

Shaping the future of optics together

CNR-INO Annual Symposium
28-29 November 2024

10:00–12:30 “Dentro l’Universo dei Quanti” – Storie fotoniche live

12:45 – 14:15 *Light Lunch*

14:15–16:00 ORAL SESSION 1: CNR-INO Research Unit

Session Chairperson: Francesco Saverio Cataliotti

14:15–14:30 **Francesco Saverio Cataliotti**, *Opening Remarks*

14:30–14:45 **Iacopo Carusotto**, Research Unit Trento

15:45–15:00 **Alessandro Farini**, Research Unit Firenze

15:00–15:15 **Giacomo Roati**, Research Unit Sesto Fiorentino

15:15–15:30 **Leonida Antonio Gizzi**, Research Unit Pisa

15:30–15:45 **Gianluca Gagliardi**, Research Unit Napoli

15:45–16:00 **Camilla Baratto, Andrea Ponzoni, Alessandro Zavatta**, Research Unit Brescia/Lecco/Trieste

16:00–16:30 *Coffee Break and Institutional photo!*

16:30–18:30 ORAL SESSION 2

Session Chairperson: Maria Parisi

16:30–16:45 Talk with administrative team

16:45–17:00 Talk with IT services team

17:00–17:15 **Antonina Chaban**, *New Frontiers in Wall Painting Diagnostics with Non-Invasive Techniques*

17:15–17:30 **Giacomo Lamporesi**, *False vacuum decay in a quantum spin mixture*

17:30–17:45 **Caterina Dallari**, *SERS-based sensors for early-stage disease diagnosi*

17:45–18:00 **Rashmi Rekha Sahoo**, *Multiple cascaded stimulated Brillouin scattering in a fiber-optic ring resonator*

18:00–18:15 **Luca Labate**, *Development of direct diode pumped amplifiers for high rep rate, high average power, ultrashort and ultraintense lasers*

18:15–18:30 **Nicolo Defenu**, *Quantum thermodynamics of long-range interactions*

18:30–20:00 POSTER SESSION 1

20:00 *Social dinner*

ORAL SESSION 3

Session Chairperson: Riccardo Cicchi

- 9:00–9:15 Talk with Projects Office
9:15–9:30 Talk with the Technology Transfer team
9:30–9:45 **Simona Mosca**, *Light Manipulation for Future Quantum Applications*
9:45–10:00 **Claudio Belotti**, *FORUM a new satellite to understand how Earth is losing its cool*
10:00–10:15 **Giacomo Rastelli**, *Circuit Quantum Electrodynamics with Semiconductor Quantum Dots*
10:15–10:30 **Lorenzo Pandolfi**, *Sensing plant pathogens via in-field Raman spectroscopy for precision agriculture*
10:30–10:45 **Irene Lunghi, Emma Vannini**, *Women studying women: non-invasive and non-contact optical analysis on the painting Allegory of Inclination by Artemisia Gentileschi*
10:45–11:00 **Luca Pezzè**, *Advantages of entangled in distributed quantum sensing*

11:00–11:30 Coffee Break

11:30–13:00 POSTER SESSION 2

13:00–14:15 Lunch

14:15–16:30 ORAL SESSION 4

Session Chairperson: Alessia Burchianti

- 14:15–14:30 Talk with Outreach team
14:30–14:45 Talk with Open Science team
14:45–15:00 **Martina Salvadori**, *Laser-driven Very High Energy Electrons (VHEE) for radiobiological applications at the Intense Laser Irradiation Laboratory*
15:00–15:15 **Francesco D'Amato**, *Applied spectroscopy: a tool for (molecular) detection*
15:15–15:30 **Alessio Ciamei**, *Ultracold LiCr and the quest for quantum gases of doubly-polar molecules*
15:30–15:45 **Krishna Nand Trivedi**, *Spatially resolved temperature measurements on ultra-cold atoms using Rydberg Doppler broadening spectroscopy*
15:45–16:00 **Santiago Hernandez Gomez**, *Spin defects in diamond for quantum technologies*
16:00–16:15 **Dafne Suraci**, *Delineation of gastrointestinal tumors biopsies via autofluorescence lifetime imaging*
16:15–16:30 **Francesco Saverio Cataliotti**, *Closing remarks*

