

19.05.23

# PhD Day Physics

## Program

- 14.30 **Introduction**
- 14.45 **Andrea Ranfagni**  
*Cavity optomechanics with a levitated nanosphere: Quantum signatures in hybrid light-mechanical states*
- 15.00 **Andrea Guiggiani**  
*Phase transitions in the early universe*
- 15.15 **Francesco Cantini**  
*Ancient Egypt bronze coffins investigation by Neutron Imaging*
- 15.30 **Giulia Tozzi**  
*Small but mighty: supermassive black holes and their role in the evolution of galaxies over cosmic times*
- 15.45 **Giulio Biagioni**  
*The supersolid phase of matter with ultracold atoms*
- 16.00 **Lorenzo Chicchi**  
*Network theory and Machine learning*
- 16.15 **Rocco Duquennoy**  
*Quantum interference with single molecules: steps towards a competitive single-photon source*
- 16.30 **Pietro Betti**  
*The HERD experiment: a new frontier in cosmic rays direct detection*
- 16.45 **Poster Session (& beer break)**
- 18.00 **Scholarsheeps Awards**

## Poster Session Map

- Aula Magna** Nuclear & Subnuclear / Complex Systems
- Aula 35** Condensed Matter / Quantum Science & Technology / Biophysics
- Aula 38** Theoretical Physics
- Corridors** Astrophysics

#	Name	Field / Subfield		Ttitle
1	Stefano Finelli	Condensed Matter	Ultracold Gases	Double-degenerate Fermi mixtures of 6Li and 53Cr atoms
2	Martina Rossi	Astrophysics	Cosmology	Unveiling the first stars properties through ultra-faint dwarf galaxies
3	Pietro Betti	Nuclear & Subnuclear Physics	Cosmic Rays	Photodiode read-out system for the calorimeter of the HERD experiment
4	Ernesto Pini	Matter Physics	Ultrafast Spectroscopy & Disordered Materials	Observation of non self-similarity light transport
5	Irene Vanni	Astrophysics	Cosmology	The chemical imprint of the first stars
6	Federico Castellani	Theoretical Physics	High Energy Physics	Nucleon Spin Structure in Holographic QCD
7	Giulio Biagioni	Condensed Matter	Ultracold Gases	The supersolid phase of matter with ultracold atoms
8	Cosimo Fratticioli	Applied Physics	Atmospheric Physics	Near-real-time measurement of the elemental composition of atmospheric aerosol by X-Ray Fluorescence spectrometry: an useful tool in air pollution research
9	Alessia Valzelli	Complex Systems	Quantum Biology	The role of symmetry in the photosynthetic antenna complex of green sulphur bacteria: efficiency under natural sunlight pumping
10	Mehran Khosrojerdi	Condensed Matter	Solid State Physics	Tuning of quantum entanglement in a superconductor with transition-metal and rare-earth impurities: Effect of potential scattering on quantum phase transitions
11	Jacopo	Matter Physics	Laser Physics	Intensity Noise in Mid-IR Sources and application
12	Edoardo Bellone de Grecis	Astrophysics	Adaptive Optics	Adaptive Optics for wide field telescopes
13	Andrea Santoni	Condensed Matter	Ultracold Gases	Mach-Zender Interferometry with atomic Bose Einstein condensates in beat-note superlattices
14	Andrea Fantini	Quantum Science & Technology	Ultracold Gases	Programmable Quantum Simulator with individual Strontium Rydberg atoms
15	Usman Ali Shah	Condensed Matter	Semiconductos	Hybrid Halid perovskites for indoor and outdoor photovoltaic energy harvesting
16	Cosimo Marconcini	Astrophysics	AGN	MOKA-3D: An innovative approach to 3D AGN outflow kinematic modelling
17	Alessia Mazzucato	Biophysics	Microscopy	A Miniaturized head-mounted Microscope to monitor Mesoscale Cortical Activityin freely-moving mice
18	Andrea Olzi	Theoretical Physics	High Energy Physics	Holography and its application to QCD and Dark Matter
19	Irene La Penna	Quantum Science & Technology	Laser Physics	Characterization of mid-infrared coherent sources toward quantum applications
20	Andrea Ranfagni	Quantum Science & Technology	Optomechanics	Cavity optomechanics with a levitated nanosphere: Quantum signatures in Hybrid light-mechanical states
21	Chiara Caldini	Biophysics	Microscopy	Studying molecular compartmentalization in bacteria through single-molecule colocalization
22	Gabriele Gatta	Condensed Matter	Ultracold Gases	A quantum gas coupled to an ultracold ion crystal: a new hardware for quantum simulation
23	Lorenzo Giambagli	Complex Systems	Machine Learning Theory	Spectral Regularization in Neural Networks
24	Martina Scialpi	Astrophysics	AGN	The quest for Dual and Lensed AGNs: The first sample of confirmed sub-arcsec systems

25	Lorenzo Ulivi	Astrophysics	AGN	Feedback and Outflows in Jetted AGNs
26	Nicoletta Granchi	Condensed Matter	Photonics	Photonic Crystals and Scanning Near-field Optical Microscopy
27	Alkis Papanastassiou	Nuclear & Subnuclear Physics	Applied Machine Learning	AutoEncoders per il Data Quality Monitoring per-lumisection dell'esperimento CMS
28	Benedetta Camaiani	Nuclear & Subnuclear Physics	Data Analysis	Model independent measurements of standard model cross sections with domain adaptation
29	Ludovica Donati	Condensed Matter	Ultracold Gases	u-BEC activities in Lab66
30	Annamaria	Theoretical Physics	High Energy Physics	Entanglement entropy in double holography
31	Stefania Caggioli	Theoretical Physics	High Energy Physics	Bit Threads
32	Daniele Roselli	Theoretical Physics	Quantum Field Theory	Quantum field corrections to the equation of state of cosmological matter
33	Andrea Guiggiani	Theoretical Physics	Cosmology	Phase transitions in the early universe
34	Muhammad Ali Umair	Optical Wireless and Visible Light Communications	Optical Wireless Communications	Optical Wireless Communications: building next-generation networks through light
35	Giulia Tozzi	Astrophysics	Extragalactic Astrophysics	The changing-look active nucleus of NGC4156: a serendipitous discovery by UNIFI students
36	Giulia Tozzi	Astrophysics	Extragalactic Astrophysics	Outflowing active galactic nuclei and where to find them
37	Alice Mori	Astrophysics	Cosmology	Searching for the building blocks of our Galaxy: clues from N-body models
38	Andrew Alberini	Astrophysics	Astrobiology & Planetary Science	Characterization and UV irradiation experiments to support detection of organics on Mars by the NASA Mars 2020 and ESA ExoMars rovers
39	Michele Baia	Complex Systems	Atmospheric Physics	Super resolution of atmospheric models with neural network
40	Andrea Maroncelli	Theoretical Physics	Statistical Physics	Limit shapes and arctic curves
41	Stefano Ciabattini	Astrophysics	Cosmology	The First Habitable Galaxies
42	Ettore	Theoretical Physics	Quantum Machine Learning	Machine-learning based noise characterization and correction on Pasqal devices
43	Andrea paccagnella	Nuclear & Subnuclear Physics	Muon Radiography	Muon radiography at tailings dams using machine learning algorithms
44	Gianmarco Masini	Condensed Matter	Ultracold Gases	Quantum Simulation with strongly interacting Yb lattice fermions: from universal Hall response to Hall voltage measurement