11th Superconducting SFQ VLSI Workshop (SSV 2018)
6th CRAVITY Symposium
Technical Program (as of 01/30/2018)

Venue: National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

Wednesday, February 7

13:00–13:05 Opening Remarks M. Hidaka

13:05–13:10 Greeting T. Yasuda

13:10–15:50 Oral Session I

13:10–13:50 [I-1] (Invited) T. H. Lee and D. J. Huang (National Synchrotron Radiation Research Center)
“Single Photon Detection for High-Resolution Soft X-Ray Spectroscopy”

“Development of Superconducting Nanostrip X-Ray Detector for High-Resolution Resonant Inelastic Soft X-Ray Scattering (RIXS)”

14:10–14:30 [O-2] T. Taino¹, S. Endo¹, G. Fujii², M. Ukibe², H. Takagi², M. Naruse¹, H. Myoren¹, C. Otani³, and M. Ohkubo² (¹Saitama University, ²National Institute of Advanced Industrial Science and Technology, ³RIKEN)
“STJ for Neutron Detector on Si-LBO Hybrid Substrate by Surface-Activated Room-Temperature Bonding”

14:30–14:50 [O-3] R. Kobayashi¹, K. Hattori², K. Niwa², S. Inoue¹, and D. Fukuda¹,² (¹Nihon University, ²National Institute of Advanced Industrial Science and Technology)
“Development of Titanium-Gold Bilayer Optical TES with Optical Fiber Self-Alignment Structure”

14:50–15:10 Coffee Break

15:30–15:50 [O-5] H. Yamamori¹, T. Irimatsugawa¹, Y. Nakashima¹,², F. Hirayama¹, A. Sato¹, S. Kohjiro¹, S. Nagasawa¹, M. Hidaka¹, G. Fujii¹, and M. Ohno³ (¹National Institute of Advanced Industrial Science and Technology, ²University of Tokyo, ³Japan Aerospace Exploration Agency) “Resonator Q Factor and Fabrication Process of Microwave Multiplex Readout Circuits”

15:50–16:10 Short Poster Presentation

16:10–17:10 Poster Session

[P-1] A. Sanada, Y. Yamanashi, and N. Yoshikawa (Yokohama National University) “Design of Single Flux Quantum Divider Based on Goldschmidt’s Division Algorithm”

[P-2] F. Ke¹, Y. Yamanashi¹, T. Ortlepp², N. Yoshikawa¹ (¹Yokohama National University, ²CiS Research Institute for Microsensor Systems GmbH) “Design and Simulation of a 7-bit 18-sample/cycle SFQ-Based Sine Wave Generator”


[P-4] H. Terai¹, S. Miyajima¹, M. Yabuno¹, T. Yamashita¹, S. Miki¹, S. Nagasawa², and M. Hidaka² (¹National Institute of Information and Communications Technology, ²National Institute of Advanced Industrial Science and Technology) “16-Pixel Superconducting Nanowire Single-Photon Detectors Integrated with Single-Flux-Quantum Multiplexers”

[P-6] K. Maruyama1, M. Suzuki1, N. Kondo1, K. Sano1, M. Tanaka1, M. Inoue2, and A. Fujimaki1 (1Nagoya University, 2Meijo University)  
“Study on Operation Principle of Nanocryotrons”

[P-7] M. Araki, Y. Yamanashi, and N. Yoshikawa (Yokohama National University)  
“Design and Evaluation of a 4-Input Logic Block for Realization of FPGAs Using Single Flux Quantum Circuits”

[P-8] T. Tamura1, C. Ayala1, N. Takeuchi1,2, Y. Yamanashi1, and N. Yoshikawa1 (1Yokohama National University, 2JST-PRESTO)  
“Reduction of the Circuit Area of an 8-word by 1-bit Register Using Quantum Flux Parametron Latch”

[P-9] T. Yamae1, N. Takeuchi1,2, Y. Yamanashi1, and N. Yoshikawa1 (1Yokohama National University, 2JST-PRESTO)  
“Design and Simulation of Reversible Adders Using Adiabatic Quantum Flux Parametron Logic”

[P-10] Y. Hironaka, C. Ayala, Y. Yamanashi, and N. Yoshikawa (Yokohama National University)  
“Design of a 1-bit SFQ CPU and Comparison with CMOS and AQFP Circuits”

“Study on Magnetically-Controlled Delay Time in Josephson Transmission Lines”

[P-12] Y. Tanaka1, H. Yamamori1, T. Yanagisawa1, T. Nishio2, and S. Arisawa3 (1National Institute of Advanced Industrial Science, 2Tokyo University of Science, 3National Institute for Materials Science)  
“Quantum Decomposer”

17:30–19:30 Banquet
### Thursday, February 8

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<th>Time</th>
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<td>9:00–10:30</td>
<td>Oral Session II: IAS-YNU Special Session</td>
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<td>9:00–9:10</td>
<td>Opening Remarks for the IAS-YNU Special Session</td>
<td>N. Yoshikawa</td>
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<td>9:50–10:10</td>
<td>[O-6] N. Takeuchi(^1,2), C. L. Ayala(^1), Q. Xu(^1), H. Suzuki(^1), Y. Yamanashi(^1), T. Ortlepp(^1,3), and N. Yoshikawa(^1) ((^1)Yokohama National University, (^2)JST-PRESTO, (^3)CiS Research Institute for Microsensor Systems GmbH)</td>
<td>“Recent Development and Applications of Adiabatic Quantum Flux Parametron Logic”</td>
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<td>10:10–10:30</td>
<td>[O-7] C. L. Ayala(^1), N. Takeuchi(^1), Q. Xu(^1), Y. Yamanashi(^1), T. Ortlepp(^1,2), and N. Yoshikawa(^1) ((^1)Yokohama National University, (^2)CiS Research Institute for Microsensor Systems GmbH)</td>
<td>“Adiabatic Quantum-Flux-Parametron-Based Microprocessor: Architecture, Logic Design, Modeling, and Design Tools”</td>
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<td>10:30–10:50</td>
<td>Coffee Break</td>
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<td>10:50–14:40</td>
<td>Oral Session III</td>
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<td>10:50–11:30</td>
<td>[I-3] (Invited) R. M. Heath(^1), K. Erotokritiou(^1), J. Paul(^1), N. R. Gemmell(^1), A. Casaburi(^1), D. Sahin(^2), J. Barreto(^2), M. G. Thompson(^2), and R. H. Hadfield(^1) ((^1)University of Glasgow, (^2)University of Bristol)</td>
<td>“Superconducting Nanowire Single Photon Detectors: Waveguides, Arrays, and Scalability”</td>
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“Power Conversion Efficiency of Superconductor Rectifier”

12:30–13:40 Lunch

“CRAVITY Activities Based on Digital Circuit Fabrication Process Technologies”

14:00–14:20 [O-12] S. Miyajima¹, S. Miki¹,², M. Yabuno¹, T. Yamashita¹,³, and H. Terai¹
(¹National Institute of Information and Communications Technology, ²Kobe University, ³JST-PRESTO)
“Single Flux Quantum Based Timing Discriminator for Photon Detection with High-Time Resolution”

“Low-Power Half Single Flux Quantum Circuits Using π-Shifted Josephson Junctions”

14:40–14:50 Closing Remarks

15:00–16:00 CRAVITY Lab Tour