

# Program

(05 September 2018)

## Tuesday 11 morning

### Conference Opening Session

- R. Cristiano *WOLTE13 Chairman*  
C. Ferdeghini *Director of CNR – SPIN Institute*  
R.C. Spinella *Director of CNR Dept. of Physical Sciences and Technologies of Matter*

### Session TUE 1 *Semiconductor & Superconductor Devices at Low Temperature* Chair: E. DeBenedictis

- ID72 KEY** E. Charbon, *EPFL Lausanne, Switzerland and Kavli Institute of Nanoscience, Delft, the Netherlands*  
**Cryo-CMOS Systems for the Control of Quantum Computers**
- ID43 INV** Y. Jin *C2N, CNRS, Univ. Paris-sud, Univ. Paris-Saclay, Marcoussis, France*  
**Ultra-low noise and low temperature readout electronics based on cryoHEMTs made at the C2N: performance and applications**
- ID52 INV** K. Sano *Nagoya University, Furocho, Chikusaku, Nagoya, Japan*  
**Superconducting nano-structured line drivers in Josephson-CMOS hybrid memory**
- ID30** A. Engel *Hightec MC AG, Lenzburg, Switzerland*  
**Superconducting and flexible multilayer high-density interconnect for low temperature electronics**
- ID36** A. Corna *Qutech and Kavli Institute of Nanoscience, Delft Univ of Technology, Delft, the Netherlands*  
**Cryogenic DRAM-based voltage controller for spin-based quantum computation**



### Session TUE 2 *Q-bits with Low Temperature Devices* Chair: Y. Jin

- ID71 INV** E. Il'ichev *Leibniz Institute of Photonic Technology, Jena, Germany*  
**Quantum metamaterials composed of superconducting qubits**
- ID50** D. Nielinger *Central Inst. of Engineering, Electronics and Analytics, Forschungszentrum Jülich GmbH, Germany*  
**SQuBiC1: An integrated control chip for semiconductor qubits**
- ID37** P. Fernandez *Rambus Labs USA*  
**Some Like It Cold: Initial Testing Results for Cryogenic Computing Components**
- ID12** H. Homulle *QuTech, Delft University of Technology, Delft, The Netherlands*  
**QuRO: The first entirely cryogenic interface between silicon spin qubits and a programmable classical system**



## Tuesday 11 afternoon

**POSTER SESSION: List of posters at the end of this document**

**Session TUE 3 Low Temperature Detectors & Readout**  
**Chair: R. Cristiano**

- ID11 INV** A. Giachero *University and INFN of Milano-Bicocca, Dept. of Physics, Milan, Italy*  
**Cryogenics microwave rf-SQUID multiplexing read-out for the calorimetric measurement of the neutrino mass**
- ID40 INV** A. Paiella *Dipartimento di Fisica, Sapienza Università di Roma and INFN Sez. Roma, Italy*  
**Kinetic Inductance Detectors and readout electronics for the OLIMPO experiment**
- ID14** Li He *Dept of Engineering Physics, Tsinghua University, Beijing, China*  
**Comparison of JFET/MOS/HEMT Based Low Noise Charge Sensitive Preamplifiers for HPGe Detectors in Cryogenic Temperature**
- ID55** A. Poon *Nuclear Science Division, Lawrence Berkeley National Laboratory, Berkeley, California, USA*  
**Development of ultra-low-radioactivity front-end electronics for neutrinoless double-beta decay searches with 76Ge detectors**
- ID8** I. Colantoni *Dublin Inst. for Adv. Studies, School of Cosmic Physics/Astronomy and Astrophysics Section, Dublin, Ireland*  
**MKIDS the next generation kilo-pixel camera**
- ID18** S. Di Domizio *Dipartimento di Fisica – Università degli Studi di Genova and INFN, Genova, Italy*  
**CALDER: KID-based cryogenic light detectors for rare event searches**

## CONCERT



Evening @  
San Francesco Cloister

## Wednesday 12 morning

### Session WED 1 *Low Temperature Detectors & Devices*

Chair: A. Giachero

- ID61 **INV** Go Fuji *Nanoelectronics Research Inst., AIST, Tsukuba, Japan*  
**Development of 4096-pixel superconducting-tunnel-junction array X-ray detectors for analytical sciences**
- ID28 **INV** Y. Takeuchi *University of Tsukuba, Japan*  
**Development of FD-SOI cryogenic amplifier for application to STJ readout in COBAND experiment**
- ID51 S. Shitov *National University of Science and Technology MISiS, Moscow, Russia*  
**Analysis of Microwave-Readable RFES Bolometer**
- ID24 C. Pobes Aranda *ICMA Institute of Material Science of Aragon (CSIC-Universidad de Zaragoza), Zaragoza, Spain*  
**Comparison of Ti/Au and Mo/Au TESs characterized under DC**
- ID13 F. Liu *Key Laboratory of Particle & Radiation Imaging, Ministry of Education, Beijing, China*  
**Evaluation of a 100MS/s 10b ADC at Cryogenic Temperature for Low-background Physics Experiments**
- ID32 S. Cibella *Istituto di Fotonica e Nanotecnologie CNR, Roma, Italy*  
**Bolometric detection with an NbN hot electron bolometer coupled to a split ring resonator (SRR)**
- ID69 P. Solinas *CNR-SPIN, Genova, Italy*  
**Proximity SQUID single photon detector via temperature-to-voltage conversion**



