
GENERAL INFORMATION

DATE

Short Courses: **September 24, 2013 (in English)**

Technical Sessions: **September 25-27, 2013**

CONFERENCE VENUE

Hilton Fukuoka Sea Hawk

2-2-3 Jigyohama, Chuo-ku, Fukuoka-shi 810-8650 Japan

Phone: +81-92-844-8111, Fax: +81-92-844-7887

<http://www.hiltonfukuokaseahawk.jp/>

SSDM2013 will be held at Hilton Fukuoka Sea Hawk. The access map to conference is available in the conference website.

SHORT COURSES

Short Course lectures are scheduled on September 24, 13:00-17:45. Three Short Courses will be held each at NAVIS A, B and C.

These three courses are designed for beginners such as young researchers, young engineers, and students.

A) Fundamentals on Advanced CMOS/Memory Technologies

B) Fundamentals and Applications of Spintronics Frontier

C) Trends for Future Power Devices

*Registrants for Short Course are able to attend all courses freely. One printed copy of the text book for the primary course that you chose is included in the registration fee. A printed copy of the text books for the other two courses can be purchased, but numbers are limited. Details can be found on page 43.

TECHNICAL SESSIONS

Plenary Sessions:

Plenary Sessions are scheduled on September 25, 9:05-12:15 at ARGOS-C.D.

Non-Technical Plenary Talk:

"Sustainability Beyond Science and Technology" by Mamoru Mohri (Miraikan)

Technical Plenary Talks:

"Medical Electronics --- A Challenge and Opportunity for Semiconductor Technologies and Biomedical Sciences" by Peter (Chung-Yu) Wu (National Chiao Tung Univ.)

"Materials Innovation for Future Solid State Electronics" by Hideo Hosono (Tokyo Tech)

Details can be found on page 11.

Oral and Poster Presentations:

Oral presentations will be held in the rooms located on 1st and 3rd floors of Hilton Fukuoka Sea Hawk from September 25 to 27. Poster presentations will be held on September 26, 13:00-15:00, at ARGOS-C.D.E.

Rump Sessions:

Rump Sessions are scheduled on September 26, 19:00-20:30 at NAVIS-A and B. Details can be found on page 42.

OTHER EVENTS

Welcome Reception:

Welcome Reception will be held on September 24, 18:30-20:00 at BOUKAIROU (5th floor).

Banquet:

Conference Banquet will be held on September 25, 18:30-20:30 on the 34th floor. 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.

Award Ceremony:

Award Ceremony for SSDM Award /Paper Award will be held in Opening Session starting at 9:05 on September 25 at ARGOS-C.D. Young Researcher Award Ceremony will be held in the Banquet starting at 18:30 on September 25 at the 34th floor.

REGISTRATION

The on-site registration desk will be open September 24 to 27 at the Lobby (1F). Open hours are as follows:

September 24 16:00 – 19:00

September 25 08:00 – 17:30

September 26 08:30 – 17:30

September 27 08:30 – 14:00

SPECIAL ISSUE of JJAP

The Special Issue of Japanese Journal of Applied Physics will be published in February and April, in 2014.

INTERNET ACCESS

Complementary internet connection will be available on free Wi-Fi area, open spaces on the 1st, 3rd and 4th floors.

Non-Technical Plenary Talk

9:30-10:30

"Sustainability Beyond Science and Technology"**Mamoru Mohri**Astronaut / Chief Executive Director, National Museum of Emerging Science and Innovation (Miraikan),
Japan

Break (15min.)

Technical Plenary Talks

10:45-11:30

"Medical Electronics --- A Challenge and Opportunity for Semiconductor Technologies and Biomedical Sciences"**Peter (Chung-Yu) Wu**

National Chiao Tung University, Taiwan

11:30-12:15

"Materials Innovation for Future Solid State Electronics"**Hideo Hosono**

Tokyo Institute of Technology, Japan

RUMP SESSION A (NAVIS-A):**“How can we enhance LSI functionality through Material/Device/Architecture Innovations?”**

