Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors (ULSIC vs TFT 8)

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Monday, May 15, 2023

06:30 – 08:00	**Breakfast** (Terrace Brasserie Restaurant)
08:00 – 08:05	**Open remark** Yue Kuo, Texas A&M University
	Session: General Topics Chair: Yue Kuo, Texas A&M University
08:05 – 08:30	**Invited** **Challenge to next-generation VLSI with VFET using oxide semiconductor and 3D structure...1** Shunpei Yamazaki, Semiconductor Energy Laboratory Co., Ltd
08:30 – 08:55	**Invited** **ULSI and TFT technologies joint forces to meet the future challenges of a pervasive digital society...2** Olivier Bonnaud, University of Rennes
	Session: Semiconductor Materials Chairs: Kenji Nomura, University of California San Diego Laurie E. Calvet, LPICM, CNRS-Ecole Polytechnique Shinji Migita, AIST
08:55 – 09:20	**Invited** **Atomic-order surface reaction of reactant gas on group IV semiconductor (100) surface...3** Junichi Murota, Tohoku University
09:20 – 09:45	**Invited** **Formation and luminescence studies of Ge/Si core-shell quantum dots...4** Seiichi Miyazaki, Katsunori Makihara, Yuki Imai, Nagoya University
09:45 – 10:10	**Invited** **Epitaxy and heterostructure of germanium tin-related group-IV alloy semiconductors for future electronic and optoelectronic applications...5** Osamu Nakatsuka, Masashi Kurosawa, Shigehisa Shibayama, Mitsuo Sakashita, Nagoya University
10:10 – 10:40	Coffee Break
10:40 – 11:00	**Crystallinity of In-Ga-Zn-oxide (IGZO) in CAAC-IGZO vertical FET...6** Tomonori Nakayama, Yukinori Shima, Toshikazu Ono, Nao Sorida, Naoki Okuno, Hitoshi Kunitake, Shunpei Yamazaki, Semiconductor Energy Laboratory Co., Ltd.
11:00 – 11:20	**Spinel, an overlooked crystalline phase of Igzo...7** Hendrik F.W. Dekkers, Akhilesh Kumar Mandal, Evangelos Aggiannis, Adrian Vaisman, Chasin Romain Delhougne, Attilio Belmonte, Gouri Sankar Kar, Interuniversity Microelectronics Centre (imec)

Monday, May 15, 2023 (continued)

Session: P-channel Oxide Materials for TFTs
Chair: Olivier Bonnaud, University of Rennes

11:20 – 11:45 **Invited**
Progress of p-channel oxide-TFT development and how we improve the performances...8
Kenji Nomura, University of California San Diego

11:45 – 12:10 **Invited**
P-channel metal oxide thin film transistors for flexible CMOS logic: Challenges and opportunities...9
Andrew Flewitt, Kham Niang, Daisy Gomersall, Jake Meeth, Niels van Fraassen, Sanggil Han, University of Cambridge; James Parish, Andrew Johnson, University of Bath

12:10 – 14:00 Lunch (Ryusei Room)

Session: Dielectrics
Chairs: Cheol Seong Hwang, Seoul National University
Junichi Murota, Tohoku University

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Eisuke Tokumitsu, Japan Advanced Institute of Science and Technology

14:25 – 14:50 **Invited**
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Min Hyuk Park, Seoul National University

14:50 – 15:15 **Invited**
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Shinji Migita, The National Institute of Advanced Industrial Science and Technology (AIST)

15:15 – 15:45 Coffee Break

15:45 – 16:10 **Invited**
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Takahito Ono, Tohoku University

16:35 – 18:30 Free Communication

18:30 – 20:30 Dinner (Ryusei Room)

20:30 – 21:30 Panel Discussion: Challenges in TFT Materials

Tuesday, May 16, 2023

06:30 – 08:00 **Breakfast** (Terrace Brasserie Restaurant)

Session: Devices and Circuits I
Chairs: Hitoshi Kunitake, Semiconductor Energy Laboratory Co., Ltd
I-Chun Cheng, National Taiwan University
Radu A. Sporea, University of Surrey

