Oral Sessions

Device physics

Chairpersons: Eva Olsson (Chalmers University of Technology) and Mutsuo Hidaka (AIST)

ED1-1-INV 13:45–14:10

Single Microwave Photon Detector

*Kunihiro Inomata[1], Zhirong Lin[1], Kazuki Koshino[2], William D Oliver[3], Jaw-Shen Tsai[1,4], Tsuyoshi Yamamoto[5], Yasunobu Nakamura[1,6]

1. RIKEN Center for Emergent Matter Science; 2. College of Liberal Arts and Sciences, Tokyo Medical and Dental University; 3. MIT Lincoln Laboratory; 4. Department of Physics, Tokyo University of Science; 5. NEC IoT Device Research Laboratories; 6. Research Center for Advanced Science and Technology, The University of Tokyo

ED1-2-INV 14:10–14:35

Josephson parametric amplifier/oscillator and its application to quantum information processing

*Zhirong Lin[1], Kunihiro Inomata[1], Kazuki Koshino[2], Jaw-Shen Tsai[1,3], Tsuyoshi Yamamoto[4], Yasunobu Nakamura[1,5]

1. Center for Emergent Matter Science (CEMS), RIKEN; 2. Tokyo Medical and Dental University; 3. Tokyo University of Science; 4. NEC Corporation; 5. The University of Tokyo

ED1-3-INV 14:35–15:00

Direct Observation of the Thickness Distribution and Atomic Structure of Ultra Thin AlOx Barriers in Al/AlOx/Al Josephson Junctions

Lunjie Zeng, *Eva Olsson

Department of Physics, Chalmers University of Technology, Gothenburg, Sweden

ED1-4 15:00–15:20

Niobium SIS Junction Technology for Sub-mm Wave Mixers

*Matias Kroug, Mizuki Ikeya, Takafumi Kojima, Takeshi Noguchi

National Astronomical Observatory of Japan

ED1-5 15:20–15:40

Elemental Intermixing and Gap States at the Substrate Interfaces of Al Based Josephson Junctions

*Lunjie Zeng[1], Tine Greibe[2], Philip Krantz[2], Per Delsing[2] and Eva Olsson[1]

1. Department of Physics, Chalmers University of Technology, Sweden; 2. Department of Microtechnology and Nanoscience, Chalmers University of Technology

Digital systems

Chairpersons: Nobuyuki Yoshikawa (Yokohama National University) and Christopher L. Ayala (Yokohama National University)

ED2-1-INV 15:55–16:20

Design methodologies toward large-scale adiabatic quantum-flux-parametron integrated circuits

*Christopher L. Ayala[1], Qiuyun Xu[2], Yuki Murai[2], Ro Saito[2], Naoki Takeuchi[1], Yuki Yamanashi[1,2], Thomas Ortlepp[1,3], Nobuyuki Yoshikawa[1,2]

1. Institute of Advanced Sciences, Yokohama National University, Japan; 2. Department of Electrical Engineering and Computer Engineering, Yokohama National University, Japan; 3. CiS Research Institute for Microsensor Systems GmbH, Erfurt, Germany

ED2-2-INV 16:20–16:45

Energy-Efficient, High-Performance Microprocessors Based on Single-Flux-Quantum Logic

*Masamitsu Tanaka[1], Ryo Sato[1], Yuki Hatanaka[1], Yuki Ando[2], Takahiro Kawaguchi[2], Koki Ishida[3], Akira Fujimaki[1], Kazuyoshi Takagi[2], Naofumi Takagi[2], Takatsugu Ono[3], Koji Inoue[3]

1. Nagoya University; 2. Kyoto University; 3. Kyushu University

ED2-3 16:45–17:05

Run-to-Run Yield Evaluation of Improved Nb 9-layer Advanced Process using SFQ Shift Register Chip Including 68,990 Josephson Junctions

*Shuichi Nagasawa, Mutsuo Hidaka

National Institute of Advanced Industrial Science and Technology (AIST)

ED2-4 17:05–17:25

Thermally-Fluctuated Single-Flux-Quantum Pulse Intervals Reflected in Input-Output Characteristics of a Double-Flux-Quantum Amplifier

*Yoshinao Mizugaki, Yoshiaki Urai, Hiroshi Shimada

The University of Electro-Communications