

GENERAL INFORMATION

DATA

Conference: **September 25-27, 2012 (official language is English)**

Short Courses: **September 24, 2012 (in English)**

CONFERENCE VENUE

Kyoto International Conference Center

Takaragaike, Sakyo-ku, Kyoto 606-0001 Japan

Phone 81-75-705-1234 Fax 81-75-705-1100

<http://www.icckyoto.or.jp/en/index.html>

SSDM2012 will be held at Kyoto International Conference Center. The access map to conference is available in the conference website and also on page 55, 56 in this booklet. The conference rooms are distributed over the venue. Conference Banquet will be held on September 25, 19:00-21:00 at Banquet Hall Swan. The Banquet fee is NOT included in the Registration fee. Participants who wish to attend the banquet are requested to order the banquet ticket beforehand. Drinks and appetizers will be served. Ceremony for Young Researcher Award will be held during the Banquet.

TECHNICAL SESSIONS AND EVENTS

Oral and Poster Presentations:

The oral presentations will be held in the rooms located on 1st, 2nd And 5th floor in Kyoto International Conference Center from September 25 to 27. The poster presentations will be held on September 26, 13:30-15:00, at Annex Hall.

Plenary Sessions:

Plenary Sessions are scheduled on September 25, 9:30-12:20 at Main Hall. Non-Technical Plenary Talk, "Future Prospects of Semiconductor Industry" by Tamotsu Nomakuchi, who is the president of National Institute of Advanced Industrial Science and Technology (AIST), will be held from 9:45-10:30. Technical Plenary Talk, "It is a small world" by An Steegen, who is the senior vice president of Process Technology Development, Interuniversity Microelectronics Center (IMEC) in Belgium, will be held from 10:50-11:35. "One-step Further of Wide Band-gap Semiconductor SiC" by Hiroyuki Matsunami, who is the Professor emeritus of Kyoto Univ. in Japan, will be held from 11:35-12:20.

Welcome Reception:

The Welcome Reception will be held on September 24, 18:00-19:30 at Cocktail Lounge.

Rump Sessions:

SSDM 2012 is organizing Rump Session to be held on September 26, 19:00-21:00 at R-1: Room D & R-2: Room E. Details can be found on Page 42.

Short Course (in English):

On September 24, 13:00-17:45, two short course lectures will be held at room D, and E. These two courses are for beginners such as young researchers, young engineers, and students.

1) Solid State Devices and Materials for Sustainable Power Generation

2) Breakthrough Technologies for The Limitation in Current Optoelectronic Devices

*Registrants for short course are able to attend both courses freely. Details can be found on Page 43.

Award Ceremony:

Award Ceremony for SSDM Award /Paper Award will be held in Plenary Sessions which will start 9:30 on September 25 at Main Hall. Young Research Award will be held in Banquet which will start 19:00 on September 25 at Swan and Garden or Sakura.

REGISTRATION

The on-site registration desk will be open September 24 to 27. Open hours are as follows:

September 24 16:00 – 19:00 at entrance area (1F)

September 25 08:30 – 17:30 at entrance area (1F)

September 26 08:30 – 17:30 at entrance area (1F)

September 27 08:30 – 16:00 at entrance area (1F)

SPECIAL ISSUE of JJAP

Authors of SSDM 2012 papers are encouraged to submit their original papers to the Special Issue of Japanese Journal of Applied Physics, which will be published in February and April, in 2013.

INSURANCE

The organizer cannot accept responsibility for accidents that may occur during a delegate's stay. Delegates are therefore encouraged to obtain travel insurances (for medical, personal accident, and luggage) in their home countries prior to departure.

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.

INTERNET ACCESS

Complementary internet connection will be available on free Wi-Fi area, at Kyoto Conference center. The details can be found on Page 59.

PLENARY SESSION

September 25 (Wednesday) 9:30-
1F Main Hall, Kyoto International Conference Center

Non -Technical Plenary Talk

9:45-10:30

“Future Prospects of Semiconductor Industry”

Tamotsu Nomakuchi

President, AIST, Japan

Technical Plenary Talk

10:50-11:35

“It is a small world”

An Steegen

Senior Vice President, Process Technology Development, IMEC, Belgium

11:35-12:20

“One-step Further of Wide Band-gap Semiconductor SiC”

Hiroyuki Matsunami

Professor Emeritus, Kyoto Univ., Japan

RUMP SESSIONS

-September 26 (Wednesday) 19:00-21:00

Rump Session A (Room D)

“GaN power devices - when and how the new devices will take off?”

