

Technical Program of ISEC 2009

Wednesday, June 17

Wednesday, June 17, 8:40-9:00

Conference opening- Keiji Enpuku

Wednesday, June 17, 9:00-9:50

Plenary Session 1

Chair: *Akihiko Kandori*

9:00-9:50 PL1: **Advances in SQUID Technology from Biomagnetism to Ultra Low-Field MRI**

Hannes Nowak, Sergio N. Erné, and Jens Haueisen

Coffee break 9:50-10:20

Wednesday, June 17, 10:20-12:20

Oral Session: Signal Processing

(SSV Session)

Chair: *Oleg Mukhanov*

Co-Chair: *Yoshinao Mizugaki*

10:20-10:40 SP-O1: **Demonstration of Two-Qubit Algorithms with a Superconducting Processor (invited)**

Leonardo DiCarlo, Jerry Chow, Jay Gambetta, Lev Bishop, Johannes Majer, Alexandre Blais, Luigi Frunzio, Steven Girvin, Robert Schoelkopf

10:40-10:55 SP-O2: **Superconductive Atom Chip towards Quantum Operations**

Tetsuya Mukai, Christoph Hufnagel, Kouichi Semba, Fujio Shimizu

10:55-11:10 SP-O3: **RSFQ Readout of Single-Qubit Coherent Oscillations**

Thomas Akira Ohki, A. Herr, J. Lisenfeld, A. V Ustinov, S. Poletto, A Savin, J Hassel

11:10-11:30 SP-O4: **Demonstration of 2x3 Reconfigurable-data-path Processors with 14000 Josephson Junctions (invited)**

Akira Fujimaki, Ryo Kasagi, Katsumi Takagi, Irina Kataeva, Hiroyuki Akaike, Masamitsu Tanaka, Naofumi Takagi, Nobuyuki Yoshikawa, Kazuaki Murakami

11:30-11:50 SP-O5: **An SFQ-Driven 10mV Josephson Junction Output Driver (invited)**

Donald L. Miller, Quentin P. Herr, John X. Przybysz

11:50-12:05 SP-O6: **100 GHz Demonstrations Based on the Single-Flux-Quantum Cell Library for the 10 kA/cm² Nb Multi-Layer Process**

Y. Yamanashi, T. Kainuma, M. Igarashi, H. Hara, K. Taketomi, H. Park, H. Suzuki, Y. Natsume, N. Yoshikawa, H. Akaike, M. Tanaka, K. Takagi, I. Kataeva, R. Kasagi, M. Itoh, A. Fujimaki, S. Nagasawa, M. Hidaka

12:05-12:20 **SP-O7: Verification of Three-Dimensional Inductance Extraction Software by SQUID Measurements**

Coenrad J. Fourie, Thomas Ortlepp

Lunch Break 12:20-13:45

Wednesday, June 17, 13:45-14:45

Selected Topics 1

Chair: *Bisong Cao*

Co-Chair: *Masayoshi Tonouchi*

13:45-14:15 **ST1: Hybrid Transmitting Filter with Cavities and HTS Resonators for Weather Radar**

K. Nakayama, T. Kawaguchi, N. Shiokawa, T. Watanabe, T. Hashimoto and H. Kayano

14:15-14:45 **ST2: THz Imaging Using HTS Junction Detector**

J. Du, A. D. Hellicar, L. Li, S. Hanham, J. C. Macfarlane, K. E. Leslie, N. Nikolic, C. P. Foley and K. J. Greene

Wednesday, June 17, 14:45-16:25

Poster Session: **High Frequency Devices (HF)**

Poster session: **SQUIDs and Their Applications (SQ)**

Poster session: **Thin Film Materials, Junctions and Novel Devices (TD)**

Chairs: *Li-Min Wang, Keiji Tsukada, Zhen Wang*

High Frequency Devices (HF)

HF-P01: Microwave and Terahertz Emission from Current-Injected Nonequilibrium BSCCO Single Crystals and YBCO Junctions (*withdrawn*)

Ienari Iguchi, Kiejun Lee, Sunmi Kim, Eiji Kume

HF-P02: Development of a Reliable Cryopackaging Technique for Josephson Voltage Standards

Takahiro Yamada, Hirotake Yamamori, Hitoshi Sasaki, Akira Shoji

HF-P03: Dynamic Range and High Linearity Issues in Multi-Element Josephson Structures

Victor K. Kornev, Igor I Soloviev, Nikolai V. Klenov, Oleg A. Mukhanov

HF-P04: Implementation and Measurement of HTS Josephson Heterodyne Oscillator on a Two-Stage Pulse-Tube Cryocooler

Jia Du, John C. Macfarlane, Simon H. K. Lam, Richard Taylor

HF-P05: Improved Fabrication Yield for 10V Programmable Josephson Voltage Standard.

Hirotake Yamamori, Takahiro Yamada, Hitoshi Sasaki, Akira Shoji

HF-P06: Design of Wideband High Temperature Superconducting Microstrip Bandpass Filter

Chunguang Li, Tao Yu, Qiang Zhang, Xueqiang Zhang, Hong Li, Yusheng He

HF-P07: A Dual Mode HTS Filter with High Power Capability

*Yuehui Wang, Xueqiang Zhang, Xiaofeng He, Lu Gao, Tao Yu, bin Cui, Qiang Zhang,
Chunguang Li, Hong Li, Yusheng He*

**HF-P08: Resonator Structures and Power-Handling Capability for Superconducting Transmit
Band-Pass Filters (invited)**

*Atsushi Saito, Jae Hun Lee, Satoshi Ono, Masahiro Uno, Yukimasa Endo, Hidekazu Teshima,
Akira Kawakami, Kensuke Nakajima, Shigetoshi Ohshima*

**HF-P09: Pico Pulse Propagation Analysis of HTS Strip Line Using
Time-Dependent-Ginzburg-Landau Equation**

Shigeru Yoshimori, Takehito Shimizu, Nur Fatiha Binti Azmi, Atsushi Uchida

HF-P10: High-Precision Voltage Multiplier Circuit for Programmable Josephson Voltage Standards

Hitoshi Sasaki, Hirotake Yamamori, Takahiro Yamada, Akira Shoji

**HF-P11: 10 V Programmable Josephson Voltage Standard Using NbSi-Barrier Junctions That
Operate at 20 GHz (invited)**

Paul Dresselhaus, Charles J Burroughs, Michael M Elsbury, Samuel P Benz

**HF-P12: Design and Performance of a High-Power Superconducting Filter Using Multilayer
Structure for TD-SCDMA System**

Xubo Guo, Xiaoping Zhang, Bicsong Cao, Zhenghe Feng, Bin Wei, Huili Peng, Shichao Jin

HF-P13: Research Activities on Josephson AC Waveform Synthesis in KRISS

Yonuk Chong

HF-P14: Q-factors of Niobium Coplanar Waveguides (*withdrawn*)

*John Hornibrook, John M Hornibrook, Emma E Mitchell, Chris J Lewis, Tim Duty, David J
Reilly*

HF-P15: A Compact L-band Input HTS Duplexer

*Qiang Zhang, Chun guang Li, Liang Sun, Jin Guo, Yong bo Bian, Bin Cui, Jia Wang, Xue qiang
Zhang, Hong LI, Chang zheng Gao, Yu sheng He*

HF-P16: High-Temperature Superconducting Coplanar-waveguide Quarter-wavelength Resonator for Dual-band Bandpass Filter (invited)

Kei Satoh, Yuta Takagi, Shoichi Narahashi, Toshio Nojima

SQUIDs and Their Applications (SQ)

SQ-P01: dc SQUID ? SQIF System with High Transfer Function (invited)

Hans-Georg Meyer, Ludwig Fritzsche, Thomas Schoenau, Ronny Stolz, Viatcheslav Zakosarenko

