Y. Kawazoe
Tohoku Univ., Japan

11:45 D-8-3 ***#124***
Quantum Point Contact Switch Using Solid Electrochemicall Reaction
T. Hasegawa, K. Terabe, T. Nakayama and M. Aono
RIKEN, Japan

11:30 E-8-3 ***#370***
Current and Wavelength Characteristics of Polarization-Insensitive SOAs with Strained-Bulk Active Layers
M. Itoh, Y. Shibata, T. Kakitsuka, Y. Kadota, Y. Kondo and Y. Tohmori
NTT, Japan

11:45 E-8-4 ***#65***
Reduction in Operating Current of High-Power 660-nm Laser Diodes Using a Transparent AlGaAs Cap Layer
R. Hiroyama, D. Inoue, Y. Nomura, Y. Ueda, M. Shono and M. Sawada
Sanyo Electric, Japan

12:00-13:30 Lunch | 12:00-13:30 Lunch | 11:45-13:30 Lunch

Poster Session

Rose Room, 1F

P-2:Poster Session II (10:00-12:00)

P-2-1 ~ P-2-7 : Quantum Nanostructures/Devices/Physics

10:00 P-2-1 ***#37***
Effect of Shape and Size on Electron Transition Energies of InAs Semiconductor Quantum Dots
Y. Li, O. Voskoboynikov, C.P. Lee, S.M. Sze and O. Tretyak*
Nationa Chiao Tung Univ., Taiwan and Kiev Taras Shevchenko Univ., Ukraine

10:00 P-2-2 ***#93***
Electrooptic Characterization of Five-Layer Asymmetric Coupled Quantum Well
T. Suzuki, J.-H. Noh, T. Arakawa, K. Tada, Y. Okamiya and Y. Miyagi
Yokohama National Univ., Japan

10:00 P-2-3 ***#141***
Indium Adatom Migration in InAs/GaAs Quantum-Dot Growth
K. Shiramine, T. Itoh, S. Muto, T. Kozaki and S. Sato
Hokkaido Univ., Japan

10:00 P-2-4 ***#202***
A Solid-State Light-Emitting Device Based on Excitations of Ballistic Electrons Generated in Nanocrystalline Porous Poly-

10:00 P-2-5 ***#227***
Excitation Wavelength Dependence of Terahertz Electromagnetic Wave Generation from Quantum Wire
I. Morohashi, K. Komori*, T. Hidaka,

10:00 P-2-6 ***#244***
100K Operated Photovoltaic InAs/GaAs Quantum-Dot Infrared Photodetector with Uniform Dot Density

Silicon Films
Y. Nakajima, A. Kojima, H. Toyama and N. Koshida
Tokyo Univ. of Agriculture & Technol., Japan

X.L. Wang*, M. Ogura* and M. Watanabe*
*Shonan Inst. of Technol. and *AIST, Japan*

S.-Y. Lin, Y.-J. Tsai and S.-C. Lee
National Taiwan Univ., Taiwan

10:00 P-2-7 ***#321***
Photoluminescence of Field-Effect Quantum Dot Arrays Based on a Be-Delta Doped Single Heterojunction
S. Nomura and Y. Aoyagi*
*Univ. of Tsukuba and *RIKEN, Japan*

P-3:Poster Session III (11:15-12:00)

P-3-1 ~ P-3-7 : Organic Semiconductor Devices and Materials

11:15 P-3-1 ***#110***
Theoretical Analysis for a Molecular Resonant Tunneling Diode
C. Majumder, H. Mizuseki and Y. Kawazoe
Tohoku Univ., Japan

11:15 P-3-2 ***#138***
Light Emission Property from Organic Dye Thin Films due to Excitation of Multiple Surface Plasmons
T. Nakano, M. Terakado, K. Shinbo, K. Kato, F. Kaneko, T. Kawakami and T. Wakamatsu*
Niigata Univ. and Ibaraki National College of Technol., Japan

11:15 P-3-3 ***#140***
Evaluation of Structure and Gas Response in Porphyrin Langmuir-Blodgett Films by Attenuated Total Reflection Measurements
K. Kato, H. Araki, K. Shinbo, F. Kaneko, C.M. Dooling* and T.H. Richardson*
Niigata Univ., Japan and Univ. of Sheffield, U.K.

