Plan 9 September

Nano Innovation 2024 Conference & Exhibition — Rome, 9-13 September

Room 1

Guest Event IV

NATIONAL QUANTUM SCIENCE AND TECHNOLOGY INSTITUTE - SPOKE 5 WORKSHOP

WORKSHOP COMMITTEE
Fabio BELTRAM, NQSTI | Scuola Normale Superiore
Marco FANCIULLI, NQSTI | University of Milano Bicocca
Francesco GIAZOTTO & Lucia SORBA, NQSTI | Istituto NANO-CNR
Marco GRILLI, NQSTI | Sapienza University of Rome
Davide MASSAROTTI, NQSTI | University of Naples

Co-organized with: NEST, Scuola Normale Superiore; NQSTI National Quantum Science and Technology Institute

10:00-10:15	Opening session **Spoke 5 in NQSTI**

TUNABLE EMERGING ELECTRONIC CONFIGURATIONS IN HYBRID/TOPOLOGICAL SYSTEMS

Chair: Lucia SORBA, NEST, Istituto Nanoscienze-CNR & Scuola Normale Superiore

10:15-10:30	Stefan HEUN, *NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore* **Towards superconducting correlations in the quantum Hall regime**
10:30-10:45	Sergio PEZZINI, NEST, *Istituto Nanoscienze-CNR and Scuola Normale Superiore* **Twistronic engineering of two-dimensional quantum states**
10:45-11:00	Francesco TAFURI, *University of Naples "Federico II"* **High critical temperature superconductivity: an old story with a new twist**
11:-11:20	Marco GRILLI, *Sapienza University of Rome* **Majorana fermions in filamentary low dimensional superconductors**

NOVEL NANOMATERIALS FOR HYBRID ARCHITECTURES

Chair: Marco GRILLI, Sapienza University of Rome

11:20-11:35	Lucia SORBA, *NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore* **Novel nanomaterials for hybrid quantum architectures**
11:35-11:50	Roberto GUNNELLA, *University of Camerino* **Borophene Nanosheets vs 2D hybrids**
11:50-12:05	Fabrizio DOLCINI, *Polytechnic University of Turin* **Topological Materials for Andreev spin qubits**
12:05-12:25	Marco GIBERTINI, *Università di Modena and Reggio Emilia* **Emergent controllable topological states in van der Waals heterostructures**

QUANTUM ENERGY MANAGEMENT

Chair: Francesco GIAZOTTO, NEST, Istituto Nanoscienze-CNR & Scuola Normale Superiore

12:25-12:40	Vittorio GIOVANNETTI, *NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore* **Quantum work extraction efficiency for noisy quantum batteries**
12:40-13:00	Camilla COLETTI, *CNI@NEST	Istituto Italiano di Tecnologia* **Scalable graphene for quantum energy management**

10:00 16:30

13:00 - 14:00 light lunch

PHASE-SENSITIVE ARCHITECTURES

Chair: Vittorio GIOVANNETTI, NEST, Istituto Nanoscienze-CNR & Scuola Normale Superiore

14:00 - 14:20	Francesco GIAZOTTO, NEST, *Istituto Nanoscienze-CNR and Scuola Normale Superiore* **Phase-coherent superconducting quantum devices for sensing and non-reciprocal electronics**

QUANTUM INTERFACING, CONTROL AND READOUT

Chair: Marco FANCIULLI, University of Milano Bicocca

14:20 - 14:40	Davide MASSAROTTI, *University of Naples "Federico II"* **Unconventional Josephson junctions and circuits for superconducting quantum hardware**
14:40 - 14:55	Martina ESPOSITO, *CNR SPIN Naples*
14:55 - 15:10	Carmine ATTANASIO, *University of Salerno*

TAILORED DEFECTS AND MOLECULES FOR QT

Chair: Davide MASSAROTTI, University of Naples "Federico II"

15:10 - 15:25	Marco FANCIULLI, University of Milano Bicocca Arrays of donors in silicon for quantum technologies
15:25 - 15:40	Stefano CARRETTA, University of Parma Quantum Simulator Based on Molecular Spin Qudits
15:40 - 15:55	Lorenzo SORACE, University of Firenze Oligomeric Porphyrin complexes as candidates for quantum logic gates implementation
15:55 - 16:10	Marco AFFRONTE, Università di Modena and Reggio Emilia Hybrid spin-superconductors for QT
16:10 -16:30	Enrico SALVADORI & Mario CHIESA, University of Turin Electron spin coherence in molecular and solid-state systems

Closing session

WINNERS of the NEST PRIZES 2022, 2023 & Announcement of the NEST PRIZE 2024

Chair: Pasqualantonio PINGUE, Scuola Normale Superiore