SQ-P02: Fabrication and characteristics of Nano-Josephson junction devices

Chiu-Hsien Wu, F. J. Jhan, L. M. Wang,, Jan-Han Chen, Hong-Chang Yang

SQ-P03: Fabrication and Characterization of Series-SQUID Arrays with Flip-Chip-Type Pickup Loop

Mizushi Matsuda, Hiroki Fujii, Sachiko Mizuzeki, Shinya Kuriki

SQ-P04 : Clarifying Flux-to-Voltage Transfer Function and Magnetic Flux Noise in Superconducting Quantum Interference Device Series Arrays

Jau-Han Chen, Chiu-Hsien Wu, Kuen-Lin Chen, Un-Cheong Sou

SQ-P05: Development of Nano-Bridge MgB₂ SQUID

Yosuke Fujine, Jun Araaki, Akiho Okubo, Takeshi Ikeda, Shunsuke Goto, Kazuyuki Meguro, Takashi Abe, Abdusalam Ismayil, Masahito Yoshizawa

SQ-P06: Reproducible Fabrication Process of HTS-SQUIDs with Ramp-Edge Josephson Junctions Using Superconducting Electrodes of SmBCO and La-doped ErBCO

Seiji Adachi, Kiyoshi Hata, Yasuo Oshikubo, Tsunehiro Hato, Keiichi Tanabe

SQ-P07: Low Frequency Magnetic Noise from a Two-Stage Pulse Tube Cryocooler and its Reduction

Mohamad Javad Eshraghi, Ichiro Sasada, Jin Mok Kim, Yong Ho Lee

SQ-P08: Characterisation of Industrial Cryocooler Noise and Shielding with SQUIDs

John-Philip Taylor, Coenrad Johann Fourie

SQ-P09: Detection of Wire Breakage in Compressive Conductor Joint using HTS-SQUID Gradiometer

Yoshimi Hatsukade, Atsushi Miyazaki, Hideki Matsuura, Tatsumi Maeda, Akio Suzuki, Saburo Tanaka

SQ-P10: SQUID-Relaxometric Technique for Studying the Magnetic Nanoparticles

Oleg Vasiljevich SNIGIREV, Ivan Volkov, Dmitry Baranov, Alexander Volkov, Yasukuni Torii, saburo Tanaka

- SQ-P11: Study of Magnetic Metallic Contaminant Detector using HTS-SQUID Gradiometer**
Tomonori Akai, Makoto Takemoto, Yoshimi Hatsukade, Saburo Tanaka
- SQ-P12: HTS SQUID Probe Microscope for Cooled HTS Sample**
Tadayuki Hayashi, Minoru Tachiki, Dongfeng He, Hideo Itozaki
- SQ-P13: Eddy-Current NDT Using Movable High-T SQUID in Unshielded Environment**
D.F. He, H. Itozaki, M. Tachiki
- SQ-P14: High-Speed Detection of Defects in Coated Conductors using HTS SQUID Array**
Tsunehiro Hato, Seiji Adachi, Kiyoshi Hata, Yasuo Oshikubo, Takato Machi, Keiichi Tanabe
- SQ-P15: Field Compensated First-order High-Tc Planar SQUID Gradiometer Systems for Mobile Magnetic Sensing Applications**
Shane Keenan, E. J Romans
- SQ-P16: Detection of Nuclear Magnetic Resonance in the Microtesla Range using a High T_c dc-SQUID**
Dongning Zheng, Shao Li, Ning Wang, Yufeng Ren, Ye Tian, Yingfei Chen, Jie Li, Genghua Chen, Dongning Zheng
- SQ-P17: The Source Localization of the Auditory Evoked Magnetic Signals on N100m On-response and Off-response by using a 128 Channels low T_c SQUID Magnetoencephalography System**
Kuen-Lin Chen, Hong-Chang Yang, Ji-Cheng Chen, Shiagn-Yu Shiau, Sung-Ying Tsai, Herng-Er Horng, Yong-Ho Lee, Ming-Jang Chiu, Chih-Chuan Chen, Ruey-Meei Wu
- SQ-P18: SQUID Biomagnetic Measurement of Segmental Spinal Cord Evoked Magnetic Field**
Yoshiaki Adachi, Masakazu Miyamoto, Jun Kawai, Gen Uehara, Yasuhiro Haruta, Shigenori Kawabata, Hisashi Kado
- SQ-P19: Evaluation of an MEG system with an isosceles triangle-coil phantom**
Gen Uehara, Natsuko Hatsusaka, Yoshiaki Adachi, Jun Kawai, Masakazu Miyamoto
- SQ-P20: Comparison of Sensor Configuration for Fetal Magnetocardiogram Measurement (invited)**
A. Kandori, Y. Seki, K. Ogata, and T. Miyashita
- SQ-P21: The Measurement of Rabbit's Magnetocardiogram in a Moderately Shielding Room using a High- T_c SQUID Gradiometer System**
Ji Gao, Ling Tong, Jieqing Jiao, Xun Wang, Wei Wang, Zhi Gao, Ping Ma, Tao Yang and Yuandong Dai
- SQ-P22: MgB₂ SQUIDs for Magnetocardiography Measurements**

Masahito Yoshizawa, Yosuke Fujine, Daisuke Oyama, Takeshi Ikeda, Toshiaki Nakajima, Shunsuke Goto, Jun Araaki, Kazuyuki Meguro, Takashi Abe, Abdusalam Ismayil, Mayo Sugibuchi

SQ-P23: Detection of Magnetic Nanoparticles Utilizing Cooled Normal Pickup Coil and High T_c SQUID

Yusuke Tsuji, Masaaki Matsuo, Takashi Yoshida, Keiji Enpuku, Akira Tsukamoto, Takako Mizoguchi, Akihiko Kandori

SQ-P24: Ac Susceptibility Measurement System of Magnetic Nanoparticles using SQUID Current Meter

Takeshi Mukaidate, Masato Tainaka, Mizushi Matsuda, Shinya Kuriki

SQ-P25: A Practical Scanning SQUID System Potential for in-vivo Tracking of Magnetic Labeling Nano-particles

Jen-Jie Chieh, C. J. Lee, S.Y. Yang, H.E. Horng, Chin-Yih Hong, H.C. Yang

Thin Film Materials, Junctions and Novel Devices (TD)

TD-P01: Energy-gap Broadening Effect on the SIS Tunneling Current (invited)

Takashi Noguchi, Toyoaki Suzuki, Akira Endo, Tomonori Tamura,

TD-P02: Versatile co-sputtered Nb/NbxSi1-x/Nb Josephson Junctions for Applications from Josephson Voltage Standards to High-speed Superconducting Digital Electronics (invited)

David Olaya, Paul D. Dresselhaus, Samuel P. Benz

TD-P03: I-V Characteristics of Nb/AlOx-Al/Nb Junction Fabricated by a Rotating Multi-Facing Target Sputtering System

Shinichi Morohashi, Masaya Hatano, Yusuke Kawano, Naoki Isobe, Shyougo Nagata

TD-P04: Epitaxial Growth of NbN/TiNx/NbN Trilayers on Single Crystal MgO Substrates by Reactive RF Magnetron Sputtering

Nobuko Koda, Akira Shoji, Hirotake Yamamori

TD-P05: Local Anodic Oxidation of Superconducting Ultra-thin Films by Atomic Force Microscope

L. X. You, X. Y. Yang, X. Wang, L. B. Zhang, L. Kang, P. H. Wu

TD-P06: DC characteristics of NbN/TaN/NbN SNS Josephson junctions grown by pulsed laser ablation

Minna Nevala, Ilari Maasilta, Kartik Senapati, Ramesh Budhani

TD-P07: Fabrication and Characterization of High Quality Nb Based Josephson Junctions

Jinyang Li, Jianshe Liu, Jilin Wang, Wei Wu, Wei Chen

TD-P08: Superconducting Tunnel Junctions using Polyimide Insulating Layers by Electrodeposition Coating

Tohru Taino, Masumi Ishii, Tokihiko Yokoshima, Hiroshi Nakagawa, Masahiro Aoyagi, Hiroaki Myoren

