



Università degli Studi di Napoli
"Federico II"



Università di Camerino



Consiglio Nazionale
delle Ricerche

Dottorato internazionalizzato in Quantum Technologies

International PhD program in Quantum Technologies

PhD Summer School in Quantum Technologies

September 13 – 17, 2021

Google meet link to attend the school

<http://meet.google.com/oxk-ftgx-kdi>

Links for the virtual coffee breaks:

<http://meet.google.com/jgj-fshs-mob>

For any other info:

dr.ssa Flavia Lupi, CNR – Istituto Nazionale di Ottica, sezione di Firenze: lupi@lens.unifi.it

Program

Monday, Sept 13th

9:00 – 9.15 AM Opening (chairman: David Vitali)

9.15– 10:50 AM **PhD Students Session: 15 minutes each** (chairman: David Vitali)

- **Beatrice Donelli** - Self-induced Josephson oscillations in a supersolid dipolar quantum gas
- **Jessica Illiano** - The Impact of the Quantum Data Plane Overhead on the Throughput

- **Roberto Capecelatro** - Ferromagnetic Josephson junctions for unconventional superconducting quantum circuits
- **Seid Koudia** - Activation of quantum correlations by the assistance of indefinite causal order of local unitaries
- **Daniele Cuomo** - Witnessing the communication advantage of the Superposition of Causal Orders
- **Francesco Reda** - Flat dielectric optics for wavefront modulation: from classical to quantum states

10:50 – 11:00 AM - *Virtual coffee break*

11:00 AM - 01:00 PM (*Soft skills*) **Open science I - Come funziona la comunicazione scientifica (se funziona): l'alternativa Open**

To follow the workshop [click here!](#)

01:00 – 2:30 PM *Lunch break*

3:00 - 3:50 PM **PhD Student Sessions: 15 minutes each**

- **Emanuele Costa** - Density Functional Theory and Deep Learning
- **Davide Rattacaso** - From ground states to local parent Hamiltonians
- **Vincenzo Parisi** - Towards a p-adic qubit

3:50 – 4:00 PM *Virtual coffee break*

4:00 – 5:00 PM (chairman: Sebastiano Pilati)

Antonio Acín - The device-independent scenario: a quantum information theory with black boxes

Tuesday, Sept 14th

10:00 – 11:40 AM (chairman: Stefano Mancini)

Sougato Bose - Probing quantum mechanics in the macro-domain with applications in sensing quantum and classical gravity

11:40 – 12:00 AM *Virtual coffee break*

12:00 AM – 01:00 PM **PhD Students Session**

- **Ghulam Murtaza** - Indistinguishable Photons from a Single Molecule under Pulsed Excitation
- **Masoud Gharahighahi** - Algebraic-Geometric Characterization of Tripartite Entanglement
- **Maria D'Antuono** - Quantum Technologies with 2D-oxides (*25 minutes*)

01:00 – 03:00 PM *Lunch break*

3:00 – 4:10 PM (chairman: David Vitali)

Marco Lucamarini - Measurement device independent quantum key distribution (QKD)

4:10 – 4:30 PM *Virtual coffee break*

4:30 – 5:30 PM (chairman: Sebastiano Pilati)

Antonio Acín - The device-independent scenario: a quantum information theory with black boxes

Wednesday, Sept 15th

10:00 – 11:40 AM (chairman: Francesco Tafuri)

Eli Zeldov - Nanoscale magnetic and thermal imaging: Glimpse into dissipation in quantum systems down to atomic scale

11:40 – 12:00 AM *Virtual coffee break*

12:00 AM – 01:00 PM (*Soft skills*) Open science II - Open access

To follow the recorded workshop [click here](#) (duration: 02:03:58)!

01:00 – 2:20 PM *Lunch break*

2:20 – 4:20 PM (*Soft skills*) Open science II - Prospettiva europea: Horizon Europe

To follow the workshop [click here](#) (duration: 56:23)!

4:20 – 4:30 PM *Virtual coffee break*

4:30 – 6:10 PM (chairman: Francesco Tafuri)

Maxim G Vavilov - Two qubit gates for fluxoniums

Thursday, Sept 16th

10:00 – 11:40 AM (chairman: Angela Sara Cacciapuoti)

Giulio Chiribella - Quantum superpositions of causal orders: the quantum SWITCH

11:40 – 12:00 AM *Virtual coffee break*

12:00 AM – 01:00 PM **PhD Students Session**

- **Verdiana Piselli** - Transient phenomena in a superfluid Fermi gas
- **Giuseppe Scriva** - Accelerating Monte Carlo Simulations via Quantum Annealers
- **Martina Minutillo** - Spin-polarized supercurrents in SFS Josephson junctions
- **Theertagiri Lakshmanan** - Evaluation of two mode squeezed states under linear stochastic dynamics

01:00 – 03:00 PM *Lunch break*

3:00 – 4:15 PM **PhD Students Session**

- **Elham Faraji** - Transition between Random and Periodic Electron Currents along DNA fragments through light pumping
- **Luigi di Palma** - Tunable superconducting device for digital phase detection
- **Marco Malitesta** - Distributed Quantum Sensing with Squeezed-Vacuum Light in a Configurable Network of Mach-Zehnder Interferometers
- **Ramin Emadi** - Single Molecules in Integrated Optical Cavities and Waveguides
- **Domenico Ribezzo** - Toward a European quantum network

4:15 – 4:30 PM *Virtual coffee break*

4:30 – 6:10 PM (chairman: Stefano Mancini)

Simone Severini - Quantum Computing at Amazon Web Services

Friday, Sept 17th

10:00 – 11:35 AM (chairman: Stefano Mancini)

Giovanna Morigi - Quantum many body systems and entanglement

11:35 – 11:45 AM *Virtual coffee break*

11:45 – 12:30 **PhD Students Session**

- **Raffaella Ferraiuolo** - Tunable Resonator as a readout circuit
- **Roberta Satariano** - Fabrication and characterization of magnetic Josephson Junction for quantum circuits
- **Jacopo Angeletti** - Dissipative engineering of multipartite entangled states in arrays

12:30 AM **Closing Remarks** (chairman: David Vitali)