Poster Session I

28 November

1. **Alessandra Rocco et al.**, New activities in Naples in the field of Cultural Heritage Diagnostic field
2. **Alessandro Farini et al.**, Hybrid images as an instrument for evaluation of visual acuity
3. **Alessia Sorgi et al.**, Development of a Cryogen-Free THz Wireless Communication Link based on Quantum Cascade Laser Technology
4. **Antonio Giorgini et al.**, Optical fiber based hydrophones within the SEAmPhonia project
5. **Antonio Pontin et al.**, Levitated quantum optomechanics
6. **Carlo Gabbanini et al.**, Optical repulsive potential for Dy BEC and supersolid in the blue region
7. **Carlo Marconi et al.**, Entanglement manipulation through multicore fibres
8. **Carlo Pennacchio et al.**, The detection of the volatile phase emitted by TSWV virus infected tomatoes plants by means of a portable electronic nose
9. **Caterina Credi et al.**, Gold-based plasmonic nanocomposites for 3D laser-structuring of biocompatible scaffolds with built-in SERS-sensors
10. **Chiara Mazzinghi et al.**, Differential Mach-Zehnder interferometry with trapped Bose Einstein condensates
11. **David Jafrancesco et al.**, UV-LED system for in-vitro fluorescence analysis in a portable biomedical device
12. **Silvia Innocenti et al.**, Optical techniques and Software development for Non-Invasive Artwork Analysis
13. **Elisa Sani et al.**, Ceramics from regoliths for in-situ resource utilization
14. **Elisabetta Tognoni et al.**, Fine tuning of nanoparticles dynamics for sensing and delivery
15. **Emilia Conti et al.**, A novel all-optical stroke model of middle cerebral artery occlusion and recanalization in mice
16. **Emma Hume et al.**, Perspectives of laser fusion after NIF Ignition: direct drive and LPI
17. **Ferdinando D'Apice et al.**, Noise Reduction and Performance Characterization of a High-Sensitivity Fiber-Optic Sagnac Gyroscope
18. **Francesco Resta et al.**, Brain state modulation of cortical network
19. **Franco Dinelli et al.**, Characterization of magnetic nanoparticles in polymeric matrices
20. **Giacomo Mazzamuto et al.**, Mapping neuronal populations with Light-Sheet Fluorescence Microscopy
21. **Gianluca Di Natale et al.**, Atmospheric science at CNR-INO
22. **Chiara Menotti**, QUANTO: a shedding game based on qubits and gates