TD-P09: Submicrometer-sized Josephson Junctions in a Cross-bar geometry

Solveig Anders, Matthias Schmelz, Ludwig Fritzsich, Ronny Stolz, Viatcheslav Zakosarenko, Hans-Georg Meyer

TD-P10: Study of Overdamped SNIS Niobium-Based Josephson Junctions for Digital Applications

P. Febvre, D. Bouis, N. De Leo, M. Fretto, Andrea Sosso and V. Lacquaniti

TD-P11: Fabrication and Characterization of High Quality Low Critical Current Density NbN/AlN/NbN tunnel junctions

Wei Qiu, Zhen Wang, Masanori Takeda, Shigehito Miki, Hirotaka Terai, Hisashi Shimakage, and Akira Kawakami

TD-P12: Modulation of Josephson Current through Nb Junctions by Three-dimensional Scan of External Magnetic Field

Akiyoshi Nakayama, Norimichi Watanabe, Susumu Abe, Yohei Nishi, Koji Masuda

TD-P13: Chaos Synchronization and Secure Communication Application of Josephson Tetrode

Shigeru Yoshimori, Mohd Saiful Bin Mohd Sahri, Nur Fatiha Binti Azmi, Yuta Fujioka, Ryo Han, Atsushi Uchida

TD-P14: Preparation of MgB₂/B/MgB₂ Josephson Junctions

Naoki Mitamura, Hiroyuki Akaike, Akira Fujimaki, Rintaro Inoue, Yoshihiro Niihara, Michio Naito

TD-P15: Fabrication and Properties of the Variable Thickness Bridges with YBCO Thin Film

Masataka Moriya, Atsushi Hashimoto, Yoshinao Mizugaki, Tadayuki Kobayashi

TD-P16: Simulation Study on the Properties of YBCO Nanobridges for Circuit Applications

Masumi Inoue, Kemmei Kajino, Hiroya Andoh, Taishi Kimura, Akira Fujimaki

TD-P17: Fabrication of Artificial SNS Junctions using Three Axes Orientation-controlled a-axis Oriented Y123/Pr123 Multilayer Films

Makoto Takamura, Ataru Ichinose, Sang-Jae Kim, Masashi Mukaida, Ryusuke Kita, Ryo Teranishi, Nobuyuki Mori, Kaname Matsumoto, Yutaka Yoshida

TD-P18: Defects of HTS Junction on Grain-boundary of Bicrystal

Tetsuro Maki, Xiangyan Kong, Yoshihiro Nakatani, Tianfang Guan, Hitoshi Kubo, Masayuki

Abe, and Hideo Itozaki

TD-P19: High-temperature-superconductor vertically-stacked Josephson junctions with high reproducibility using $\text{PrBa}_2\text{Cu}_{2.9}\text{Ga}_{0.1}\text{O}_{7-x}$ as an insulating layer

Keita Hayakawa, Taishi Kimura, Mitsuhiro Watanabe, Kemmei Kajino, Yuki Horii, Masumi Inoue, Akira Fujimaki

TD-P20: Nonlinear Dynamics of Hybrid Josephson Junction with an Oxide Antiferromagnetic Interlayer

Karen Y. Constantinian, Gennady A. Ovsyannikov, Yulii V. Kislinski, Anton V. Shadrin, Igor V. Borisenko, Philippe V. Komissinskiy, Jesper Mygind and Dag Winkler

TD-P21: Step-Edge Junctions: Aligned but still Misunderstood (invited)

Emma Mitchell, Catherine Foley

TD-P22: The Tunable High Transition Temperature Superconducting Quantum Interference Device Magnetometer with Gate-voltage-controlled Bicrystal Junctions

Kuen-Lin Chen, Un-Cheong Sou, Ji-Cheng Chen, Hong-Chang Yang, Jen-Tzong Jeng, Ping-Cheng Ko, Hengng-Er Horng, Chiu-Hsien Wu, Jau-Han Chen

TD-P23: Optical Detection of a Single Magnetic Flux Quantum in High- T_c Superconductor Devices by Scanning Laser Magneto-optical System

Hironaru Murakami, Ryouhei Kitamura, Iwao Kawayama, Masayoshi Tonouchi

TD-P24: Effect of Laser Light Irradiation on High Temperature Superconductor Nanobridges

Kemmei Kajino, Taishi Kimura, Yuuki Horii, Mitsuhiro Watanabe, Keita Hayakawa, Iwao Kawayama, Masumi Inoue, Akira Fujimaki

TD-P25: Raman Profiling Spectroscopy - Possible Tool to Pattern the Quantum Devices on YBCO films

M. Branescu, I. Ward, A. Vailonis, C. Naudin, and E. Leroy

Wednesday, June 17, 16:25-18:05

Oral session: Mixers and Detectors

Chair: *Alexander Kozorezov*

Co-Chair: *Kazuhisa Mitsuda*

16:25-16:45 MD-O1: **Sensitive Terahertz SIS Receiver for the ALMA Telescope (invited)**

Yoshinori Uzawa, Takafumi Kojima, Matthias Kroug, Masanori Takeda, Massimo Candotti, Yasunori Fujii, Keiko Kaneko, Wen-Lei Shan, Takashi Noguchi, Zhen Wang

16:45-17:05 MD-O2: **Integrated Superconducting Sensors for CMB polarimetry (invited)**

Hsiaomei Sherry Cho, Jason Austermann, Jim Beall, Clarence Chang, Nils Halverson,

Gene Hilton, Kent Irwin, Jeff McMahon, Mike Niemack, Suzanne Staggs, Ki Won Yoon

17:05-17:20 MD-O3: **Single photon detectors based on NbN nanowires over large active areas**
Zhang Labao, Kang Lin, Chen Jian, Wu Peiheng

17:20-17:35 MD-O4: **Development of NbN stripline Detectors for Protein Detection**
Koji Suzuki, Shigehito Miki, Nobuyuki Zen, Yigang Chen, Shigetomo Shiki, Zhen Wang, Masataka Ohkubo

17:35- 17:50 MD-O5: **Three Dimensional Near-field Radiation Imaging up to the THz-regime**
Christian Brendel, Felix Stewing, Meinhard Schilling

17:50-18:05 MD-O6: **Proof of Concept of the Quantum Capacitance Detector**
Juan Bueno, Matthew D. Shaw, Peter K. Day, Pierre M. Echternach

Thursday, June 18

Thursday, June 18, 9:00-9:50

Plenary session 2

Chair: *Siyuan Han*

9:00-9:50: PL2: **Advances in Superconductive Qubits**

Jaw-Shen Tsai

Coffee break 9:50-10:20

Thursday, June 18, 10:20-12:15

Oral session: SQUIDs and Their Applications

Chair: *John Clarke*

Co-chair: *Saburo Tanaka*

10:20-10:40 SQ-O1: **Improving the Stability of Cryogenic Current Comparator Setups (invited)**

Dietmar Drung, Martin Goetz, Eckart Pesel, Cornelia Assmann, Margret Peters, Thomas Schurig

10:40-11:00 SQ-O2: **Code-Division Superconducting Multiplexer (invited)**

Kent D. Irwin, Jorn Beyer, Michael D. Niemack, Leila R. Vale, James A. Beall, Hsiao-Mei Cho, William B. Doriese, Gene C. Hilton, Carl D. Reintsema, Daniel R. Schmidt, Joel N. Ullom

11:00-11:15 SQ-O3: **Near-Quantum-Limited SQUID Amplifier**

John Clarke, Darin Kinion

11:15-11:30 SQ-O4: **High- T_c Flip-chip SQUID Gradiometer for Mobile Underwater Magnetic Sensing**

S. T. Keenan, J. Du, C. P. Foley, J. A. Young

11:30-11:45 SQ-O5: **A SQUID Gradiometer with a Large Pickup Coil Housed in a Doughnut-shaped Cryostat**