11:15 P-3-4 ***#156***
Molecular Ordering and Electrical Characteristics of Pentacene Thin-Film
C.-K. Song, B.-W. Koo, S.-B. Lee and D.-H. Kim
Dong-A Univ., Korea

11:15 P-3-5 ***#157***
Effect of Complex on Electrical Properties of Dendrimer LB Films Containing 48 Pyridinealdoxime
S.-B. Jung, S.-Y. Yoo, E. Park, C. Kim and Y.-S. Kwon
Dong-A Univ., Korea

11:15 P-3-6 ***#158***
The Optical Behavior of Thickness-Shear-Mode Quartz Resonator
H.-C. Yoon, J.-M. Kim and Y.-S. Kwon
Dong A Univ., Korea

11:15 P-3-7 ***#233***
Sharply Directed and Spectral Narrowing Emission in Organic Light Emiting Diodes with a Microcavity Structure
F.-S. Juang and L.-H. Laih*
*National Huwei Inst. of Technol. and *Chunghwa Telecom Lab. of Chunghwa Telecom, Taiwan*

Room A	Room B	Room C
A-9: Special Session "Recent Development of RF-, Optical, Probe, Power, Bio-MEMS Technologies Changing Devices in 21 Century III" (13:30 - 15:10) Chairpersons: M. Esashi, Tohoku Univ. N. Yokoyama, Fujitsu Labs.	**B-9: High-k Materials II** (13:30 - 15:10) Chairpersons: W.J. Gallagen, IBM M. Hiratani, Hitachi	**C-9: Nonvolatile Memory Technologies III** (13:30 - 14:50) Chairpersons: K. Yoshikawa, Toshiba T. Kobayashi, Hitachi
13:30 A-9-1 (Invited) ***#2043*** Uncoled Infrared Focal Plane Arrays Using Micromachining Technology M. Kimata, T. Ishikawa, Y. Nakaki, M. Ueno, H. Yagi, H. Hata, O. Kaneda and T. Sone *Mitsubishi Electric, Japan*	**13:30 B-9-1** ***#289*** Low Leakage La_2O_3 Gate Insulator Film with EOTs of 0.8-1.2 nm S. Ohmi, C. Kobayashi, E. Tokumitsu, H. Ishiwara and H. Iawi *Tokyo Inst. of Technol., Japan*	**13:30 C-9-1** ***#109*** Trap Density Dependent Inelastic Tunneling in Stress-Induced Leakage Current S. Uno, K. Deguchi, Y. Kamakura and K. Taniguchi *Osaka Univ., Japan*
14:00 A-9-2 (Invited) ***#2044***	**13:50 B-9-2** ***#130***	**13:50 C-9-2** ***#304***

Nano-Probe Sensing and Multi-Probe Data Storage
T. Ono and M. Esashi
Tohoku Univ., Japan

Structural and Electrical Characteristics of HfO_2 Films Fabricated by Pulsed Laser Deposition
H. Ikeda, S. Goto, K. Honda, M. Sakashita, A. Sakai, S. Zaima and Y. Yasuda
Nagoya Univ., Japan

Advantage of a Quasi-Nonvolatile Memory with Ultra Thin Oxide
T. Usuki, N. Horiguchi and T. Futatsugi
Fujitsu Labs., Japan

14:30 A-9-3 (Invited) ***#2045***
Micro Power Generation Programs at DARPA
W.C.Tang
DARPA, USA

14:10 B-9-3 ***#6***
Scanning Tunneling Microscopy

Study of Hf Silicate Formed by Ulttrathin Hf Metal on SiO_2:Effect of Hf/SiO_2 Thickness Ratio
J.-H. Lee and M. Ichikawa
JRCAT, Japan

14:10 C-9-3 ***#38***
Electron Discharge Model of Locally-Trapped Charge in Oxide-Nitride-Oxide (ONO) Gate for NROM™ Non-Volatile Semiconductor Memory

Devices
E. Lusky, Y. Shacham-Diamand, I. Bloom* and B. Eitan*
*Tel Aviv Univ. and *Saifun Semiconductors, Israel*

14:30 B-9-4 ***#214***
PVD Tantalum Oxide with Buffer Silicon Nitride Stacked High-k MIS Structure Using Low Temperature and High Density Plasma Processing
S. Nakao, M. Nakagawa, I. Ohshima,