GaN power devices have been emerging as a promising choice for future power switching applications taking advantages of the material’s superior properties. The recent technical progress anticipates the immediate commercialization; however, there seem to be remaining obstacles to achieve it replacing the currently used Si-based devices. In this rump session, the panelist will discuss the most suitable application of the GaN devices and the technical issues for the commercialization. The applications to be discussed cover the wide range of the operating voltages; e.g., low voltage DC-DC converters, invertors and power supply circuits for various applications including electric or hybrid vehicles. The technical issues are shared after the presentation of the state-of-the-art epitaxial growth, processing and reliability of GaN power devices.

Organizer: Daisuke Ueda (Panasonic)

Moderator: Tetsuzo Ueda (Panasonic)

Panelists: Chris Chey (Texas Instruments)
Yuvaraj Dora (Transphorm)
Tsutomu Uesugi (Toyota Central Research Lab.)
Barun Dutta (IMEC)
Toshihide Kikkawa (Fujitsu)
Jesus del Alamo (Massachusetts Inst. Tech.)

Rump Session B (Room E)

**“What will non-volatile memories go for in the next decade?
---Technologies and Applications---”**

In recent years, the enormous success of NAND Flash memory technology in realizing multi-gigabyte memory chips has evidently triggered a lot of questions concerning its further scalability towards the sub-19nm nodes. But can we project the road maps all the way down to 16nm without a fundamental change of concept, against a lot of technical issues (process or cell characteristics, etc.)? One obvious way out of these issues is to switch to a resistance-based concept such as phase change memory (PCM) or Resistance RAM (RRAM) or Magnetic RAM (STT-RAM). But can these provide the same scalability or reliability and at what price? Or can the switching memories replace DRAM or other memories? Or should we opt for 3D solutions on chip instead? These discussions concerning about the scaling and the density increase are still very important, which will continue to have a significant role in semiconductor industries.

On the other hands, some of new applications of non-volatile memory are also expected to be launched to activate the technology fields of non-volatile memories. These questions will be put forward and will serve as a starting point for a debate among selected panelists, who are experts playing leading roles in the memory business.

Organizer: Akihiro Nitayama (Toshiba)

Moderators: Takashi Ohsawa (Tohoku Univ.)
Riichiro Shirota (National Chiao Tung Univ.)

Panelists: Seiichi Aritome (SK Hynix)
Gitae Jeong (Samsung)
Stuart S.P. Parkin (IBM)
Hiroshi Watanabe (National Chiao Tung Univ.)
Keiichi Tsutsui (Sony)

SHORT COURSES

September 24, 2012, Kyoto International Conference Center, Kyoto.

= Short Course 1 (Room D) =

Solid State Devices and Materials for Sustainable Power Generation

Organizers: Yoshinari Kamakura (Osaka University)
Shigeyasu Uno (Ritsumeikan University)

There are great expectations for the development of the energy harvesting solid-state devices and materials pursuing sustainable power generation. In this short course we will present the lectures from leading experts in the fields of materials, devices, and circuits for realizing highly efficient energy harvesting from various types of renewable energy sources such as solar, vibration, heat, microwave, and biochemical energy. All lectures will be given in English, and will include from the fundamentals to the state-of-the-art, aimed at graduated students and young researchers from both industry and academia.

Speakers

- 13:00 “Vibration-driven micro energy harvesting”
Prof. Hiroki Kuwano (Tohoku University)
- 13:45 “Microwave Power Transmission and Energy Harvesting”
Prof. Yasuo Ohno (Tokushima University)
- 14:30 “Ultra-low Power and High-Performance Analog Circuit Design Techniques for Energy-Harvesting Systems”
Prof. Tetsuya Hirose (Kobe University)
- Break (20 min.)
- 15:35 “Quantum dot solar cells ~Trends and challenges in high-efficiency photovoltaics~”
Prof. Yoshitaka Okada (The University of Tokyo)
- 16:20 “Thick film thermoelectric material and its deposition technology”
Dr. So Baba (National Institute of Advanced Industrial Science and Technology)
- 17:05 “Biofuel cell”
Dr. Hideki Sakai (Sony Corporation)

= Short Course 2 (Room E) =

Breakthrough Technologies for The Limitation in Current Optoelectronic Devices

Organizers: Yu Tanaka (Fujitsu Laboratory)
Kazunobu Kojima (Kyoto University)

In this course, experts coming from optoelectronics field will give discussion about fundamental problems and future prospects in current optoelectronic devices. The course includes key words of 3D photonic interconnecting technology, 3D Si-based photonic crystal, ultrafast modulator, quantum dot laser, blue and green LED, and its application for solid state lighting and display.

