WOLTE 15 PROGRAM GRID

IEEE 15th Workshop on Low Temperature Electronics WOLTE 15

Monday, June 6

LTD: Low Temperature Detectors and Readout for Astrophysics and Space applications
QCT: Quantum Computing Technology

9:30	**WELCOME ADDRESS** G. Pepe
10:00	**KEYNOTE** A vision for a semiconductor quantum processor – hot, dense and coherent by: L. Vandersypen
10:35	**INVITED** Ferroelectric control of the spin-charge conversion for ultralow power spintronics by: J. Attané
11:00	**LECTURE** A Hybrid Ferromagnetic transmon qubit: a Novel Prototype for Detecting Magnetization Noise by: H. Ahmad
11:20	**LECTURE** Superconducting resonators: a Path Towards Advanced Quantum Circuits by: R. Ferraiuolo
11:40	**COFFEE BREAK**
12:00	**LECTURE** Collective States in Coherent Networks of Interacting Superconducting Qubits with Application to Quantum Detectors by: M. Fistul
12:20	**LECTURE** Digital non-Demolition read-Out of Superconducting Qubits Using a Tunable Phase Detector by: P. Mastrovito
12:40	**LECTURE** A Scalable Packaging Solution for Quantum Processors by: G. Tancredi
13:00	**LECTURE** New Way to Manage High Density Signal Connections and the Small Power of sub-K cryo-Generators by: J. Sauvageot
13:20	**BUFFER**
15:00	**LUNCH BREAK**
15:00	**EXHIBIT** by: Assing
15:10	**EXHIBIT** by: Stahl-Electronics
15:20	**EXHIBIT** by: Paragraf
15:35	**EXHIBIT** by: Zeiss
15:50	**INVITED** Control and readout strategies for multiplexing of large-scale quantum devices by: A. Casaburi
16:15	**LECTURE** Trapped-Ion Qubit State Readout with trap-Integrated Superconducting Nanowire single-Photon Detectors by: B. Hampel
16:35	**INVITED** Imaging Magnetic Textures with a Quantum Microscope by: A. Finco
17:00	**COFFEE BREAK**
17:20	**LECTURE** Improving Quantum Computer Scalability with Cryogenic Reversible Logic by: E. Debenedictis
17:40	**LECTURE** Novel Cryogenic Qubit Biasing: Enabling Improved Coherence Times and Tackling Scalability by: S. Stahl
18:00	**KEYNOTE** Quantum detectors at THz frequencies based on 1D or 2D material systems by: M. Vitiello
18:35	

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Tuesday, June 7

LTD: Low Temperature Detectors and Readout for Astrophysics and Space applications
CRYOCMOS: Cryogenic CMOS
IEEE: meeting of IEEE Italian Chapter

9:30	**KEYNOTE** NASA's James Webb Space Telescope; Its Mission, Design, Development and Progress to Science Operations by: J. Arenberg
10:05	**INVITED** On-chip niobium-nitride detectors for quantum photonics by: A.Gaggero
10:30	**LECTURE** Development of mid-Infrared Arrays of Superconducting Nanowire Single Photon Detectors by: D. Morozov
10:50	**LECTURE** Microwave Multiplexed Readout for Large Transition-Edge Sensor Arrays by: J. Groh
11:10	**LECTURE** First structural tests of the CryoAC Detector silicon chip of the Athena X-ray observatory by: L. Ferrari Barusso
11:30	**COFFEE BREAK**
11:50	**INVITED** Sub-THz Receivers for Radioastronomy and Dark Matter search: a Memorial Talk for L.S. Kuzmin by: A. Pankratov
12:10	**LECTURE** A PDS system with an analog optical readout and PoF by: D. Grosso
12:30	**LECTURE** by: Characterizations of SQuIDs array for TES based detectors by: H.V. de Souza
12:50	**LECTURE** First Results on the Complete Eclipse Cryogenic Detection chain, Developed for sub-mm Imaging Polarimetry for the Spica Space Observatory Project by: S. Dubos
13:10	**EXHIBIT** by: JEOL
13:35	**LUNCH BREAK**
15:00	**KEYNOTE** Operation of SOI Nanowire MOSFETs Down to Cryogenic Temperatures by: M. Pavanello
15:35	**INVITED** A System Level Perspective on Cryogenic CMOS for Scalable Quantum Control Electronics by: M. Prathapa
16:00	**LECTURE** Integrated Cryo-CMOS Temperature Sensors for Quantum Control ICs by: P. 'T Hart
16:20	**LECTURE** Towards the Development of Cryogenic Integrated Power Management Units by: A. Cabrera-Galicia
16:40	**LECTURE** An Experimental Evaluation of Fin Width and Low Temperature Influence on GIDL in Stacked SOI Nanowires by: M. de Souza
17:00	**COFFEE BREAK**
17:20	**INVITED** Cryo-CMOS: Does It Work Like Regular CMOS? by: A. Vladimirescu
17:45	**INVITED** cryo-CMOS design for readout e control of solid-state qubits by: E. Charbon
18:10	**Meeting** IEEE PHO, CSC, IM and MAG Italy Chapters
19:10	