JUN KAWAI, Hisanao Ogata, Miki Kawabata, Yoshiaki Adachi, Masakazu Miyamoto, Gen Uehara

11:45-12:00 SQ-O6: **Development of a One-step Magnetic Immunoassay for Prostate-specific Antigen with a High- T_c dc SQUID Gradiometer Readout**

Fredrik Oisjoen, Justin Fleer Schneiderman, Andrea Prieto Astalan, Alexey Kalabukhov, Christer Johansson, Dag Winkler

12:00-12:15 SQ-O7: **Nuclear Magnetic Resonance/Magnetic Resonance Imaging using High- T_c**

Superconducting Quantum Interference Device in Microtesla Magnetic Fields

Hong-Chang Yang, Shu-Hsien Liao, Hsin-Hsien Chen, Herng-Er Horng, Shieh-Yeh. Yang, Ming-Jie Chen

Lunch Break 12:15-13:45

Thursday, June 18, 13:45-14:45

Selected Topics 2

Chair: *Vasili Semenov*

Co-Chair: *Hideo Itozaki*

13:45-14:15 ST3: **Hardware Algorithms for SFQ Arithmetic Circuits**

Naofumi Takagi, Masamitsu Tanaka, Kazuyoshi Takagi

14:15-14:45 ST4: **Development of Nb NanoSQUIDs at UCL**

Edward J. Romans, Huan Wang, Edward Osley, Paul A. Warburton

Thursday, June 18, 14:45-16:25

Poster Session: **Signal Processing (SP)**

Poster session: **Mixers and Detectors (MD)**

Poster session: **Thin Film Materials, Junctions and Novel Devices (TD)**

Chairs: *Jaw-Shen Tsai, Yoshinori Uzawa, Gin-ichiro Oya*

Signal Processing (SP)

SP-P01: **Coherent Manipulation of a Double SQUID Qubit with Ultrafast Pulses (invited)**

Fabio Chiarello, Pasquale Carelli, Maria Gabriella Castellano, Carlo Cosmelli, Guido Torrioli

SP-P02: **Frontiers in Quantum Random Number Generator on Magnetic Flux Qubits Design in Application to Ultra High Performance Computing (HPC) Systems**

Dimitri O. Ledenyov, Viktor O. Ledenyov, Oleg P. Ledenyov

SP-P03: **Quantum Metastable States in Superconducting Graphene Josephson Junction Devices**

Joseph G. Lambert, Steven Carabello, Zechariah Thrailkill, and Roberto C. Ramos

SP-P04: **Quantum Jump Approach to Switching Current Distribution of a Josephson Junction Coupled to a Microscopic Two-Level System**

Xueda Wen, Yang Yu

SP-P05: **Macroscopic Resonant Tunneling in a RF-SQUID Superconducting Flux Qubit**

Guozhu Sun, Shanhua Cong, Yiwen Wang, Jian Chen, Lin Kang, Weiwei Xu, Yang Yu, Siyuan Han, Peiheng Wu

SP-P06: **Asymmetric Resonant Peak of a Flux Qubit under Different Microwave Power at the**

Optimal Point

Shin-ichi Karimoto, Xiaobo Zhu, Shiro Saito, Alexander Kemp, Kouichi Semba

SP-P07: Spectroscopy of SQUID Flux Qubits without Microwave

Siyuan Han, Bo Mao, Haifeng Yu

SP-P08: Josephson Qubits with Pi-junctions

Alexey V. Sharafiev, Sergey V. Bakurskiy and Nikolay V. Klenov

SP-P09: Temperature Dependence of Magnetism in dc SQUIDs and Flux Qubit in nT Fields

Bo Mao, Wei Qiu, Siyuan Han

SP-P10: Investigation of Different Josephson Comparator Topologies on Their Gray Zone Width (invited)

Bjoern Ebert, Hermann F Uhlmann, Thomas Ortlepp

SP-P11: Study for Improvement of the Operating Margin in an AC Drive Stacked Latching Driver (invited)

Hideo Suzuki, Nozomu Kato, Takeshi Endo, Hiroshi Takai

SP-P12: Enhanced Flexibility of an Operand Routing Network for an SFQ-RDP Processor

Irina Kataeva, Hiroyuki Akaike, Akira Fujimaki, Nobuyuki Yoshikawa, Kazuyoshi Takagi, Naofumi Takagi, Kazuaki Murakami

SP-P13: Single-flux-quantum Cells and Circuits Based on a Nb Multi-layer Process

Hiroyuki Akaike, Masamitsu Tanaka, Katsumi Takagi, Irina Kataeva, Ryo Kasagi, Masato Itoh, Akira Fujimaki, Masanori Igarashi, Heejoung Park, Yuki Yamanashi, Nobuyuki Yoshikawa, Kan Fujiwara, Shuichi Nagasawa, Tetsuro Satoh, Mutsuo Hidaka, Kazuyoshi Takagi, Naofumi Takagi

SP-P14: Delta Analog-to-digital Converters with Event-driven Decimation Filters for a Detector Array

Yosuke Higashi, Shigeyuki Miyajima, Isao Nakanishi, Akira Fujimaki

SP-P15: SFQ Signal Processing for a Superconductive Neutron Detector Array

Isao Nakanishi, Yosuke Higashi, Shigeyuki Miyajima, Akira Fujimaki

SP-P16: New Design to Show the Advantage of a Twisted-Pair Bias Supply Line for Large-Scale Josephson Circuits

Yuki Yamanashi, Theodore Van Duzer, Nobuyuki Yoshikawa

SP-P17: Improvements of Josephson-CMOS Hybrid Memory System

Heejoung Park, Theodore Van Duzer, Qingguo Liu, Stephen R. Whiteley, Yuji Okamoto, Yuki

Yamanashi, Daniel Wei, Nobuyuki Yoshikawa

SP-P18: Statistical Evaluation of a Superconductive Physical Random Number Generator

Tatsuro Sugiura, Yuki Yamanashi, Nobuyuki Yoshikawa

SP-P19: An Automated Passive-transmission-line Routing Tool for Single-flux-quantum Circuits Based on the A* Algorithm

Masamitsu Tanaka, Koji Obata, Yuki Ito, Shota Takeshima, Motoki Sato, Kazuyoshi Takagi, Naofumi Takagi, Hiroyuki Akaike, Akira Fujimaki

SP-P20: Operation Stability of Rapid Single Flux Quantum Circuits with Reduced Critical Current Density

Thomas Ortlepp, Juergen Kunert, Ludwig Fritsch, Hans-Georg Meyer, Hannes Toepfer

SP-P21: Detailed Analysis on Hydrogen-Induced Jc Changes in Nb-AlO-Nb Josephson Junctions

Kenji Hinode, Tetsuro Satoh, Shuichi Nagasawa, Mutsuo Hidaka

SP-P22: Stacked-SQUID-based Voltage Multiplier Cell Generating Twofold or Fourfold Voltage

Takeyuki Tanaka, Tadayuki Kobayashi, Masataka Moriya, Yoshinao Mizugaki, Masaaki Maezawa

SP-P23: Design and Operation of 2ⁿ-fold Variable SFQ Pulse Number Multiplier

Jun Saito, Ryuta Kashiwa, Akio Kawai, Takeyuki Tanaka, Masataka Moriya, Tadayuki Kobayashi, Yoshinao Mizugaki, Masaaki Maezawa

SP-P24: High-speed Tests for Superconductive Flash ADC using Complementary QOS Comparator

Kan Fujiwara, Michitaka Maruyama, Hideo Suzuki, Mutsuo Hidaka

SP-P25: High-Density Integration of Single-Flux-Quantum Circuits using Josephson Inductance

Y. Natsume, M. Igarashi, D. Ozawa, Y. Yamanashi, N. Yoshikawa

SP-P26: Design of SFQ Circuits using PTL-connectable Logic Cells

Hidetoshi Suzuki, Hiroshi Hara, Yuki Yamanashi, Nobuyuki Yoshikawa

(Moved from Friday)