The scaling of device sizes is now facing formidable obstacles. A number of researchers are working on a wide variety of technologies of devices, materials, and architectures. From the device side, 3-dimensional device structures such as FinFETs and nanowire FETs have been focused technologies to extend the roadmap for the future. From the material side, nano carbon materials, such as graphene and CNTs, and 2D materials other than graphene such as transition metal dichalcogenides have been pursued as possible channel/interconnect materials. As for the III-V & Ge devices, many material and device researches have been collaborated toward the realization of electronic devices showing higher performance than Si devices. These efforts have gone to enhance LSI functionality by increasing the number and/or speed of devices. On the other hand, functionality of LSIs may be increased by LSI architects and sensor designers. Bio-inspired systems show some promises for the pattern matching application and so on. In these areas, we are not quite sure whether conventional electronic devices are most useful or not. New ReRAM- or PCM-type devices have shown some potential in this area. In this panel, we will be brainstorming possible solutions for enhancing the LSI functionality towards 2030 by collaborating with prominent panelists and audience.

Organizer: Shinichi Takagi (The University of Tokyo)

Moderator: Ken Uchida (Keio University)

Panelists: Aaron Franklin (IBM), Tsuyoshi Hasegawa (NIMS)

Takashi Morie (Kyushu Institute of Technology), Aneesh Nainani (Applied Materials)

Masumi Saitoh (Toshiba), Jianting Ye (The University of Tokyo)

RUMP SESSION B (NAVIS-C):**“Future lighting technologies: Mehr Licht!”**

Since the commercialization of GaN-based blue LEDs in 1993, lighting technology has shown marked evolution begging from traffic signals and full-color displays. White LEDs were developed in 1996, and then solid-state lighting has overridden the traditional lighting technology. One of the most up-to-date technologies revealed the power efficiency of 200 lm/W, which was twice of that of fluorescent lamps for general lighting. However, we still need innovative technologies for future lighting, without which we may not keep the sustainable society on our planet. In this rump session, we will be frankly exchanging knowledge and opinions on prospective technologies for future lighting. The main discussion subjects may include (a) breakthroughs for overcoming “green gap” and “UV threshold”, (b) novel device structures, (c) issues for super bright LEDs, and (d) ways for future general lighting. It should be noted that together with the science we cannot escape from the discussion of cost-performance, for which we will emphasize materials, growth, process, and substrate issues in LEDs. In order for frank and informal discussions in this rump session, participation of not only researchers in this field but also those who wish to save our planet from the ecology in lighting technology is sincerely acknowledged.

Organizer: Shizuo Fujita (Kyoto University)

Moderator: Kazuyuki Tadatomo (Yamaguchi University)

Panelists: Yoshinobu Aoyagi (Ritsumeikan University), Koichi Okamoto (Kyushu University)

One or more panelists, including overseas participants, will be added.

Short Course A (NAVIS-A): Fundamentals on Advanced CMOS/Memory Technologies**Organizer: Shinichi Takagi (The University of Tokyo)**

13:00-14:30 “Present Status and Future Trend of CMOS Scaling”
Prof. Toshiro Hiramoto (The University of Tokyo)

14:30-16:00 “High Mobility Channel CMOS Technology”
Prof. Shinichi Takagi (The University of Tokyo)

Break (15 min.)

16:15-17:45 “Impact of 3D structured Memory and Spintronics based NV-Memory for High Performance & Low Power Systems”
Prof. Tetsuo Endoh (Tohoku University)

Short Course B (NAVIS-B): Fundamentals and Applications of Spintronics Frontier**Organizer: Akira Fujiwara (NTT Corporation)**

13:00-13:55 “Advanced Spintronic Materials: for Generation and Control of Spin Current”
Prof. Koki Takanashi (Tohoku University)

13:55-14:50 “Spin Caloritronics - more than spin-dependent thermoelectrics”
Prof. Gerrit E.W. Bauer (Tohoku University)

Break (15 min.)

15:05-16:00 “MTJ-based Spintronics”
Prof. Yasuo Ando (Tohoku University)

16:00-16:55 “Group-IV Spintronics”
Prof. Masashi Shiraishi (Osaka University)

16:55-17:40 “Light and Spintronics”
Prof. Hiro Munekata (Tokyo Institute of Technology)

Short Course C (NAVIS-C): Trends for Future Power Devices**Organizer: Shizuo Fujita (Kyoto University)**

13:00-14:00 “Technologies and Trends Related to Si Power Module”
Dr. Katsumi Satoh (Mitsubishi Electric Corp.)