H. Shimada and T. Ohmi
Tohoku Univ., Japan

14:30 C-9-4 ***#240***
Time Dependent Anomalous Charge Loss Modeling in Flash Memories and an Accelerated Testing Procedure
F. Schuler, G. Tempel, H. Melzner, P. Hendrickx*, D. Wellekens*, M. Lorenzini* and J.V. Houdt*
*IMEC., Belgium and *Infineon Technologies, Germany*

14:50 B-9-5 ***#160***
Suppressed Boron Penetration in

p^+ poly-$Si1Al_2O_3$/Si Metal-Oxide-Semiconductor System by

Remote Plasma Nitridation of Al_2O_3 Surface
H.-J. Cho, D.-G. Park, K.-Y. Lim, J.-K. Ko, I.-S. Yeo, J.W. Park and H.-K.

Yoon
Hyundai Electronics Ind., Korea

15:10-15:25 Break

Room D

D-9:Novel Device & Phenomena (13:30 - 15:00)
Chairpersons: A. Toriumi, Univ. of Tokyo
J.-S. Tsai, NEC

13:30 D-9-1 (Invited) ***#2021***
Extraordinary Magnetoresistance

of an Off-Center van der Pauw Disk
S.A. Solin and T. Zhou
NEC Res. Inst., USA

15:10-15:25 Break

Room E

E-9:Optical Switches, Filters, and Amplifiers (13:30 - 15:15)
Chairpersons: T. Maruno, NTT
H. Uetsuka, Hitachi Cable

13:30 E-9-1 (Invited) ***#2019***
Strategies for Ultra-Wide Band Optical Amplifier Development
S. Namiki
Furukawa Electric, Japan

14:50-15:05 Break

Room F

F-8:Organic Photonic Devices and Materials (13:30 - 15:00)
Chairpersons: T. Tsutsui, Kyushu

Univ.
A. Oda, NEC

13:30 F-8-1 (Invited) ***#2039***
Organic Solid StateLaser
J.H. Schon
Bell-Labs., Lucent Technol., USA

14:00 D-9-2 ***#365***
Giant Surface Acoustic Wave Attenuation in the Quantum Hall

Regime Induced by a DC Current
Y. Takagaki, E. Wiebicke, K.-J. Friedland and K.H. Ploog
Paul Drude Inst., Germany

14:15 D-9-3 ***#343***
Selective Processing of Individual Carbon-Nanotubes Using Atomic Force Microscope

Installed in Transmission Electron Microscopy
T. Kuzumaki, T. Kizuka* and Y. Horiike
*Univ. of Tokyo and *Nagoya Univ., Japan*

14:30 D-9-4 ***#204***
Transient and Stationary Characteristics of Thermally Induced Ultrasonic Emission from Nanocrystalline Porous Silicon
T. Migita, H. Shinoda and N. Koshida

Tokyo Univ. of Agriculture and Technol., Japan

14:45 D-9-5 ***#116***
Simple Fabrication of Silicon Nanopyramids for High Performance Field Emitter Array
T. Tanii, T. Goto, T.Iida, M. Koh-Masahara* and I. Ohdomari
*Waseda Univ., and *AIST, Japan*

14:00 E-9-2 ***#125***
Reliability of Tellurite Fiber Module for Fiber Amplifier Applications
H. Ono, Y. Nishida, K. Shikano, A. Mori, K. Hoshino*, T. Kanamori*, Y.

Ohishi* and M. Shimizu
*NTT and *NTT Electronics, Japan*

14:15 E-9-3 ***#279***
Highly Reliable Photosensitive Phase Trimming Technique for Narrow Channel Spaced Arrayed-Waveguide Grating Multi/Demultiplexer
M. Abe, K. Takada, M. Ito, T. Tanaka, Y. Inoue, T. Kitoh, T. Shibata

and Y. Hibino
NTT, Japan

14:30 E-9-4 ***#99***
Low Switching Power Silica-Based Super High Delta Thermo-Optic Switch with Heat Insulating Grooves
S. Sohma, T. Goh, H. Okazaki, M. Okuno and A. Sugita
NTT, Japan

14:45 E-9-5 (Invited) ***#2017***
Optical Switch Based on Thermocapillarity
T. Sakata, M. Makihara, H. Togo, F. Shimokawa and K. Kaneko
NTT, Japan

14:00 F-8-2 ***#48***
Electroluminescent Properties of

OLEDs with a Rubrene Sub-Monolayer Inserted between Electron-and Hole-Transport Layers
M. Matsumura and T. Furukawa
Osaka Univ., Japan

14:15 F-8-3 ***#347***
Observation of Photoassisted Electroluminescent Emission Enhanced by Near-Infrared Irradiation
T. Tano, N. Takada, M. Yoshida, T. Kodzasa, H. Ushijima, K. Yase and T.