SP-P30: Quantum Read/Write Head

William Ryan Kelly, Thomas Ohki

Mixers and Detectors (MD)

MD-P01: A 350 Micron Superconducting Bolometer Camera for APEX (invited)

Erik Heinz, Torsten May, Viatcheslav Zakosarenko, Solveig Anders, Andre Krueger, Michael Starkloff, Ernst Kreysa, Walter Esch, Giorgio Siringo, Hans-Georg Meyer

MD-P02: Dual Patch Hot Electron Bolometer Mixer

David B Northeast, Coenrad J Fourie

MD-P03: Size Dependence of HEB Mixer Performance

L. Jiang, S. Shiba, T. Shiino, K. Shimbo, M. Sugimura, N. Sakai, T. Yamakura, P. G. Ananthasubramanian, H. Maezawa, Y. Irimajiri, S. Yamamoto

MD-P04: Improvement of Critical Temperature of Superconducting NbN and NbTiN Thin Films using an AlN buffer Layer

Tatsuya Shiino, Koichi Todoroki, Nguyen Dinh Minh, Jiang Ling, Shoichi Shiba, Yoshinori Uzawa, Hiroyuki Maezawa, Nami Sakai, Satoshi Yamamoto

MD-P05: Low Noise Superconducting Hot Electron Bolometers at Terahertz Waveband

J. Chen, M. Liang, L. Kang, B. B. Jin, W. W. Xu, P. H. Wu, W. Zhang, L. Jiang, S.C. Shi

MD-P06: Superconducting Nanowire Single Photon Detectors with NbTiN Thin Films

Shigehito Miki, Masanori Takeda, Mikio Fujiwara, Masahide Sasaki, Akira Otomo, Zhen Wang

MD-P07: Superconducting and Thermal Properties of Superconductive Nanowire Single-photon Detectors with Large Filling Factor.

Konstantin S. Il'in, Tobias Brengartner, Matthias Hofherr, Michael Siegel, Alexei Semenov, Heinz-Wilhelm Huebers

MD-P08: MgB₂ Superconducting Single Neutron Detector

Takekazu Ishida, Arai Kohei, Yukio Akita, Tsutomu Yotsuya, Masaru Kato, Hisashi Shimakage, Shigehito Miki, Zhen Wang, Masahiko Machida, Satoru Okayasu, Kazuo Satoh

MD-P09: Optical Response of MgB₂ Nanowires with Various Dimensions

Hiroyuki Shibata, Hiroki Takesue, Toshimori Honjo, Tatsushi Akazaki, Yasuhiro Tokura

MD-P10: Fabrication of Superconducting MgB₂ Nanowires for Hot Electron Type Detectors

Hisashi Shimakage, Shigehito Miki, Masanori Takeda, Zhen Wang

MD-P11: Low Timing Jitter and Fast Response Superconducting Photon Number Resolving Detectors (invited)

Daiji Fukuda, Go Fujii, Takayuki Numata, Akio Yoshizawa, Hidemi Tsuchida, Hidetoshi Fujino, Hiroyuki Ishii, Taro Itatani, Syuichiro Inoue, Tatsuya Zama

MD-P12: Analysis of I-V and complex impedance data for Ti/Au transition-edge sensors

K. M. Kinnunen, M. R. Palosaari, I. J. Maasilta, M. L. Ridder, J. van der Kuur, and H. F. C. Hoevers

MD-P13: Superconducting Properties of Ultra-thin Films of Ti for TES Application

Mauro Rajteri, Chiara Portesi, Emanuele Taralli, Lapo Lolli, Roberto Rocci, Eugenio Monticone

MD-P14: Development of a TES Microcalorimeter for Energy Dispersive Spectroscopy of LX Rays Emitted from Transuranium Elements

Keisuke Maehata, Keisuke Nakamura, Takashi Yasumune, Masafumi Ogi, Makoto Maeda, Kenji Ishibashi, Koji Takasaki, Keiichi Tanaka, Takahiro Umeno, Yoshihiro Yamanaka

MD-P15: Fabrication of Superconducting Tunnel Junctions with Al electrodes for THz-wave Detector

Chihaya Ogawa, Kazutaka Aoki, Naoto Yamashita, Tomohiro Fujioka, Tohru Taino, Hiroaki Myoren

MD-P16: Development of Pulsed THz Wave Detector with a HTS Josephson Junction

Ryosuke Kaneko, Iwao Kawayama, Hironaru Murakami, Masayoshi Tonouchi

MD-P17: Liquid Identification by Hilbert Spectroscopy

Yuri Divin, Matvey Lyatti, Ulrich Poppe, Knut Urban

MD-P18: Design and Fabrication of Epitaxial NbN/MgO/NbN SIS Mixers

Kawakami Akira, Masanori Takeda, Yoshinori Uzawa, Zhen Wang

MD-P19: HTS Josephson Heterodyne Mixer for THz Detector Arrays (invited)

John C. Macfarlane, Jia Du, Andrew D. Hellicar

MD-P20: Technical Idea and Experimental Evaluation Concerning Matrix Mm-Submm Passive Imaging System at the Base of Josephson Junctions in Self-Pumping Regime

Alexander Grigoriy Denisov

MD-P21: Reflectivity of Metals with Down-converting Electron and Phonon Cascades.

Alexander Kozorezov, G. P. Pepe, A. Golubov, J. K. Wigmore, D. Martin

MD-P22: Origin of Subgap Current in an SIS Junction

Toyoaki Suzuki, Takashi Noguchi, Akira Endo, Hiroshi Matsuo

Thin Film Materials, Junctions and Novel Devices (TD)

TD-P26: Temperature Variation of LPW Wave Number in Intrinsic Josephson Junctions

Yury Shukrinov

TD-P27: Analysis of Return Currents in Bi₂Sr₂CaCu₂O_x Intrinsic Josephson Junctions

Takahiro Kato, Hiroki Ishida, Katsuyoshi Hamasaki

- TD-P28: Doping Dependent Transport Properties of Bi-based Cuprate Thin Films Prepared by Double Side Cleaving**
Yoshiharu Yamada, Yutaka Takamaru, Itsuhiro Kakeya, Takao Watanabe, Minoru Suzuki
- TD-P29: Characterization of Acid-treated Product as a Surrounding Material of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ Stack**
Hiroki Ishida, Takahiro Kato, Akira Kawai, Katsuyoshi Hamasaki
- TD-P30: Spin Depended Transport Properties in Intrinsic Josephson Junctions**
Akinobu Irie, Masahiro Konishi, Naohiro Arakawa, Gin-ichiro Oya
- TD-P31: Microwave Response of Intrinsic Josephson Junctions in $(\text{Bi}_{1-x}\text{Pb}_x)_2\text{Sr}_2\text{CaCu}_2\text{O}_y$ with High Critical Currents**
Gin-ichiro Oya, Nurmiza Binti Othman, Yoshiaki Isobe, Michihide Kitamura, Akinobu Irie
- TD-P32: Fabrication and Switching Characteristics for Small Mesas Consisting of a Few Intrinsic Josephson Junctions**
Minoru Suzuki, Kenji Hamada, Ryota Takemura, Masayuki Ohmaki, Takao Watanabe, Kensuke Ota, Haruhisa Kitano, Atsutaka Maeda
- TD-P33: Switching Probability Distribution for High Current Density Pb-doped BSCCO Intrinsic Josephson Junctions**
Kenji Hamada, Masayuki Ohmaki, Ryota Takemura, Itsuhiro Kakeya, Minoru Suzuki
- TD-P34: Non-volatile Flash Memory Effect in Y-123 Intrinsic Josephson Junctions**
Takeshi Hatano, Masanori Nagao, Yuya Inamoto, Huabing Wang
- TD-P35: Collective Dynamics of Intrinsic Josephson Junctions (invited)**
Shigeo Sato, Koji Matsushita, Kunihiro Inomata, Huabing Wang, Takeshi Hatano, Mitsunaga Kinjo, Koji Nakajima
- TD-P36: Switching Transition in Vortex Molecule System**
Hisataka Suematsu, Masaru Kato, Takekazu Ishida
- TD-P37: Water-strider Shaped d-dot as a Novel Superconducting Device**
Takumi Uemura, Hiroaki Sato, Hisataka Suematsu, Masaru Kato, Takekazu Ishida
- TD-P38: New Approaches for the Growth of HTS Thin Films for Electronics**
Kazuhiro Endo, Petre Badica, Hisashi Kado
- TD-P39: Mixed-state Hall effect in YBCO Thin Films with an Artificial Pinning Lattice**
Li-Min Wang, Wei-Jar Hwang, Jian-Yeu Jong