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IEEE 15th Workshop on Low Temperature Electronics WOLTE 15

Wednesday, June 8

SUPEL: Superconducting Electronics General
CRYOCMOS: Cryogenic CMOS
SEN Superconducting Electronics Nanowires

9:30	**KEYNOTE:** Extremely Energy-Efficient Superconductive Logic Circuits Based on Adiabatic Flux Quantum Devices by: N. Yoshikawa
10:05	**INVITED:** Design Method of High-Frequency Large-Scale-Integration SFQ Circuit for Better Model-to-Hardware Match by: J. Ren
10:30	**INVITED:** Single Flux Quantum Circuit Operation at Millikelvin Temperatures by: A. Weis
10:55	**LECTURE:** Dual Mode Logic for Low Power Circuits at Cryogenic Temperatures by: Y. Shoshan
11:15	
11:15	**COFFEE BREAK**
11:35	**LECTURE:** Non-Volatile Charge Configuration Memory Devices and Possible Integration Into a cryo-Computing Environment by: A. Mraz
11:55	**LECTURE:** Progresses on Josephson Voltage Standards for ac and Arbitrary Waveforms Metrology by: A. Sosso
12:15	**LECTURE:** On-Chip Temperature Control and Stabilization of cryocooled Superconducting Circuits by: P. Durandetto
12:35	**LECTURE:** Spin Polarization Phenomena at Superconductor/Ferromagnet Interfaces in Tunnel Magnetic Josephson Junctions by: R. Satariano
12:55	**INVITED:** Electrical Characterization and Modeling of FDSOI MOSFETs for Cryo Electronics by: M. Cassé
13:20	**LECTURE:** Cryogenic n-MOSFET Voltage Amplifier with Tunable Power Consumption for Quantum Transport Applications by: G. Ridgard
13:40	**LUNCH BREAK**
15:00	**LECTURE:** Cryogenic Load for ultra-Low Noise Amplifier Characterization by: M. Gonzalez
15:20	**LECTURE:** Cryogenic Calorimetric Signal Readout with 180 nm CMOS at 20 mK by: R. Huang
15:40	**LECTURE:** Effects of Connectivity on Quantum Coherence in Superconducting Networks by: C. Cirillo
16:00	**LECTURE:** Superconducting (nano)strip Photon Detectors and Applications by: L. You
16:40	**COFFEE BREAK**
17:00	**LECTURE:** Building Blocks Design for Superconducting Nanowire Asynchronous Logic by: A. Buzzi
17:20	**LECTURE:** A Superconducting Nanowire Binary Shift Register for SNSPD Readout by: R. Foster
17:40	**LECTURE:** A Superconducting Nanowire Platform for Artificial Spiking Neural Networks by: M. Castellani
18:00	**LECTURE:** A Compact Superconducting Nanowire Microwave Switch and Tunable Microstrip Elements by: O. Medeiros
18:20	**LECTURE:** Superconducting Microbridges for Large Area Single Photon Detectors by: D. Salvoni
18:40	**LECTURE:** Impact of the Phonon Dimensionality on Performance Metrics of Superconducting Devices Exploiting Granular Films by: M. Sidorova
19:00	