Kamata
AIST, Japan

14:30 F-8-4 ***#94***
Transient Properties of Organic Electroluminescent Diodes Using 8-Hydroxyquinoline Aluminum as a Light Source for

Polymeric Integrated Devices
H. Kajii, T. Tsukagawa, T. Taneda, K.

Yoshino, M. Ozaki, A. Fujii, M. Hikita*, S. Tomaru *, S. Imamura*, H. Takenaka*, J. Kobayashi*, F Yamamoto* and Y. Ohmori
*Osaka Univ. and *NTT-AT, Japan*

14:45 F-8-5 ***#281***
Carrier Mobilities in Organic Electron Transport Materials Determined from Space Charge Limited Current
T. Yasuda, Y. Yamaguchi*, D.-C. Zou

and T. Tsutsui
*Kyushu Univ. and *Kumamoto Techno Res. Park, Japan*

15:00-15:15 Break

Room A

A-10: Special Session "Recent Development of RF-, Optical, Probe, Power, Bio-MEMS Technologies Changing Devices in 21 Century IV" (15:25 - 16:45)
Chairpersons: M. Esashi, Tohoku Univ.
N. Yokoyama, Fujitsu Labs.

15:00-15:15 Break

Room B

B-10: High-k Materials III (15:25 - 16:45)
Chairpersons: E. Tokumitsu, Tokyo Inst. Technol.
S. Miyazaki, Hiroshima Univ.

15:00-15:15 Break

Room C

C-10: Nonvolatile Memory Technologies IV (15:05 - 16:45)
Chairpersons: K. Takasaki, Fujitsu Labs
T. Kobayashi, Hitachi

25 A-10-1 (Invited) ***#2046***
Bio-Nanotechnology through Microsystems
M. Washizu, O. Kurosawa and H. Kabata
Kyoto Univ., Japan

16:05 A-10-2 (Invited) ***#2047***
Electrostatically Levitated Rotational Gyroscope
T. Murakoshi, K. Fukatsu and M. Esashi*
*TOKIMEC and *Tohoku Univ., Japan*

16:25 A-10-2 (Invited) ***#2047***
Ball MEMS
N. Takeda, Ball Semiconductor, USA

15:25 B-10-1 ***#258***
Synthesis of Fluorinated SiNx Gate Dielectric Films Using ECR-PECVD Employing $SiF_4/N_2/H_2$ Gases
R. Morioka, H. Ohta, M. Hori and T. Goto
Nagoya Univ., Japan

15:45 B-10-2 ***#340***
Precursor Control in ZrO2-CVD for Better Characteristics as High-k Gate Application
T. Kawamoto and Y. Shimogaki
Univ. of Tokyo, Japan

16:05 B-10-3 ***#185***
Characterization of Oxygen Vacancies in SrTiO3 Thin Films by Auger Electron Spectroscopy and Its Application to Leakage Current Reduction of Ru/SrTiO3/Ru Capacitor
S. Niwa, S. Yamazaki, M. Kiyotoshi, J. Nakahira*, M. Nakabayashi*, C.M. Chu** and K. Eguchi
*Toshiba, *Fujitsu and **Winbond Electronics, Japan*

16:25 B-10-4 ***#126***
The Atomistic Origin of High Dielectric Constants of Ta_2O_5 Thin Film Deposited on Ru Electrodes
T. Hamada, T. Maruizumi and M. Hiratani
Hitachi, Japan

15:05 C-10-1 ***#39***
A New Two-Step Round Oxidation STI Technology for Highly Reliable Flash Memory
N. Ueda, Y. Yamauchi and T. Ohmi*
*Sharp and *Tohoku Univ., Japan*

15:25 C-10-2 ***#165***
Low-Voltage Embedded Flash-EEPROM in 0.18 μm CMOS
D. Dormans, D. Boter, A. Cacciato, M. Diekema, C. Dijkstra, M. Hendrkc, R. van der Linde, G. Tao, H. Valk, E. van der Vegt and R. Verhaar
Philips Semiconductors, The Netherlands

