

# *IEEE EDS Japan Chapter*

14:00-14:30

IEEE EDS Japan Chapter  
Annual Meeting  
(2011 Fiscal Year)

14:30-17:05

2011 IEDM Reports

February 1, 2012



■ February 1, 2012 14:00-17:05

■ Sanjo Conference Hall, The University of  
Tokyo, Hongo Campus

# IEEE EDS Japan Chapter Annual Meeting (2011 Fiscal Year)



## Agenda

- \* Greeting, EDS Japan Chapter Chair
- \* EDS Committee Members in 2012
- \* Reports on 2011 Activities and Plans for 2012
- \* EDS Japan Chapter Student Award Presentation



**Tenure: From January 1 to December 31, 2011**

<b>Chair</b>	<b>Shin' ichiro Kimura (Hitachi)</b>
<b>Vice-Chair</b>	<b>Akira Toriumi (Unv. Tokyo)</b>
<b>Secretary</b>	<b>Kazuyoshi Torii (Hitachi)</b>
<b>Treasurer</b>	<b>Koji Kita (Unv. Tokyo)</b>

# Executive Committee Members, 2012



**Tenure: From January 1 to December 31, 2012**

<b>Chair</b>	<b>Akira Toriumi</b>	<b>(Unv. Tokyo)</b>
<b>Vice-Chair</b>	<b>Toru Mogami</b>	<b>(NEC)</b>
<b>Secretary</b>	<b>Koji Kita</b>	<b>(Unv. Tokyo)</b>
<b>Treasurer</b>	<b>Meishoku Masahara</b>	<b>(AIST*)</b>

**\*AIST ; National Institute of Advanced Industrial Science and Technology**



# Reports on Activities in 2011

**Reports on Activities in 2011**

**Meeting sponsored by EDS Japan Chapter**

**Annual Meeting and IEDM 2010 Report Meeting**

**January 27th**

**University of Tokyo, Hongo Campus**

**Attendees; 70**



# IEEE EDS Japan Chapter 2010 IEDM Report Meeting



- |                         |                                      |
|-------------------------|--------------------------------------|
| <b>(1) Summary</b>      | <b>Norikatsu Takaura (LEAP)</b>      |
| <b>(2) CMOS</b>         | <b>Meishoku Masahara (AIST)</b>      |
| <b>(3) Memory</b>       | <b>Yoshitaka Sasago (Hitachi)</b>    |
| <b>Break</b>            |                                      |
| <b>(4) Power Device</b> | <b>Toshihide Yoshikawa (Fujitsu)</b> |
| <b>(5) Nano Device</b>  | <b>Atsuhiko Kinoshita (Toshiba)</b>  |
| <b>(6) Reliability</b>  | <b>Kiyoshi Takeuchi (Renesas)</b>    |

# Reports on Activities in 2011

## IEEE EDS Japan Chapter 9<sup>th</sup> Student Award 2010

受賞者: Naotoshi Kadotani 角谷 直哉 (東京工業大学, Tokyo Institute of Technology)

“Anomalous Electron Mobility in Extremely-Thin SOI (ETSOI) Diffusion Layers with SOI Thickness of Less Than 10 nm and High Doping Concentration of Greater Than  $1 \times 10^{18} \text{cm}^{-3}$ ” (2010 IEDM)

受賞者: Sang Hyeon Kim 金 相賢 (東京大学, The University of Tokyo)

“Self-aligned Metal Source/Drain  $\text{In}_x\text{Ga}_{1-x}\text{As}$  n-MOSFETs Using Ni-InGaAs Alloy” (2010 IEDM)

受賞者: Choong Hyun Lee 李 忠賢 (東京大学, The University of Tokyo)

“Ge MOSFETs Performance: Impact of Ge Interface Passivation” (2010 IEDM)

受賞者: Xiaowei Song 宋 驍崑 (東京大学, The University of Tokyo)

“Impact of DIBL Variability on SRAM Static Noise Margin Analyzed by DMA SRAM TEG” (2010 IEDM)

受賞者: Makoto Suzuki 鈴木 誠 (東京大学, The University of Tokyo)

“Direct Measurements, Analysis, and Post-Fabrication Improvement of Noise Margins in SRAM Cells Utilizing DMA SRAM TEG” (2010 Symp. on VLSI Technology)

受賞者: Kiichi Tachi 館 喜一 (東京工業大学, Tokyo Institute of Technology)

“Experimental Study on Carrier Transport Limiting Phenomena in 10 nm Width Nanowire CMOS Transistors” (2010 IEDM)

受賞者: Keita Yamaguchi 山口 慶太 (筑波大学, Tsukuba University)

“Universal Guiding Principle for the Fabrication of Highly Scalable MONOS-Type Memories -Atomistic Recipes Based on Designing Interface Oxygen Chemical Potential-” (2010 IEDM)



Meeting Name	Date	Attendees
International Electron Devices Meeting 2010	January 27, 2011	70
<p><i>IEEE EDS Distinguished Lecture</i></p> <p>Prof. John Robertson (Engineering Department, Cambridge University, Cambridge, UK) ” Electronic properties of Germanium : oxide interfaces for future CMOS”</p>	February 16, 2011	30
WIMNACT 26 (Workshop and IEEE EDS Mini-colloquium on Nanometer CMOS Technology)	February 9, 2011	35
<p><i>IEEE EDS Distinguished Lecture</i></p> <p>Dr. Simon Deleonibus, Chief Scientist &amp; Director of Leti, Grenoble France “CMOS Nanoelectronics scaling and Technology Diversifications”</p>	June 17, 2011	25
<p><i>IEEE EDS Distinguished Lecture</i></p> <p>Dr. Prof. Xing Zhou, Chiar, IEEE EDS SRC-AP (Region 10) “Unification of MOS Compact Models with the Unified Regional Modeling Approach”</p>	August 26, 2011	25

