

INTERNATIONAL CONFERENCE ON

SOLID STATE DEVICES AND MATERIALS



Arcree HIMEJI (image)

ssdm 2024

September 1th - 4th, 2024
Arcree HIMEJI, Hyogo, Japan

Plenary Session



Hisashi Kanazashi

(Ministry of Economy, Trade and Industry)

Strategy for Semiconductors and the Digital Industry" of the Japanese Government



Sanjay Natarajan

(Intel Corp.)
TBA



Masataka Higashiwaki

(Osaka Metropolitan Univ.)
Gallium oxide electronics
- power, harsh environment,
and something new -



Daniel ng

(AMD)
TBA

Scope of Conference

1. Advanced CMOS: Material Science / Process Engineering / Device Technology
2. Advanced and Emerging Memories and New Applications
3. Heterogeneous and 3D Integration / Interconnect / MEMS
4. Power / High-speed Devices and Materials
5. Photonics: Devices / Integration / Related Technology
6. Energy Harvesting and Converting Devices and Materials
7. Organic / Molecular / Bio-electronics
8. Low Dimensional Devices and Materials
9. Novel Functional / Quantum / Spintronic Devices and Materials
10. Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process
11. Advanced Materials: Synthesis / Crystal Growth / Characterization
12. Advanced Circuits / Systems Interacting with Innovative Devices and Materials

Conference Chairs

Organizing : Y. Miyamoto (Tokyo Tech)
Program : M. Masahara (AIST)
Steering : N. Nishiyama (Tokyo Tech)

Paper Deadline

Regular: April 30, 2024
Extended to May 14, 2024
Late News: July 16, 2024

World Heritage Himeji Castle



ssdm
2024

Sponsored by

THE JAPAN SOCIETY OF APPLIED PHYSICS



Secretariat-SSDM

secretariat@ssdm.jp

www.ssdm.jp

Invited Speakers

Area 1 Advanced CMOS: Material Science / Process Engineering / Device Technology

Steven Demuynck (imec, Belgium)

“3D Stacked Devices and MOL Innovations for Post-Nanosheet CMOS Scaling”

Min-Hung Lee (National Taiwan Univ., Taiwan)

“Ferroelectric Materials and Devices Topic: The newest development on ferroelectric-RAM”

Hiroshi Oka (AIST, Japan)

“Milli-Kelvin Analysis Revealing the Role of Band-edge States in Cryogenic MOSFETs”

Juhun Park (Samsung Electronics Co., Ltd., Korea)

“TBD”

Area 2 Advanced and Emerging Memories / New Applications

Bin Gao (Tsinghua Univ., China)

“Relaxation Signal Analysis and Optimization of Analog Resistive Random Access Memory for Neuromorphic Computing”

Noritaka Ishihara (Kioxia Corp., Japan)

“Highly Scalable Metal Induced Lateral Crystallization (MILC) Techniques for Vertical Si Channel in Ultra-High (> 300 Layers) 3D Flash Memory” (tentative)

Thomas Kämpfe (Fraunhofer Institute for Photonic Microsystems, Germany)

“Ferroelectric neuromorphic devices and system implementations”

Min Hyuk Park (Seoul National Univ., Korea)

“Ferroelectricity and antiferroelectricity of doped thin HfO₂-based films”

Uwe Schroeder (NaMLab, Germany)

“HfO₂-based Ferroelectric Capacitors for Non-volatile Memory: Going from Single Devices to Memory Arrays”

Area 3 Heterogeneous and 3D Integration / Interconnect / MEMS

Yusuke Takei (AIST, Japan)

“MEMS Activity in AIST: Ultrathin MEMS and Piezoelectric MEMS”

Christophe Vallee (SUNY Albany/TEL, USA)

“TBD”

Area 4 Power / High-speed Devices and Materials

Hiroshi Kawarada (Waseda Univ., Japan)

“Diamond MOSFETs for power and high-frequency devices”

Wojciech Knap (Warsaw Univ. of Technology and Polish Academy of Sciences, Poland)

“THz plasmonic devices based on Si/GaN/graphene transistors”

Tetsuo Narita (Toyota Central R&D Labs., Japan)

“Vertical GaN Trench MOSFETs and related key processes, especially MOS channel characteristics
GaN vertical power device”

Heiji Watanabe (Osaka Univ., Japan)