15:45 C-10-3 ***#315***
Macro Gate Current Model and Modeling Parameter Extraction of the SSI Flash Cell
C.-M. Liu, M.-B. Chang, P. Guo, A.V. Kordesch, B. Lee and K.-Y. Su
Winbond Electronics, USA

16:05 C-10-4 ***#316***
A New Two-Transistor MACRO Modeling of Source Side Injection (SSI) Flash Cell Considering Remote-Electrode Induced Barrier-Lowering (RIBL)
S.-P. Sim, A. Kordesch*, B. Lee*, C.-M. Liu*, K. Lee** and C.Y. Yang
Santa Clara Univ. Winbond Electronics, USA and **KAIST, Korea*

16:25 C-10-5 ***#295***
A Novel Method for Extracting the Coupling Coefficient without a Reference Cell for a Split-Gate Flash EEPROM
H. Fujiwara, M. Arimoto, T. Kaida, S. Sudo, K. Kurooka, M. Hirase, T. Hiroshima and K. Maemoto
Sanyo Electric, Japan

Room D	Room E	Room F
D-10:Resonant Tunneling		**F-9:Organic Thin Films and**

Devices (15:15 - 16:30)
Chairpersons: Y. Awano, Fujitsu Labs.
Y. Miyamoto, Tokyo Inst. of Technol.

15:15 D-10-1 ***#256***
High Frequency Performance of Diamond Field-Effect Transistor
H. Taniuchi, H. Umezawa, H. Ishikzaka, T. Arima and H. Kawarada

Waseda Univ., Japan

15:30 D-10-2 ***#319***
Si_1-xGe_x/Si Triple-Barrier RTD with a Peak-to-Valley Ratio of ≥ 180 at RT Formed Using an Annealed Thin Multilayer Buffer
S. Yamaguchi, A. Meguro and Y. Suda
Tokyo Univ. of Agriculture and Technol., Japan

15:45 D-10-3 ***#229***
Resonant Tunneling Effect in Si/SiO_2 Double Barrier Structure
Y. Ishikawa, T. Ishihara, M. Iwasaki and M. Tabe
Shizuoka Univ., Japan

16:00 D-10-4 ***#208***
Fluoride Resonant Tunneling Diodes Co-Integrated with Si-MOSFETs
K. Tsutsui, T. Terayama, H. Sekine and H. Kambayashi
Tokyo Inst. of Technol., Japan

16:15 D-10-5 ***#81***
The Formation of Resonance Tunnel Device by γ-Al_2O_3/Si Multiple Hetrostructure
Y. Koji, M. Shahjahan, R. Ito, K. Sawada and M. Ishida
Toyohashi Univ. of Technol., Japan

Characterization (15:15 - 16:45)
Chairpersons: K. Kudo, Chiba Univ.
M. Iwamoto, Tokyo Inst. of Technol.

15:15 F-9-1 (Invited) ***#2040***
Electron Tunneling Devices Using Organic Ultra-thin Films and Specific Dielectric Property of Organic Monolayers
M. Iwamoto
Tokyo Inst. of Technol., Japan

15:45 F-9-2 ***#139***
Photo-Induced In-Plane Alignments of Nematic Liquid Crystal Molecules on Azo-Dye Containing Alternate Self-Assembled Films Investigated Using Attenuated Total Reflection

Method
K. Shinbo, J. Ishikawa, A. Baba, F. Kaneko, K. Kato and R.C. Advincula*
*Niigata Univ., Japan and *Univ. of Alabama at Birmingham, U.S.A.*

16:00 F-9-3 ***#159***
Optical Behavior and Surface Morphology of the Azobenzene Functionalized Dendrimer in Organic Thin Monolayers
H.-K. Shin, E. Park, C. Kim and Y.-S.

Kwon
Dong-A Univ., Korea

16:15 F-9-4 ***#282***
Photovoltaic Properties of Ultramicrostructure-Controlled Organic Co-Deposited Films
M. Hiramoto, K. Suemori and M. Yokoyama
Osaka Univ., Japan

16:30 F-9-5 ***#262***
A Photoresponsive Ruthenium Complex-Titanium Oxide-Viologen Film Prepared by the Combination of Self-Assembly and Surface Sol-Gel Processes
S. Yamada, S. Nitahara and T. Akiyama
Kyushu Univ., Japan

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