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Thursday, June 9

QSENS: Quantum Sensing
SEN Superconducting Electronics Nanowires
SUPEL: Superconducting Electronics General

LTD: Low Temperature Detectors and Readout for Astrophysics and Space applications
QUANCOM: QUANCOM Project

9:30	**INVITED:** Two-Mode Squeezing Generation in a Traveling Wave Parametric Amplifier by: M.Esposito
9:55	**LECTURE:** Development of Kinetic Inductance Travelling-Wave Parametric Amplifiers for the Readout of Low Temperature Detectors by: A. Vinante
10:15	**LECTURE:** Characterization of traveling-Wave Josephson Parametric Amplifiers at T = 0.3K by: V. Granata
10:35	**LECTURE:** Effect of Parameters Distributions on Performances of Traveling Wave Josephson Parametric Amplifiers by: C. Guarcello
10:55	**LECTURE:** Theoretical and Numerical Estimate of Signal-to-Noise-Ratio in the Analysis of Josephson Junctions Lifetime for Photon Detection by: G. Filatrella
11:15	**COFFEE BREAK**
11:35	**LECTURE:** Development of single-Photon Detector Based on Josephson Junction Circuits for Dark Matter Search by: A. D'Elia
11:55	**BRIEF:** Theoretical Prediction on Temperature Dependence of Diffusion Coefficient of Various SiC Nanowires by: Y. Omura
12:05	**BRIEF:** Characterization of Lateral Junctions and micro-Squids Involving Magnetic multilayers by: H. Ahmad
12:15	**BRIEF:** Current Phase Relation of Josephson Junctions Employed in RF Circuits by: G. Serpico
12:25	**BRIEF:** Functional Flexible Cables for Cryogenic Quantum Systems by: S. Wang
12:35	**BRIEF:** High-Speed Optical Links for Data Transfer Out of 3.4K to Room Temperature by: H. Han
12:45	**BRIEF:** Fractality of Ceramic HTSC Material and its Magnetic Sensitivity by: L. Ichkitidze
12:55	**BRIEF:** Development of a TES antenna coupled bolometer for Cosmic Microwave Background Detection by: E. Celasco
13:05	**Buffer**
13:20	**LUNCH BREAK**
15:00	**LECTURE:** Integration of QKD Technologies in Advanced Optical Networks by: A. Gatto
15:20	**LECTURE:** QKD and frequency distribution cooperation: the Twin-filed QKD case by: A. Meda
15:40	**LECTURE:** QKD-secure ETSI MEC by: C. Cicconetti
16:00	**LECTURE:** Cryptography in the quantum era by: E. Lella
16:20	**LECTURE:** Wireless PTP Transmission with FWA Technology by: M. Sellone
16:40	**LECTURE:** An optical link for turbulence studies and wavelength optimisation by: D. Dequal
17:00	**COFFEE BREAK**
17:20	**LECTURE:** Real and perspectives use cases: the potential of QKD technology by: D. Martire
17:40	**LECTURE:** Quantum Communication in Padova, an update on recent realizations by: F. Vedovato
18:00	**LECTURE:** Nonlinear optical systems for the generation and characterization of nonclassical states of light by: I. Ricciardi
18:20	**LECTURE:** Paths in quantum communication networks by: L. Pilozzi
18:40	**LECTURE:** SNSPDs for quantum communication by: M Ejrnaes
19:00	**LECTURE:** Analysis of network-level key exchange protocols in the post-quantum era by: A. Pazienza
19:20	**CONCLUDING REMARKS** L. Parlato
19:40	