### Session WED 2 *Low Temperature Devices for Classical and Quantum Information*

Chair: E. Track

- ID68 **INV** E. DeBenedictis *IEEE Council on Supercond.; IEEE Rebooting Computing; Sandia Nat. Labs, Albuquerque, New Mexico, USA*  
**IEEE Superconducting and Quantum Information Activities**
- ID41 **INV** T. Yamashita *Graduate School of Engineering, Nagoya University, Furocho, Chikusaku, Nagoya, Japan*  
**Development of pi-shift superconducting flux qubits**
- ID53 K. Delfanazari *Engineering Department, University of Cambridge, UK*  
**Spin dependent conductance enhancement and Andreev magnetotransport in 2D Josephson junctions**
- ID26 M. Cirillo *Dipartimento di Fisica and MINAS-Lab, Università di Roma "Tor Vergata", Roma, Italy*  
**Potential Escape Dynamics for Very Underdamped Josephson Junctions**
- ID31 D. Créte *Unité Mixte de Physique, CNRS/THALES, Univ. Paris-Sud, Univ. Paris-Saclay, Palaiseau CEDEX, France*  
**Integration density of ion-damaged barrier Josephson junction and circuits**



## Wednesday 12 afternoon

### Session WED 3 Special on Cryogenic Memories

Chair: O. Mukhanov

- ID62 INV** D. Mihailovic *Jozef Stefan Institute, Dept. of Complex Matter, Ljubljana, Slovenia*  
**Ultrafast switching and the role of non-trivial defects in 1T-TaS<sub>2</sub> CDW memory devices**
- ID49 INV** E. Strambini *NEST Istituto Nanoscienze-CNR and Scuola Normale Superiore, Pisa, Italy*  
**A Superconducting absolute spin valve, towards a new generation of magnetic RAM**
- ID63 INV** R. Caruso *CeSMA – Università degli Studi di Napoli Federico II, Napoli, Italy*  
**Properties of low-dissipation ferromagnetic junctions for memory applications**
- ID59 INV** S. Pagano *Dipartimento di Fisica "E.R. Caianiello", Università di Salerno, Fisciano (SA), Italy*  
**Magnetic Superconductive Nanowire Memories**
- ID67 INV** F. Miletto Granozio *CNR-SPIN Napoli, Italy*  
**Emergent oxide memory devices**

### Session WED 4 2018 Nicholas Kurti Science Award Ceremony

M Cuthbert, *Oxford Instruments NanoScience*  
**Introduction**

P. Moll  
*Max Plank Institute for Chemical Physics of Solids, Dresden, Germany*  
*2018 Winner*  
**Development of novel micro-structuring techniques for quantum materials**

### Session WED 5 EXHIBITORS presentations

**Oxford Instruments**  
**Sthal Electronics**



**Departure to the Social Dinner**

**Social Dinner in Nerano**



## Thursday 13 morning

### Session THU1 *Advanced Devices and Cryotechnologies for Quantum Information & Communication 1* Chair: M. De Rosa

- ID73** **KEY** M. Ter Brake *University of Twente, Faculty Science and Technology, Enschede, The Netherlands*  
**(Micro?)Cooling of Low Temperature Electronics**
- ID38** **KEY** L. You *State Key Lab of Functional Materials for Informatics, SIMIT CAS, Shanghai, China*  
**Superconducting nanowire single photon detectors for quantum information**
- IDX1** F. Cataliotti *European Lab Nonlinear Spect LENS and Univ Florence, Florence, Italy*  
**Quantum Flagship: the Italian perspective**
- IDX2** A. Zavatta *CNR-INO, Florence, Italy*  
**NATO Project on Secure Quantum Communications through submarine optical fibre link between Italy and Malta**
- ID75/78** M. Grassi *Dipartimento di Ingegneria Industriale, Università degli Studi di Napoli Federico II, Napoli, Italy*  
P. Marzioli *Sapienza – University of Rome, Italy*  
**CubeSat-based space platforms: emerging solutions for innovative space missions**
- IDX5** N. Salza *Consorzio ALI, Napoli, Italy*  
**IRENE device for Small Mars Satellite Mission**



### Session THU2 *Advanced Devices and Cryotechnologies for Quantum Information & Communication 2* Chair: L. You

- ID22** A. Jones *Department of Physics, Lancaster University, Lancaster, UK*  
**On-chip Magnetic Cooling of Electrons in Nanoelectronic Devices**
- ID77** N. Fabbri *CNR-INO, Florence, Italy*  
**Spin qubit control, towards integrated quantum devices**
- ID76** O. Mukhanov *HYPRES, Inc., Elmsford, NY, USA*  
**SFQ-assisted Detectors - Integration of Josephson Junctions with Single Photon Detectors.**
- ID34** A. Gaggero *Istituto di Fotonica e Nanotecnologie – CNR, Roma, Italy*  
**Pulse position resolving SNSPD array integrated in photonic circuit**
- ID19** S. Cherednichenko *Chalmers University of Technology, Gothenburg, Sweden*  
**Low kinetic inductance nanowire single photon detectors made of thin MgB2 films**
- ID25** P. Amari *Lab. de Physique et d'Etude des Matériaux, ESPCI Paris, PSL Research Univ, CNRS, Paris, France*  
**High Temperature Superconducting nano-meanders made by ion irradiation**