Poster Session II

29 November

1. **Jacopo Catani et al.**, Fluorescent Optical Antennas based on LSC for Hybrid Visible Light Communication (VLC) and Energy Harvesting
2. **Jacopo Pelini et al.**, Performance investigation of cavity-enhanced photo-acoustic sensors
3. **Krishna Nand Trivedi et al.**, Local temperature measurement inside a magneto optical trap using doppler thermometry
4. **Lapo Turrini et al.**, Non-linear all-optical dissection of functional and effective connectivity in the larval zebrafish brain
5. **Luca Cavicchioli et al.**, Dynamical formation of multiple quantum droplets in a Bose-Bose mixture
6. **Luca Varricchio et al.**, A new application of Saturated-absorption Cavity Ring-down (SCAR) laser spectroscopy to evaluate the inhibition of the G6PD enzyme by ¹⁴C-radiolabeling
7. **Rizwan Zahoor et al.**, An Investigation of Rayleigh Backscattering: Utilizing Coherent Laser Sources for Enhanced IFOG Performance
8. **Maja Colautti et al.**, Enhanced control of organic molecules for quantum technologies
9. **Marcia Frometa Fernandez et al.**, Shapiro steps in strongly-interacting Fermi gases
10. **Martino Calamai**, Single molecule imaging to track cellular proteins and follow drug release from nanoparticles
11. **Maximilian Schemmer et al.**, Topological photon pumping in quantum optical systems
12. **Natalia Bruno et al.**, Entangled photon pairs for quantum networks
13. **Pietro Lombardi et al.**, A new dipolar quantum gas machine
14. **Roberto Aiello et al.**, A second-generation buffer-gas-cooling (BGC) molecular machine for spectroscopic tests of fundamental physics
15. **Salvatore Castrignano et al.**, Quantum Correlated Twin Beams in Cascaded Quadratic Processes
16. **Sareh Golkar et al.**, Compact optical nonlinear cavities in Einstein Telescope and for Communication Links
17. **Simona Piccinini et al.**, Laser-plasma acceleration of very high energy electron (VHEE) beams: using ultra high dose rate pulses for in vitro radiobiology studies
18. **Tecla Gabbrielli et al.**, Intensity noise properties of mid-infrared cascade lasers: between classical and quantum operation regime
19. **Valentina Di Sarno et al.**, THz Time-Domain transmission and reflection imaging for art material analysis
20. **Verónica Vicuña-Hernández et al.**, Towards the Optomechanical Strong OAM coupling in cavities
21. **Zeeshan Rashid et al.**, Large Activation Yields For Nitrogen-Vacancy and Silicon-Vacancy Diamond Color Centers by Proton Irradiation
22. **Aman Gangwar**, Characterization of a Molecular Beam from a Buffer Gas Cell Using Metastable CO

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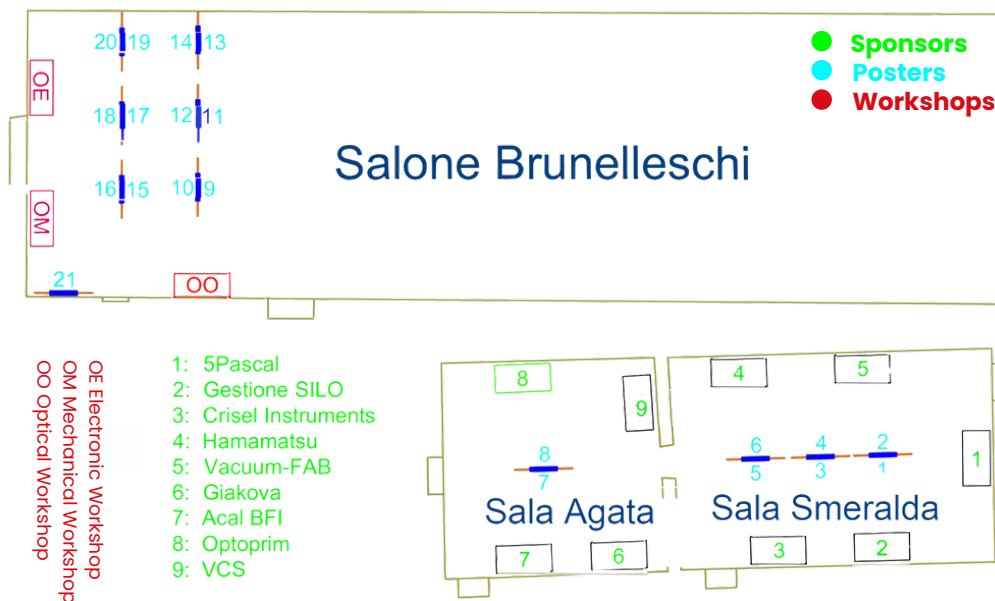
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Map of the event



Sala S. Giovanni – Projects Office and Administrative team meetings

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