TD-P40: Real Structure of Nanoparticles ErBaCuO Superconducting Ceramics

Ekaterine Enuiki Sanaia, Elguja Rajden Kutelia, George Shota Darsavelidze

TD-P41: Synthesis of Smooth and Superconducting (Cu, C)-1201 Films using SrCuO₂ Buffer

Tetsuro Yamamoto, Masahiro Mitsunaga, Koshi Tanaka, Akihiro Yamanaka, Kozo Obara, Akira Iyo, Naoto Kikuchi, Yasumoto Tanaka, Kazuyasu Tokiwa, Tsuneo Watanabe, Norio Terada

TD-P42: Superconducting Properties of MgB₂ Thin Films Irradiated with Oxygen Ions

Dongning Zheng, Jia Wang, Chenggang Zhuang, Haifeng Chu, Jie Li, Qingrong Feng, Dongning Zheng

TD-P43: Experimental Study on a Superconducting Level Sensor for Cryogen Composed of Magnesium-diboride Wire with Stainless Steel Sheath Material

Kazuhiro Kajikawa, Takuro Inoue, Antti Jokinen, Yutaka Yamada, and Itsuo Aoki

Thursday, June 18, 16:25-17:50

Oral session: High Frequency Devices

Chair: *Paul Dresselhaus*

Co-Chair: *Shigetoshi Ohshima*

16:25-16:45 HF-O1: **Operation of Josephson Arbitrary Waveform Synthesizer with Optical Data Input (invited)**

Chiharu Urano, Michitaka Maruyama, Nobuhisa Kaneko, Hirotake Yamamori, Akira Shoji, Masaaki Maezawa, Yoshihito Hashimoto, Hideo Suzuki, Shuichi Nagasawa, Tetsuro Satoh, Mutsuo Hidaka, Shogo Kiryu

16:45-17:05 HF-O2: **Current Status of HTS Microwave Researches and Applications for Mobile Communications in Beijing (invited) (withdrawn)**

Bisong Cao, Xiaoping Zhang, Bin Wei, Xubo Guo, Helmut Piel

17:05-17:20 HF-O3: **High Temperature Superconducting Resonator. Strong Enhancement of the Power Handling Capabilities and Non ambiguous Temperature Increasing Measurement in the High Microwave Input Power Level**

Julien Kermorvant

17:20-17:35 HF-O4: **Arrays with Double-stacked Nb_xSi_{1-x}-Barrier Junctions for Use in Programmable Josephson Voltage Standards driven at 70 GHz**

Franz Mueller, Ralf Behr, Ruediger Wendisch, Kohlmann Johannes, David Olaya, Paul D. Dresselhaus, Samuel P. Benz

17:35-17:50 HF-O5: **Superconducting Tunable Power Filters with Moving Dielectrics for Low Microwave Band**

Kazunori Yamanaka, Akihiko Akasegawa, Teru Nakanishi, Kazuaki Kurihara

Conference Dinner 19:00-21:00

Friday, June 19

Friday, June 19, 9:00-9:50

Plenary session 3

Chair: *Akira Fujimaki*

9:00-9:50 PL3: **Digital RF Receiver System**

O. Mukhanov, V. Dotsenko, T. Filippov, D. Gupta, A. Kirichenko, D. Kirichenko, R.

Miller, A. Sahu, S. Sarwana, P. Shevchenko, A. Talalaevskii, J. Tang, I. Vernik, R. Webber

Friday, June 19, 9:50-11:30

Poster Session: **Signal Processing (SP)**

Poster Session: **High Frequency Devices (HF)**

Poster session: **SQUIDs and Their Applications (SQ)**

Poster session: **Mixers and Detectors (MD)**

Chairs: *Donald Miller, Kohei Naakayama, Heng-Er Hornig, Takekazu Ishida*

Signal Processing (SP)

SP-P27: **Reversible Computing with nSQUID Arrays (invited)**

Vasili Semenov, Jie Ren, Yuri Polyakov, Dmitri Averin and Jaw-Shen Tsai

SP-P28: **Non-switching Readout of Superconducting Flux Qubit using Josephson Bifurcation Amplifier**

Kosuke Kakuyanagi, Seiichiro Kagei, Ryota Koibuchi, Kouichi Semba

SP-P29: **Tunable Gap Flux Qubit**

Xiaobo Zhu, Alexander Kemp, Seiichiro Kagei, Shiro Saito, Kouichi Semba

(Moved to Thursday)

SP-P30: **Quantum Read/Write Head**

William Ryan Kelly, Thomas Ohki

SP-P31: **Berry's phase in the Josephson phase qubit**

Anthony Tyler, Roberto C Ramos

SP-P32: **Multiple Resonators Coupling Josephson Junction Qubits as a Multi-Channel Bus**

Zechariah E Thrailkill, Roberto C Ramos

SP-P33: **Resonant Tunneling in a Josephson Flux Qubit Coupled to a Quantum Two-level System**

Yiwen Wang, Xueda Wen, Yang Yu

SP-P34: Decoherence in a Superconducting Flux Qubit

Alexander Kemp, Shiro Saito, Kouichi Semba

SP-P35: Design and Implementation of RSFQ Microwave Choppers for Controlling Josephson Junction Qubits

Naoki Takeuchi, Yuichiro Saito, Yuki Yamanashi, Nobuyuki Yoshikawa

SP-P36: Nb Multi-layer Device Fabrication Technology (invited)

Shuichi Nagasawa, Tetsuro Satoh, Kenji Hinode, Yoshihiro Kitagawa, Mutsuo Hidaka, Hiroyuki Akaike, Akira Fujimaki, Naofumi Takagi, Kazuyoshi Takagi, Nobuyuki Yoshikawa

SP-P37: Front-end Design of an Analog to Digital Converter Circuit

Ali Bozbey, Celal Alp Tunc, Selim Olcum, Akira Fujimaki

SP-P38: Analytical Calculation for Inductance of Superconducting Stripline

Yoshinao Mizugaki, Akio Kawai, Ryuta Kashiwa, Masataka Moriya, Tadayuki Kobayashi

SP-P39: Access Time Measurements of Josephson/CMOS Hybrid Memories using SFQ Delay Measurement Circuits

Yuji Okamoto, Heejoung Park, Hyunjoo Jin, Kenta Yaguchi, Yuki Yamanashi, Nobuyuki Yoshikawa, Theodore Van Duzer

SP-P40: 4-bit Parallel Multiplier for a Fast Fourier Transform

Sakae Sakuraba, Takeshi Onomi, Koji Nakajima

SP-P41: Signal Conversion of Outputs from SSPD Array into SFQ Pulses for Readout Signal Processing

Hirotaika Terai, Shigehito Miki, Zhen Wang

SP-P42: Initialization Reliability of a pi-phase shifter for RSFQ Circuits

Olaf Mielke, Hermann F Uhlmann, Thomas Ortlepp

SP-P43: Design and High-speed Tests of Component Circuits of an SFQ Half-precision Floating-point Adder using 10 kA/cm² Nb Process

