**Summary of Events**

**Monday, May 13th, 2019**

- **Tutorial Registration**: 7:00 AM – 5:00 PM
- **Tutorials**: 8:30 AM - 4:45 PM
- **Chairs**: Louis Hulin, CEA-LETI, France
  - Qiangfei Xia, University of Massachusetts, USA

**PART I - Quantum Computing**
8:30 AM – 11:45 AM
- Louis Hulin, CEA-LETI, "From Silicon CMOS technology to qubits"
- Nico Hendrickx, QuTech, "A semiconductor approach for scalable quantum computation"
- Eyob Sete, Rigetti Computing, "Quantum computing with superconducting processors"
- **Lunch, provided (11:45 – 1:45)**

**PART II - In-Memory Computing**
1:45 PM – 5:15 PM
- Onur Mutlu, ETH Zurich, "Processing Data Where It Makes Sense in Modern Computing Systems: Enabling In-Memory Computation"
- Jaydeep Kulkarni, The University of Texas at Austin, "Circuit Technologies for Efficient In-Memory Computing"
- Qiangfei Xia, University of Massachusetts, "In-Memory Computing with Emerging Memories"

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**Tuesday, May 14th, 2019**

- **Registration**: 7:00 AM – 5:00 PM
- **Session #1**: 8:30 AM – 9:20 PM
- **Session #4**: 10:15 AM – 12:20 PM
- **Lunch Break (on your own)**: 12:20 PM – 2:30 PM
- **Session #5**: 2:30 PM – 5:30 PM
- **Banquet (provided)**: 7:00 PM – 9:00 PM
- **Session #6**: 8:30 AM – 11:10 AM
- **Session #7**: 11:10 AM – 1:00 PM
- **Session #8**: 1:00 PM – 3:05 PM
- **Award & Closing Remarks**: 3:10 PM – 3:30 PM
Monday May 13th, 2019
Registration 7:00 AM - 6:00 PM

**Session #1** 8:30 AM – 11:20 AM  
**Invited keynotes**
Chairs: Akira Goda, Micron, USA  
Zhiqiang Wei, Rambus, USA
8:30 AM Akira Goda, Opening Remarks
8:50 AM [1-1] TF Ma, Yale Univ., “Retention and Endurance of FeFET Memory Cells”
9:20 AM [1-2] Takumi Mikawa, Panasonic “Neuromorphic computing based on Analog ReRAM as low power condition solution for edge application”
9:50 AM Break (Refreshments Provided)
11:20 AM Lunch Break (on your own)
12:00 PM Committee Luncheon

**Session #2** 2PM – 3:40 PM  
**PCM and selectors**
Chairs: Wataru Otsuka, SONY, Japan  
Hangbing Lv, IME, China
3:15 PM [2-4] Anthonin Verdy, CEA-LETI, “Tunable Performances in OTS Selectors Thanks to $Ge_xSe_{1-x}$-As$^2Te_3$”
3:40 PM Break (Refreshments Provided)

**Panel discussion** 4:00 PM – 5:30 PM  
The future of embedded memory
Moderator: Hangbing Lv, IME, China

**Reception** 5:30 PM  
Chair: Gill Lee, Applied Materials, USA  
Sponsor: Applied Materials, Inc., USA

**Poster Session** 6:00 PM – 8:30 PM  
Chair: Gill Lee, Applied Materials, USA
6:00 PM Poster Introduction

(See the front page for the list of poster papers)

Tuesday May 14th, 2019
Registration 7:00 AM - 5:00 PM

**Session #3** 8:30 AM – 9:45 AM  
**Embedded and Late news**
Chairs: Pawan Singh, Cypress, USA  
Wei-Chen Chen, Macronix, Taiwan
8:30 AM [3-1] Steve S. Chung, NCTU, “Embedded flash memory for HKMG generation and Beyond”, invited
8:55 AM [3-2] Sivaramakrishnan Ramesh, IMEC, “First Demonstration of In$_x$Ga$_{1-x}$As Macaroni Channel for Future 3D NAND”, Later News
9:45 AM Break (Refreshments Provided)

**Session #4** 10:15 PM – 12:20 PM  
**FRAM and MRAM**
Chairs: Stephen Heinrich-Barna, TI, USA  
Gwan-Hyeob Koh, Samsung, Korea
10:40 AM [4-2] Terry Francois, Universite Grenoble-Alpes, “Ferroelectric HfO$_2$ for Memory Applications: Impact of Si Doping Technique and Bias Pulse Engineering on Switching Performance”
11:05 AM [4-3] Kevin Garello, IMEC, “Spin Orbit Torque MRAM for ultrastiff embedded memories: from fundamentals to large scale technology integration”, invited
12:20 PM Lunch (On your own)

**Session #5** 2:30 PM – 5:30 PM  
**RRAM and Neuromorphic**
Chairs: Dirk Wouters, RWTH, Germany  
Gabriel Molas, CEA-LETI, France
3:45 PM Break (Refreshments Provided)
5:05 PM [5-6] D. Alfaro Robayo, CEA-LETI, “Integration of OTS Based Back-End Selector with HIO$_2$ OxRAM for Crossbar Arrays”

**Banquet** 7:00 PM - 9:00 PM (provided)

Wednesday May 15th, 2019
Registration 7:00 AM - 12:00 PM

**Session #6** 8:30 AM – 11:10 AM  
**3D NAND**
Chairs: Antonio Arregghini, IMEC, Belgium  
Sanuki Tomoya, Toshiba Memory, Japan
8:30 AM [6-1] Cristian Zambelli, University of Ferrara, “Reliability challenges in 3D NAND Flash memories”, invited
8:55 AM [6-2] Antonio Arregghini, IMEC, “Improvement of conduction in 3D NAND memory devices by channel and junction optimization”
9:20 AM [6-3] Yoshihura Nakamura, Chuo University, “Data Pattern & Memory Variation Aware Fine-Grained ECC Optimized by Neural Network for 3D-TLC NAND Flash Memories using 2.0x Data Retention Time Extension and 30% Parity Overhead Reduction”
9:45 AM Break (Refreshments Provided)
10:40 AM [6-5] Laurent Breuil, IMEC, “Impact of SION tunnel layer composition on 3D NAND cell performance”
11:10 AM Lunch (Provided)

**Session #7** 1:00 PM – 2:40 PM  
**SRAM and Flash**
Chairs: Sanuki Tomoya, Toshiba Memory, Japan  
Tomoaki Saito, Renesas, Japan
1:00 PM [7-1] Koji Nii, Floadia Corporation, “Ultra-low Standby Power Embedded SRAM Design Techniques for Smart IoT Applications”, invited
1:25 PM [7-2] Yuncheng Song, GlobalFoundries, “Direct insight to SRAM array devices in advanced FinFET nodes by large scale ultra-fast in-situ characterization”
1:50 PM [7-3] Francesco La-Rosa, STMicroelectronics, “40nm embedded Select in Trench Memory (eSTM) Technology Overview”
2:40 PM [7-5] Yoshiki Takai, Chuo University, “Analysis on Heterogeneous SSD Configuration with Quadraple-Level Cell (QLC) NAND Flash Memory”
3:10 PM – 3:30 PM  
Best Paper Award announcement  
Closing Remarks & Adjourn