14:00-15:00 “Recent Advances in Si, SiC and GaN High-Voltage Power Devices”
Prof. T. Paul Chow (Rensselaer Polytechnic Institute)

Break (15 min.)

15:15-16:15 “Power Electronics Innovation by Widegap Semiconductor Power Devices”
Dr. Hajime Okumura (AIST)

16:15-16:55 “Diamond-Based Power Devices”
Dr. Hitoshi Umezawa (AIST)

16:55-17:35 “Gallium Oxide-Based Power Devices”
Dr. Masataka Higashiwaki (NICT)

INSTRUCTION FOR PRESENTERS

Oral Presentation:

Time Schedule

| | Total session time | Presentation time | Discussion time |
|----------------------|--------------------|-------------------|-----------------|
| Invited | 30 min. | 25 min. | 5 min. |
| Regular-1: Area1-5 | 20 min. | 15 min. | 5 min. |
| Regular-2: Area 6-15 | 15 min. | 10 min. | 5 min. |
| Late News | 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 session room during SSDM2013:

- * LCD projector
- * PC (laptop computer), Windows XP, PowerPoint 2003-2013 and PDF
- * Projection laser pointer

Uploading Your Presentation

The most important action for presenting authors is to upload their presentation file to the PC in each session room, using their own USB thumb drive. The use of personal PCs is prohibited. It is the presenter's responsibility to **upload his/her presentation file as soon as possible in each session room at any break** well in advance to the session of presentation. If the session chair cannot find your presentation file at the beginning of the session, your presentation will be withdrawn. The file must be compatible with Microsoft PowerPoint or Adobe Acrobat on Microsoft Windows.

Poster Presentation:

Presenting Your Poster

Poster sessions are scheduled for Thursday, September 26 from 13:00 to 15:00 at ARGOS-C.D.E on the 1st floor. Poster boards will be available with identifying labels from 10:00 on September 26. Authors are requested to prepare and set-up their posters by 13:00 on September 26. After the session, authors must immediately remove their posters by 15:10 on September 26. Please note that after 15:40 all remaining posters will be destroyed. Each poster board is 1,500mm wide and 2,100mm high. Pushpins will be available. The identifying label gives only paper session number. Therefore, 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 must give short oral presentation on September 26. The presentation time should be less than 3 minutes, including the time needed to move on to the next presenter. To ensure smooth progress of the session, while one presenter is giving his/her presentation, next presenter should wait nearby in line for their turn. Only a PC projector will be made available.

Rooms for the short oral presentations can be found in the FLOOR GUIDE.

Confidentiality:

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

Exhibitors:

ADVANTEST CORPORATION

Crosslight Software Inc. Japan Branch

Evans Analytical Group Nano Science Corporation

Foundation for Promotion of Material Science and Technology of Japan

Gatan Inc.

JEOL Ltd.