Toshiki Kainuma, Heejung Park, Kazuhiro Taketomi, Hiroshi Hara, Yuki Yamanashi, Nobuyuki Yoshikawa, Masamitsu Tanaka, Yuki Ito, Akira Fujimaki, Naofumi Takagi, Kazuyoshi Takagi, Shuichi Nagasawa

SP-P44: Design of SFQ Multi-Stop Time-to-Digital Converters for Time-of-Flight Mass Spectrometry

Nobuyuki Yoshikawa, Hidetoshi Suzuki, Hiroshi Hara, Ai Murakami, Yuki Yamanashi

SP-P45: Design of Wafer Bumps for Multi-Chip Modules with Ultra-High Data Transfer Rates

Supradeep Narayana, Yuri A. Polyakov, and Vasili K. Semenov, Sergey K. Tolpygo, Diana Tolpygo, Richard T. Hunt

SP-P46: Development and Evaluation of Design Techniques for High-performance Wave-Pipelined Wide Datapath RSFQ Processors

Mikhail Dorojevets, Chris Ayala, Artur Kasperek

High Frequency Devices (HF)

HF-P17: Cryogenic Phase Locking Loop System for Flux-Flow Oscillator

Andrey V. Khudchenko, Valery P. Koshelets, Pavel N. Dmitriev, Andrey B. Ermakov, Oleksandr M. Pylypenko

HF-P18: Terahertz Generation in Large $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ Intrinsic Josephson Junction Stacks

H.B. Wang, S. Guenon, J. Yuan, G. Matthias, A. Iishi, S. Arisawa, T. Hatano, T. Yamashita, D. Koelle, R. Kleiner

HF-P19: Dielectric Resonator Antenna composed of High-Permittivity Dielectric Material for Application in WiMAX

Yih-Chien Chen, Ren-Sian Wang, Kuai-Cian Chen

HF-P20: Current Margins of Digital to Analog Converter using Meander Josephson Junction Arrays for Quantum Voltage Standards

Hirotake Yamamori, Akira Shoji

HF-P21: Improved Setup for Pulse-Driven AC Josephson Voltage Standards

Oliver F. Kieler, Detlef Schleussner, Johannes Kohlmann, Ralf Behr

HF-P22: Fabrication and Characteristics of Ultra-Wideband Bandpass YBCO Filter Using Stepped impedance resonators and Open-Circuited Stubs

Li-Min Wang, Chiuan-Yu Shiau, Jhe-Wei Liou, Chun-Te Wu, Chung-I G. Hsu, Ching-Her Lee

HF-P23: High-speed and Wideband Mechanical Tuning Methods for Superconducting Filters

Shigetoshi Ohshima, Yoshinobu Takano, Jae Hun Lee, Satoshi Ono, Takashi Saito, Masayoshi Yokoo, Kensuke Nakajima, Atsushi Saito

HF-P24: Data Coding Method for Driving a Josephson Arbitrary Waveform Synthesizer using an Optical Modulator

Michitaka Maruyama, Chiharu Urano, Nobuhisa Kaneko, Hirotake Yamamori, Akira Shoji, Masaaki Maezawa, Yoshihito Hashimoto, Hideo Suzuki, Shuichi Nagasawa, Tetsuro Satoh, Mutsuo Hidaka, Kiryu Shogo

HF-P25: Measurements of Microwave Surface Resistances of NbN and NbTiN Thin Films

Masanori Takeda, Shinya Nakayama, Atsushi Saito, Hisashi Shimakage, Yoshinori Uzawa, Shigetoshi Ohshima, Zhen Wang

HF-P26: Characterization of Terahertz Planar Antenna by Josephson Admittance Spectroscopy

Irina I. Gundareva, Oleg Y. Volkov, Yuri Y. Divin, Vladimir N. Gubankov, Valery V. Pavlovskiy

HF-P27: Jumpwise Nonlinear Response of MgB₂ Thin-film Microwave Resonators

Gianluca Ghigo, Domenico Andreone, Roberto Gerbaldo, Laura Gozzelino, Francesco Laviano, Giuseppina Lopardo, Bruno Minetti, Eugenio Monticone, Chiara Portesi, Enrica Mezzetti

SQUIDs and Their Applications (SQ)

SQ-P26: Study of Robustness of HTS-SQUID Magnetometer Covered by Superconducting Shield in AC Magnetic Field (invited)

Yoshimi Hatsukade, Sho Kanai, Masahiro Hayashi, Keita Hayashi, Saburo Tanaka

SQ-P27: Modeling strongly coupled dc-SQUIDs (invited)

J. Pleikies, H. Rogalla, and J. Flokstra

SQ-P28: Novel linearization Method for dc SQUID Voltage Response

Victor K. Kornev, Igor I. Soloviev, Nikolai V. Klenov, Oleg A. Mukhanov

SQ-P29: Characteristics of High- T_c SQUIDs with Nanobridges Trimmed by Focused Ion Beam

Ji-Cheng Chen, Kuen-Lin Chen, Hong-Chang Yang, Chiu-Hsien Wu, Heng-Er Horng

SQ-P30: New Fabrication Process for Bi₂Sr₂CaCu₂O_x SQUIDs

Takahiro Kato, Takashi Yoshida, Atsushi Miwa, Hisashi Shimakage, Akira Kawai, Hisayuki Suematsu, Katsuyoshi Hamasaki

SQ-P31: Study of a Four Josephson Junction System Made of High Temperature Superconductor on a Bicrystal

Paul Seidel, Christoph Becker, Katharina Hofer, Uwe Schinkel, Robert Haehle, and Alexander Steppke

SQ-P32: Lumped-Element DC-SQUID Microwave Amplifier

Lafe Spietz, Jose Aumentado

SQ-P33: Damage Detection in Ni-Based Superalloy Udimet520 using Scanning SQUID Microscopy

Kazuyuki Isawa, Yoshiaki Igarashi, Masato Hayashi, Fumio Sato, Soji Hasegawa, Kenji Miyaguchi

SQ-P34: HTS-SQUIDs Susceptibility Measurements System with a Tangential Applied Field for

Large Volume Samples.

*Etsuro Miyake, Hideaki Tahara, Hironobu Yamada, Akira Tsukamoto, Akihiko Kandori,
Toshihiko Kiwa, Keiji Tsukada*

SQ-P35: HTS Planar Gradiometer and Its Applications

Xiangyan Kong, Yuichi Narita, Saori Kurematsu, Tianfang Guan, Hideo Itozaki

SQ-P36: Laser-SQUID Microscope for Observing Distribution of Photocurrent

Yoshihiro Nakatani, Xiangyan Kong, Tetsuro Maki, Tadayuki Hayashi, Hideo Itozaki

SQ-P37: Method to Detect Magnetic Contaminants in Ferromagnetic Products using Selective Demagnetization

Akira Tsukamoto, Takako Mizoguchi, Akihiko Kandori

SQ-P38: Fourier Pulsed Eddy Current Test using HTS SQUID's System

Toshihiko Kiwa, Etsuro Miyake, Hideaki Tahara, Hironobu Yamada, Keiji Tsukada

SQ-P39: Studies of Relaxivity of Gadolinium Contrast using high- T_c Superconducting Quantum Interference Device in Microtesla Magnetic Fields

*Hsin-Hsien Chen, Hong-Chang Yang, Heng-Er Horng, Jong-Kai Hsiao, Shu-Hsien Liao,
Ming-Jye Chen*

SQ-P40: Fabrication and Operation Characteristics of Helmet-type Magnetoencephalography System Having Gradiometer-in-vacuum Configuration

Yong-Ho Lee, Kwon-Kyu Yu, Hyukchan Kwon, Jin-Mok Kim, Kiwoong Kim

SQ-P41: Identification of the Listened Sound from MEG Data for a BCI System to Assist a Human Auditory Function

Masanori Higuchi

SQ-P42: Development of a Versatile Instrument for Magnetic Measurements

Masakazu Miyamoto, Jun Kawai, Yoshiaki Adachi, Miki Kawabata, Gen Uehara

SQ-P43: High- T_c SQUID-based Magnetosusceptometry for Detecting Proteins Marked with Biofunctionalized Magnetic Nanoparticles