“Comprehensive Research on Nitrided SiO₂/4H-SiC Interfaces”

Naoki Watanabe (Hitachi, Ltd., Japan)

“Ultra-high Voltage SiC Bipolar Devices for Green Infrastructure”

Jiandong Ye (Nanjing Univ., China)

“Avalanche characteristics of p-NiO/n-Ga₂O₃ diodes”

Area 5 Photonics: Devices / Integration / Related Technology

Yi-Jun Jen (National Taipei Univ. of Technology, Taiwan)

“TBD”

Yoshiho Maeda (NTT Device Technology Labs., Japan)

“Heterogeneously Integrated Membrane Lasers on Si and Thin-film lithium niobate Platforms”

Wei Shi (Laval Univ., Canada)

“Novel Si Photonics Modulators”

Area 6 Energy Harvesting and Converting Devices and Materials

Takuya Matsui (AIST, Japan)

“Development of functional thin-film materials for Si solar cells and their application to perovskite/Si tandems”

Takao Mori (NIMS, Japan)

“Key issues for developing high performance thermoelectric materials”

Andreas Obst (Fraunhofer CSP, Germany)

“Prospects of PV recycling in Germany”

Area 7 Organic / Molecular / Bio-electronics

Chong-an Di (ICCAS, China)

“Molecular Design of Organic Thermoelectric Materials”

Masaru Fujibayashi (National Institute of Technology, Ube College, Japan)

“Fabrication of single-molecule electret memory devices based on Fe-FET Architecture”

Ryota Kabe (OIST, Japan)

“Long-persistent luminescence in organic semiconductors”

Yoshihiko Kanemitsu (Kyoto Univ., Japan)

“Semiconductor Physics of Lead Halide Perovskites”

Naoji Matsuhisa (The Univ. of Tokyo, Japan)

“Highly deformable semiconductor devices using stretchable conjugated polymer materials”

Area 8 Low Dimensional Devices and Materials

Souvik Ghosh (imec, Belgium)

“MX₂ Layer transfer: A path towards integrating epitaxial 2D materials in a 300mm pilot line”

Fumitaro Ishikawa (Hokkaido Univ., Japan)

“TBD”

Daisuke Kiriya (The Univ. of Tokyo, Japan)

“Organic/inorganic hybrid interface for 2D devices”

Markus Pristovsek (Nagoya Univ., Japan)

“New Approaches on III-Nitride High Electron Mobility Transistors”

Andreas Dirk Wieck (Ruhr-Universität Bochum, Germany)

“Advanced Quantum Dot Fabrication Process for Quantum Light Sources”

Area 9 Novel Functional / Quantum / Spintronic Devices and Materials

Mathias Kläui (Johannes Gutenberg-Universität Mainz, Germany)

“From spin-orbitronics to orbitronics: efficient manipulation of topological spin structures for memory and unconventional computing”

Tomohiro Otsuka (Tohoku Univ., Japan)

“Quantum Computing with Dot and Qubit Automation”

Area 10 Thin Film Electronics: Oxide / Non-single Crystalline / Novel Process

Akito Hara (Tohoku Gakuin Univ., Japan)

“Low temperature poly-Ge TFTs on glass and plastic substrates”

Kenji Nomura (UC San Diego, USA)

“Oxide-TFT technology for next-generation sustainable electronics”

Yukiharu Uraoka (NAIST, Japan)

“Various device applications of oxide semiconductors”

Area 11 Advanced Materials: Synthesis / Crystal Growth / Characterization

Hirokazu Fujiwara (The Univ. of Tokyo, Japan)

“Laser-based photoemission electron microscopy as a nondestructive imaging tool for ferroelectric devices”

Takashi Taniguchi (NIMS, Japan)

“High pressure synthesis of boron nitride and diamond single crystals and their impurity control”

Shigetaka Tomiya (NAIST, Japan)

“TBD”

Linwei Yu (Nanjing Univ., China)

“TBD”

Hiroshi Yano (Univ. of Tsukuba, Japan)

“Three-level charge pumping technique for SiC-MOS interface characterization”

Area 12 Advanced Circuits / Systems Interacting with Innovative Devices and Materials

Masayuki Ikebe (Hokkaido Univ., Japan)

“CMOS THz Image Sensors”

Kentaro Yoshioka (Keio Univ., Japan)

“Towards Accurate and Efficient Analog Compute-in-Memory Circuits”