KEYENCE CORPORATION

NTT Advanced Technology Corporation

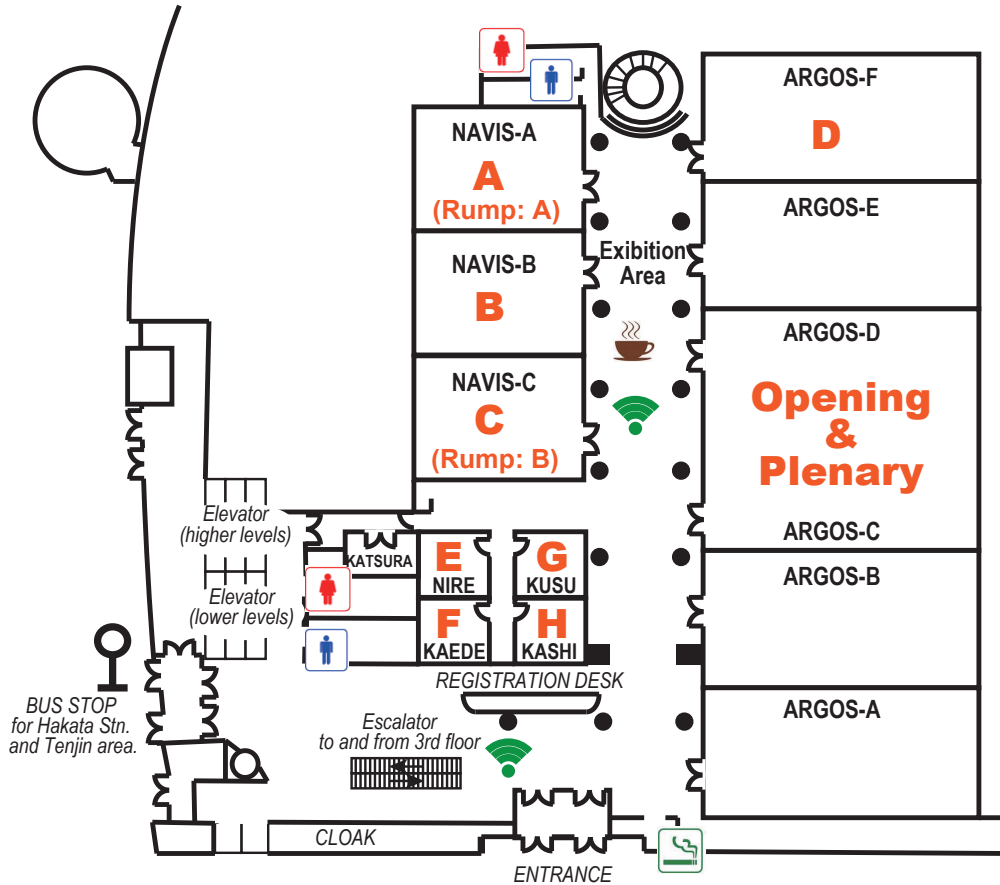
OS TECH Co., Ltd.

SILVACO Japan Co., Ltd.