Speakers

- 13:00 “Manipulation of Photons by Photonic Crystals”
Prof. Takashi Asano (Kyoto University)
- 13:45 “Integrated-optic input/output couplers for optical interconnection”
Prof. Shogo Ura (Kyoto Institute of Technology)
- 14:30 “Advanced Quantum Dot Lasers”
Dr. Mitsuru Sugawara (QD Laser)
- Break (20 min.)
- 15:35 “Overcoming the trade-offs in semiconductor-based optical modulators”
Dr. Yasunori Miyazaki (Mitsubishi Electric)
- 16:20 “Technologies towards highly-reliable operation of white LEDs in high temperature environment”
Dr. Hidenori Kawanishi (Sharp)
- 17:05 “Characteristics of nitride-based laser diodes”
Prof. Ulrich T. Schwarz (Fraunhofer IAF)

INSTRUCTION FOR SPEAKERS

Oral Presentation:

Time Schedule

	Total session time	Presentation time	Discussion time
Plenary	45 min.	40 min.	5 min.
Invited	30 min.	25 min.	5 min.
Regular-1	20 min.	15 min.	5 min.
Regular-2	15 min.	10 min.	5 min.

BELL: First: Warning, Second: End of speech, Third: End of the discussion.

Audio-Visual Equipment

The following equipments are ready at each conference meeting room during SSDM 2012:

- * LCD projector
- * PC (laptop computer), Windows XP, PowerPoint 2003-2010 and PDF
The use of personal PCs for presentations is prohibited.
- * Microphone
- * Projection laser pointer

Uploading Your Presentation

The single most important action of authors is to upload your presentation file to the PC in each session room using your own USB thumb drive. It is the presenter's responsibility to **upload the slide file as soon as possible in each session room at any break** well in advance to the session of presentation. At a short break, the PC may be too crowded to upload the file. If the chairman cannot find your presentation file at the beginning of the session, your presentation will be withdrawn. In the presentation PC, each presenter's file should be positioned in the folder that corresponds to the session of presentation. The file must be compatible with Microsoft PowerPoint 2010 or Adobe Acrobat 9 on Microsoft Windows. Compatibility can be checked at the Speakers Room, Conference Room on 1st floor where the same PCs as in each session room are installed. Details will be informed on SSDM website at <http://www.ssdm.jp>.

Poster Presentation:

Presenting Poster

Poster sessions are scheduled for Wednesday, September 26 from 13:30 to 15:00 at Annex Hall on 1st floor. Poster boards will be available with identifying labels. Authors are requested to prepare their posters between 10:00 and 15:00 on September 26 and remove them by 15:30 on September 26. Please note that after 16:00 all the remaining poster will be destroyed. Usable space on each poster board will be approximately 900 mm wide and 2,100 mm high. Pushpins will be available. Each presentation will be assigned a board, labeled with the abstract number. Please display the paper title, author names and affiliations on the poster. Authors are requested to stay near by their posters during the poster session for discussions.

Short Oral Presentation for Poster Presenters

All poster presenters are required to make 2 minutes short oral presentation on September 26. The presentation time should be kept strictly to 2 minutes per poster presentation, including the time needed to move on to the next speaker. To ensure the session progresses smoothly, it is essential that these short presentations should be held in a quick, successive sequence. While one speaker is giving his/her presentation, next speakers should wait nearby in line for their turn in order to move on to the next presentation.

Please note that any absent speakers will be skipped and each presentation will be automatically stopped after 2 minutes have elapsed. Only a PC projector will be made available.

Short oral presentations will be held as follows:

- Area 1 1F C-2
- Area 2 2F K
- Area 3 1F D
- Area 4 2F B-2
- Area 5 2F J
- Area 6 1F E
- Area 7 2F B-1
- Area 8 2F I
- Area 9 1F G
- Area 10 5F 555
- Area 11 2F J
- Area 12 5F 555
- Area 13 1F C-1
- Area 14 5F 554
- Area 15 1F H

Confidentiality:

We will delete all electronic files from the SSDM computers after presentations are completed. SSDM will not publish or distribute the presentation material.

Agreement not to pre-publish abstracts:

By submitting an abstract to the committee for review, the author(s) agrees that the work will not be published prior to the presentation at the conference. Papers found to be in breach of this agreement will be withdrawn by the conference committee.

EXHIBITION

On the days of the conference SSDM2012 Exhibition will be held at 1F lobby of the Kyoto International Conference Center. The show will feature the displays of the latest products of the following exhibitors.

Exhibitors:

Agilent Technologies, Inc.
Crosslight Software Inc Japan Brance.
HORIBA, Ltd
JEOL Ltd
JFE Techno-Research Corporation
KEYENCE CORPORATION.
Momentive Performance Materials Inc.
Nagase Techno-Engineering co.,ltd
NTT Advanced Technology Corp.
NTT Electronics Corporation
SILVACO Japan Co., Ltd.
TNS Systems LLC
The Japan Society of Applied Physics

as of August 31, 2012

Show date and hours

September 25 : 9:30-18:00
September 26 : 9:00-18:00
September 27 : 9:00-17:00