**Thursday 13 afternoon**

**Session THU 3 Low Temperature Devices and New Physics**

Chair: E. Il'ichev

- ID57 INV** F. Giazotto *NEST Istituto Nanoscienze-CNR and Scuola Normale Superiore, Pisa, Italy*  
**All-metallic supercurrent and Josephson field-effect transistors**
- ID10 INV** D. Perez de Lara *IMDEA-Nanociencia, Madrid, Spain*  
**Tunable optoelectronic properties of transition metal dichalcogenides devices by biaxial strain engineering**
- ID17** M. Thompson *Dept. of Physics, Lancaster University, Lancaster, United Kingdom*  
**Tunable SQUIDs using graphene Josephson junctions**
- ID21** N. Kolotinskiy *Lomonosov Moscow State University, Moscow, Russia*  
**Bi-SQUID designing tradeoff**
- ID65** L. Parlato *Physics Dept, Univ Federico II, Napoli, Italy*  
**Material aspects for Superconducting Nanowire Single-Photon Detectors**
- ID20** F. Ronetti *Univ. di Genova and CNR-SPIN, Genova, Italy*  
**Crystallization of Levitons in the fractional quantum Hall regime**
- ID33** M. Acciai *Dipartimento di Fisica, Università di Genova, Genova, Italy*  
**Probing interactions via non-equilibrium momentum distribution and noise in integer quantum Hall systems**

**Conference Closing Session**

- E. Silva *IEEE Council of Superconductivity, Italy*  
G. Pepe *Conference Co-Chair*

**END**

## Tuesday 11 afternoon

### POSTER SESSION

Chair: R. Caruso

- ID9** Chaolin Lv *State Key Lab of Functional Materials for Informatics, SIMIT, CAS, Shanghai, China*  
**Low temperature passive electronics for optimizing the performance of superconducting nanowire single-photon detector**
- ID39** Z. Kazykenov *Energetic Cosmos Laboratory, Nazarbayev University, Astana, Kazakhstan*  
**Noise studying of Microwave Kinetic Inductance Detectors**
- ID42** M. Bekbalanova *Energetic Cosmos Laboratory, Nazarbayev University, Astana, Kazakhstan*  
**Data Acquisition System for Microwave Kinetic Inductance Detectors**
- ID54** K. Delfanazari *Engineering Department, University of Cambridge, UK*  
**Cavity mode analysis in tunable and coherent superconducting terahertz emitters**
- ID44** M. Shafiee *Energetic Cosmos Laboratory, Nazarbayev University, Astana, Kazakhstan*  
**Design of microwave Kinetic inductance detectors for mm/submm and optical Astronomy**
- ID23** N. Kolotinskiy *Lomonosov Moscow State University, Department of Physics, Moscow, Russia*  
**Bi-SQUID and bi-SQUID array loading issues**
- ID60** A. Vettoliere *CNR-ISASI, Pozzuoli, Italy*  
**An experimental study on the noise performance in SQUID magnetometers**
- ID29** M. Lisitskiy *CNR-SPIN Pozzuoli, Italy*  
**Confocal Annular Josephson Tunnel Junctions as Candidates for Josephson Vortex Qubits**
- ID45** L. Ichkitidze *Nat. Res. Univ. of Electronic Technology, Zelenograd, Moscow, Russian Federation*  
**Combined Magnetic Field Sensor with Nanostructured Elements**
- ID47** L. Ichkitidze *Nat. Res. Univ. of Electronic Technology, Zelenograd, Moscow, Russian Federation*  
**Superconducting Films Magnetic Field Concentrator with Nanosized Cuts**
- ID48** L. Ichkitidze *Nat. Res. Univ. of Electronic Technology, Zelenograd, Moscow, Russian Federation*  
**Possible Registration of Magnetic Particles in Biological objects**
- ID56** L. Ichkitidze *Nat. Res. Univ. of Electronic Technology, Zelenograd, Moscow, Russian Federation*  
**Critical Current in the Film from the Josephson Medium**
- ID27** P. 't Hart *Technical Univ. Delft, Delft, The Netherlands*  
**Cryogenic Mismatch Characterization of Nanometer CMOS**
- ID58** S. J. Melhuish *Jodrell Bank Centre for Astrophysics, Univ. of Manchester, UK*  
**A fast-cycling Ka-band noise measurement system**
- ID70** G. Y. Zhang *Max Planck Institute for Solid State Research, Stuttgart, Germany*  
**Anisotropic thermally activated dissipation in  $(\text{Li}_{1-x}\text{Fe}_x)\text{OHFeSe}$  superconducting single crystal**