Meeting Name	Date	Attendees
<p><i>IEEE EDS Distinguished Lecture</i>            Prof. Enrique Miranda, Universitat Autònoma de Barcelona, Spain            “Failure analysis of MOS devices using spatial statistics”</p>	<p>September 21, 2011</p>	<p>20</p>
<p>IEEE EDS Minicolloquium on Advanced Hybrid Nano Devices</p>	<p>October 4-5, 2011</p>	<p>200</p>
<p><i>IEEE EDS Distinguished Lecture</i>            Professor of Electrical Engineering, Material Science and Engineering, Director of Research, Center for Integrated Systems, Stanford University, USA            " Challenges in Nanoelectronic Devices and Integrations on Silicon Platform Today and Tomorrow"</p>	<p>November 11, 2011</p>	<p>32</p>
<p><i>IEEE EDS Distinguished Lecture</i>            Professor Kenji Shiraishi, Tsukuba University            “Interface Physics and Its Approach to Modern Devices -A Computational Physics Approach-”</p>	<p>November 17, 2011</p>	



## Sending Information to Members

- \* EDS News Letter
- \* Use of Japan Council Mailing List
- \* EDS Japan Chapter Homepage  
<http://www.ieee-jp.org/japancouncil/chapter/ED-15/>



# Activity Plan for 2012

## Activities in 2012



- \* Annual Meeting & 2011 IEDM Report Meeting
- \* Sponsorship of DL Meeting, MQ and Workshop
- \* Co-sponsorship and backup of Meetings
- \* Student Award Presentation
- \* Information Sending  
Use of Mailing List and HP  
<http://www.ieee-jp.org/japancouncil/chapter/ED-15>

# IEEE Electron Devices Society Membership

<http://www.ieee.org>



## IEEE Membership Grade

Fellow  
Senior Member  
Member  
Student Member

## Promotion to Senior Member

First Step to Fellow

Anyone with 10 years in the profession





**IEEE EDS Japan Chapter**

# **2011 10th Student Award Presentation**

**From this year, award name is changed from previous  
IEEE EDS Japan Chapter Student Award to new  
IEEE EDS Japan Chapter Student Award (VLSI)  
IEEE EDS Japan Chapter Student Award (IEDM).**

## IEEE EDS Japan Chapter Student Award (VLSI)

受賞者: Rui Zhang (東京大学, The University of Tokyo)

“High Mobility Ge pMOSFETs with ~1nm Thin EOT Using Al<sub>2</sub>O<sub>3</sub>/GeO<sub>x</sub>/Ge Gate Stacks Fabricated by Plasma Post Oxidation”

受賞者: SangHyeon Kim (東京大学, The University of Tokyo)

“High Performance Extremely-Thin Body III-V-On-Insulator MOSFETs on a Si Substrate with Ni-InGaAs Metal S/D and MOS Interface Buffer Engineering”

受賞者: Yasuhiro Nakajima (東京大学, The University of Tokyo)

“Phase Transformation Kinetics of HfO<sub>2</sub> Polymorphs in Ultra-Thin Region”

## IEEE EDS Japan Chapter Student Award (IEDM)

受賞者: Yoshiharu Yonai (東京工業大学, Tokyo Institute of Technology)

“High drain current (>2A/mm) InGaAs channel MOSFET at VD=0.5V with shrinkage of channel length by InP”

受賞者: Teruyuki Ohashi (東京工業大学, Tokyo Institute of Technology)

“Experimental Evidence of Increased Deformation Potential at MOS Interface and Its Impact on Characteristics of ETSOI FETs”

受賞者: Tsunaki Takahashi (東京工業大学, Tokyo Institute of Technology)

“Thermal-Aware Device Design of Nanoscale Bulk/SOI FinFETs: Suppression of Operation Temperature and Its Variability”

受賞者: Tomoyuki Yokota (東京大学, The university of Tokyo)

“Sheet-type Organic Active Matrix Amplifier System using V<sub>th</sub>-Tunable, Pseudo-CMOS Circuits with Floating-gate Structure”

# IEEE EDS Japan Chapter

2011 IEDM Report Meeting (14:30-17:05)



## (1) Summary

高浦則克氏 (Asian Chair) (超低電圧デバイス技術研究組合) 14:30-14:45

## (2) CMOS

昌原明植氏 (CIRCUIT AND DEVICE INTERACTION) (産業技術総合研究所)  
14:45-15:10

## (3) Memory

福住嘉晃氏 (MEMORY TECHNOLOGY) (東芝) 15:10-15:35  
休憩 15:35-15:50

## (4) Display and Sensor

糸長 総一郎氏 (DISPLAYS, SENSORS AND MEMS) (ソニー) 15:50-16:15

## (5) Nano Device

高柳万里子氏 (NANO DEVICE TECHNOLOGY) (東芝) 16:15-16:40

## (6) Power Device

宮本恭幸氏 (QUANTUM, POWER, AND COMPOUND SEMICONDUCTOR)  
(東工大) 16:40-17:05