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08:50 – 09:15 **Invited**
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09:15 – 09:40 **Invited**
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Jin Jang, Kyung Hee University

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11:20 – 11:40 **Device layout dependence of PBTI in back-gated IGZO TFTs...22**
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11:40 – 13:00 Lunch (Ryusei Room)

Tuesday, May 16, 2023 (continued)

Session: Devices and Circuits II
Chairs: Mamoru Furuta, Kochi University of Technology
Po-Tsun Liu, National Yang Ming Chiao Tung University

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Di Geng, Chuanke Chen, Xinlv Duan, Ling Li, Institute of Microelectronics of the Chinese Academy of Sciences

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Circuit architecture and pixel array driving methods for AMOLED and Mini/ Micro-LED displays...24
Chih-Lung Lin, National Cheng Kung University

13:50 – 14:15 **Invited**
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Jung-Hae Choi, Taeyoung Jeong, Korea Institute of Science and Technology; Cheol Seong Hwang, Seoul National University

14:15 – 14:40 **Invited**
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Cheol Seong Hwang, Seoul National University

14:40 – 15:10 Coffee Break

15:10 – 15:30 **Tri-layer self-aligned structure indium gallium zinc oxide thin film transistor with optical synaptic plasticity...27**
Tsung-Che Chiang, Zhen-Hao Li, Jing-Zhong Deng, Po-Tsun Liu, National Yang Ming Chiao Tung University; Yue Kuo, Texas A&M University

15:30 – 15:55 **Invited**
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Sunghoon Lee, Tomoyuki Yokota, Takao Someya, The University of Tokyo

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16:15 – 18:00 Free Communication

18:00 – 20:00 Dinner (Ryusei Room)

20:00 – 21:30 **Poster session (Remove posters at 21:30)**
Chairs: Jen-Sue Chen, National Cheng Kung University

Wednesday, May 17, 2023

06:30 – 08:00 **Breakfast** (Terrace Brasserie Restaurant)

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Chairs: Rebecca L. Peterson, University of Michigan
Chih-Lung Lin, National Cheng Kung University

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Yue Kuo, Texas A&M University

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Mamoru Furuta, Kochi University of Technology

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Juan Paolo Bermundo, Nara Institute of Science and Technology; Diki Purnawati, Universitas Gadjah Mada; Paul Rossener Regonia, University of the Philippines Diliman; Kazushi Ikeda, Yukiharu Uraoka, Nara Institute of Science and Technology

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09:55 – 10:25 Coffee Break

Session: Novel TFT Applications
Chairs: Jin Jang, Kyung Hee University

10:25 – 11:50 Panel Discussion: Challenges in TFT Applications

11:50 Pick up boxed lunches (Foyer outside of Jukai Room)

12:30 – 18:30 Optional Excursion
- Sapporo Beer Museum Tour
- Sapporo JR Tower Observatory T38 Tour

18:30 – 19:00 Reception (Foyer outside Rysei Room, 5th Floor)

19:00 – 21:00 **Banquet and Poster Award Announcement** (Ryusei Room)

21:00 – 22:00 Free Communication

Thursday, May 18, 2023

06:30 – 08:00 **Breakfast** (Terrace Brasserie Restaurant)

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Chairs: Yukiharu Uraoka, NAIST
Florian De Roose, imec

08:00 – 08:25 **Invited**
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Laurie E. Calvet, LPICM, CNRS-Ecole Polytechnique; Zonglong Li, Centre de Nanosciences et Nanotechnologies; Benjamin Iniguez, University Rovira i Virgili; Kruno Romanjek, CEA-LITEN

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Zhihe Xia, Yushen Hu, Tengteng Lei, Man Wong, The Hong Kong University of Science and Technology

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Jen-Sue Chen, Ching-Hsiang Yang, Li-Chung Shih, National Cheng Kung University

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Feng Yan, The Hong Kong Polytechnic University

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Dongping Wang, Chunyu Chang, Chinese Academy of Sciences; Yingbo Wei, Jun Yu, Arokia Nathan, Shandong University; Hanbin Ma, Chinese Academy of Sciences

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