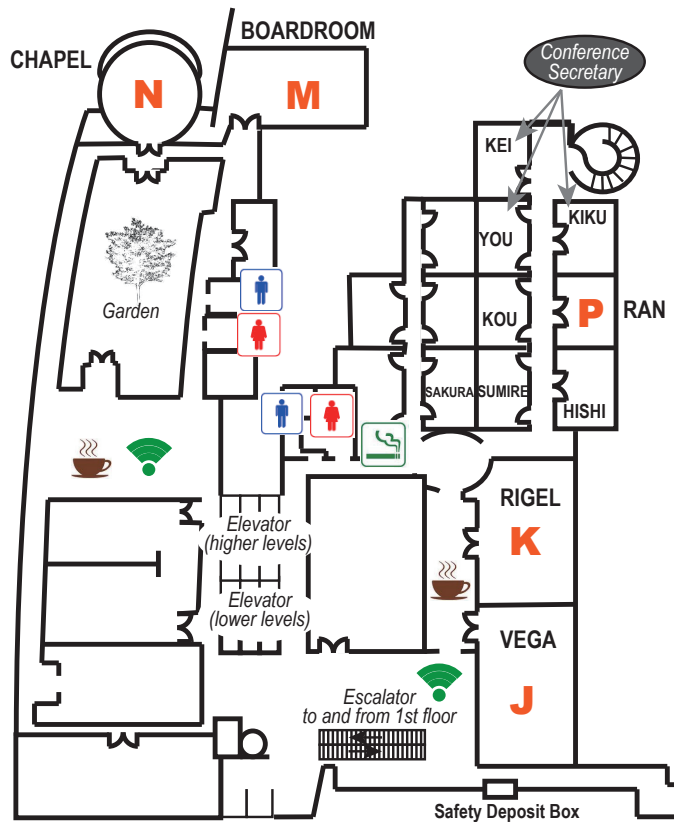
TNS Systems LLC

The Japan Society of Applied Physics

Floor Map ---Oral Sessions---

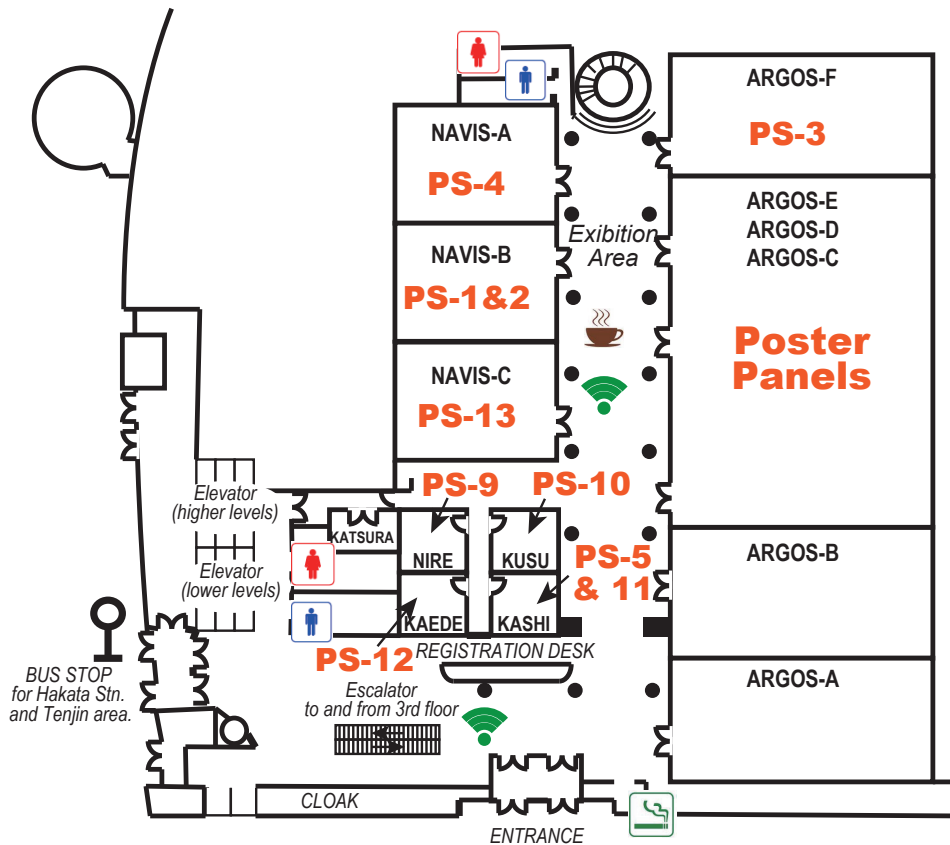


1st Floor

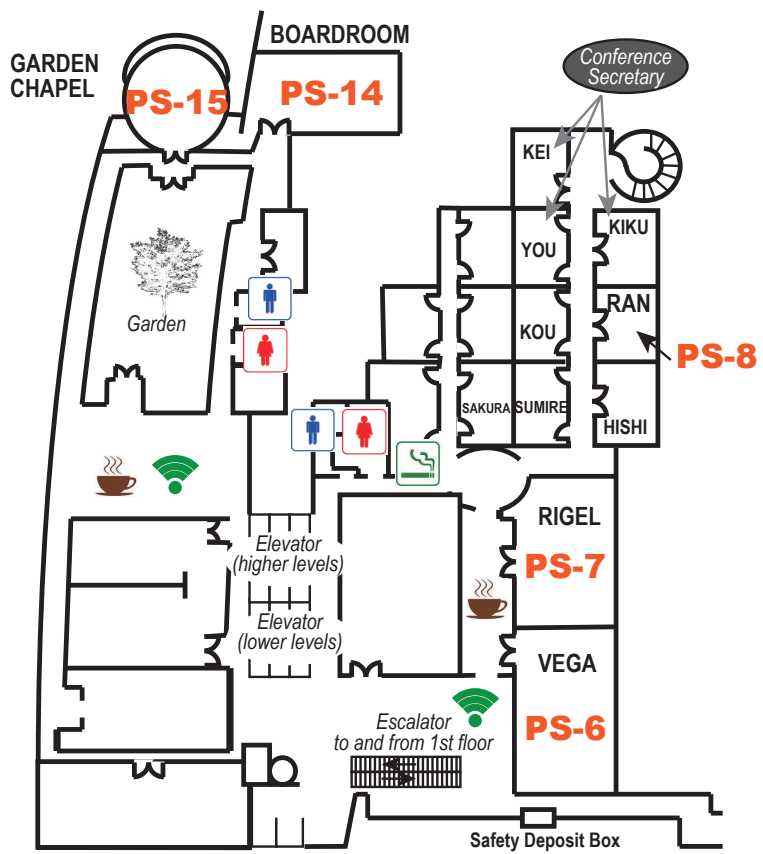


3rd Floor

Floor Map ---Short Presentation and Poster Session ---



1st Floor



3rd Floor