*Heng-Er Horng, Shieh-Yueh Yang, J.J., Chien, Chin-Yih Hong, Hong-Chang Yang, C.Y. Yu,
Chau-Chung Wu*

SQ-P44: Detection of Biological Targets Using Brownian Relaxation of Magnetic Markers

*Yuya Tamai, Tesu Mitake, Schunichi Chosokabe, Masaakai Matsuo, Takashi Yoshida, Keiji Enpuku, Hiroyuki Kuma, Akira Tsukamoto, Takako Mizoguchi, Akihiko Kandori, Hisao Kanzaki,
Naoki Usuki*

Mixers and Detectors (MD)

MD-P23: Compact Packaging of Superconducting Nanowire Single Photon Detectors with Optical Cavity (invited)

Shigehito Miki, Masanori Takeda, Mikio Fujiwara, Masahide Sasaki, Akira Otomo, Zhen Wang

MD-P24: High Temperature Superconductor YBCO Thin Film meander Stripline Detectors for Mass Spectrometry (withdrawn)

Yigang Chen, Masataka Ohkubo

MD-P25: NbN Parallel Nanowires for Fast Optical Response

Hiroyuki Yamamoto, Yuji Matsui, Tohru Taino, Hiroaki Myoren

MD-P26: Fabrication and Characterization of Ultrathin Nb Films for Single Photon Detection

Jianshe Liu, Jinyang Li, Tiefu Li, Wei Wu, Wei Chen

MD-P27: High Precise Element Analysis of Forensic Materials using SEM-TES-EDS System

Yuki Ono, Qinghui Li, Rina Suzuki, Yoshikazu Homma, Keiichi Tanaka, Satoshi Nakayama, Izumi Nakai

MD-P28: Development of Multi Color TES Bolometer Camera for Submillimeter Survey with ASTE

Masayuki Kawamura, Tai Oshima, Tatsuya Takekoshi, Tetsuhiro Minamidani, Soh Ikarashi, Yoichi Tamura, Kotaro Kohno, Hajime Ezawa, Ryohei Kawabe

MD-P29: X-ray Spectrometer using 100-pixel Superconducting Tunnel Junctions for Synchrotron Radiation

Shigetomo Shiki, Nobuyuki Zen, Yutaka Shimizugawa, Masahiro Ukibe, Masataka Ohkubo

MD-P30: X-ray Spectrometer System using TES Microcalorimeter Array for Microanalysis

Kazuhisa Mitsuda, Noriko Y Yamasaki, Keiichi Tanaka, Keisuke Maehata, Toru Hara

MD-P31: A Quasi-Optical 1.4-THz NbN SIS Mixer Incorporating a NbN/SiO₂/Al Tuning Circuit

Sheng-Cai Shi, Jing Li, Wei Miao, Masanori Takeda, Zhen Wang

MD-P32: A low noise NbTiN-based SIS mixer for terahertz band

Takafumi Kojima, Matthias Kroug, Masanori Takeda, Sergey V Shitov, Yoshinori Uzawa, Wenlei Shan, Yasunori Fujii, Zhen Wang

MD-P33: Low-Noise and Wideband Superconducting Heterodyne Receiver using a Photonic Local Oscillator for Terahertz Spectroscopy

Takahiro Yamada, Kenichi Kikuchi, Satoshi Kohjiro, Kyoung-Hwan Oh, Naofumi Shimizu, Yuichi Kado, Atsushi Wakatsuki

MD-P34: Large Area Terahertz Detector using Superconducting Tunnel Junction with Substrate Absorber

Naoto Yamashita, Kazutaka Aoki, Yutaka Watanabe, Hirokazu Ishii, Tohru Taino, Chiko Otani, Takayuki Shibuya, Seiichiro Ariyoshi, Hiromi Sato, Hiroaki Myoren

MD-P35: Two-dimensional Superconducting Detector Array for Terahertz Imaging Applications

Seiichiro Ariyoshi, Chiko Otani, Adrian Dobroiu, Hiromi Sato, Tohru Taino, Hiroshi Matsuo, Hirohiko M. Shimizu

MD-P36: Numerical Simulation of Hot Spot Dynamics in Current-Biased Superconducting Detectors

Kohei Arai, Hisataka Suematsu, Masaru Kato, Masahiko Machida, Takekazu Ishida

MD-P37: Ultrafast optical characterization of NbN proximized structures

G.P. Pepe, L. Parlato, V. Pagliarulo, N. Marrocco, T. Taino, H. Myoren, A. Casaburi, and R. Cristiano

MD-P38: Characterization of a low noise 1 THz SIS mixer for SOFIA observatory (invited)

A. Karpov, D. A. Miller, J. A. Stern, H. G. LeDuc, J. Zmuidzinas

Lunch Break 11:30-13:00

Friday, June 19, 13:00-14:30

Selected Topics 3

Chair: *Paul Seidel*

Co-Chair: *Kensuke Nakajima*

13:00-13:30 ST5: Terahertz Wave Emission from Intrinsic Josephson Junctions of High- T_c Superconductors

L. Ozyuzer, Y. Simsek, H. Koseoglu, F. Turkoglu, C. Kurter, U. Welp, A. E. Koshelev, K. E. Gray, W. K. Kwok, T. Yamamoto, K. Kadowaki, Y. Koval, H. B. Wang, P. Müller

13:30-14:00 ST6: Present Status and Future Prospect of Magnetocardiography

Yong-Ho Lee, Kiwoong Kim, Hyun Kyoon Lim, Kyukchan Kwon, Kwon-Kyu Yu, Jin-Mok Kim

14:00-14:30 ST7: Development and Evaluation of TES X-ray Microcalorimeter Arrays and Frequency Division Signal Multiplex System

Yoh Takei

Coffee break 14:30-14:50

Friday, June 19, 14:50-16:45

Oral Session: Thin Film Materials, Junctions and Novel Devices

Chair: *David Olaya*

Co-Chair: *Keiichi Tanabe*

14:50-15:10 TD-O1: **Switching Current Distributions and Macroscopic Quantum Tunneling in Over-doped BSCCO Mesas with Nanometer-thickness (invited)**

Itsuhiro Kakeya, Kenji Hamada, Takanori Tachiki, Takao Watanabe, Minoru Suzuki

15:10-15:25 TD-O2: **Return Current in Current-voltage Characteristics of Intrinsic Josephson Junctions**

Yury Shukrinov, Akinobu Irie, Gin-ichiro Oya, Minoru Suzuki, Niels Falsig Pedersen, Paul Seidel

15:25-15:40 TD-O3: **Asymmetric and Disordered Superconducting Networks: Toward controlling vortex structures**

Masaru Kato, Yoshiteru Iwamoto, Osamu Sato

15:40-15:55 TD-O4: **Ultrafast Optical Switch using Optically Generated Josephson Vortices**

Iwao Kawayama, Yasushi Doda, Hironaru Murakami, Kenmei Kajino, Taishi Kimura, Masumi Inoue, Akira Fujimaki, Masayoshi Tonouchi

15:55-16:15 TD-O5: **A doped Silicon-on-Insulator based Hall sensor with a Superconducting Flux Concentrator (invited)**

Kristiaan Kuit, Horst Rogalla, Jaap Flokstra

16:15-16:30 TD-O6: **Preparation Process of Plasma-Nitrided Barriers in NbN Josephson Junctions for Digital Applications**

Yuki Nagai, Ryohei Kanada, Hiroyuki Akaike, Akira Fujimaki

16:30 -16:45 TD-O7: **Hot Electron Effect in PdAu Thin-film Resistors with Attached Cooling Fins**

Johannes Pleikies, Oleksandr Usenko, Giorgio Frossati, Jaap Flokstra

Friday 19, 16:45-17:00

Closing