

PERSONAL INFORMATION Jacopo Fiore

POSTDOC EXPERIENCE	
November 2024 – present	Physics Department, Sapienza University of Rome, scientific advisor Prof. Lara Benfatto
PH.D. EXPERIENCE	
November 2021 – January 2025	Ph.D. in Physics
	Physics Department, Sapienza University of Rome
	Thesis project: "Multidimensional nonlinear THz spectroscopies in superconductors", supervisor Prof. Lara Benfatto, defended on January 24, 2025.
February 2022 - October 2024	Allievo Ph.D. at Sapienza School for Advanced Studies (SSAS)
Invited talks	 "More is differently different: the multiphaseted nature of condensed matter", Ph.D. students' seminars, Physics Department, Sapienza University of Rome, 2023 "THz spectroscopy on MgB₂: a case study for disordered systems", Lebedev Institute of Moscow (online), 2022 "Contribution of Superconducting Fluctuations to Third Harmonic Generation in MgB₂", students' talk, School on Exotic Superconductivity of Cargèse, 2022
Contributed talks	 "Fingerprints of amplitude and phase superconducting collective modes in THz two- dimensional coherent spectroscopy", "SuperFOx" conference, L'Aquila, 2025 "Fingerprints of amplitude and phase superconducting collective modes in THz two- dimensional coherent spectroscopy", "Photoinduced Phase Transitions and Cooperative Phenomena (PIPT)" conference, Nijmegen, 2024 "Thz driven two-plasmon excitations in superconducting cuprates: from the single-layer to the bilayer case", "New Generation in Strongly Correlated Electron Systems (NGSCES)" conference, Lido di Fermo, 2023 "Thz driven two-plasmon excitations in superconducting cuprates: from the single-layer to the bilayer case", "CMD30-FisMat" conference, Milano, 2023
Posters	My poster "Manipulating Two-Plasmon Excitations in Superconducting Cuprates: from the Sin- gle to the Bilayer Case" has been presented in the following conferences:
	 " Ultrafast Phenomena in Cooperative Systems GRC", Barga, 2024 " Electrons, Photons and Plasmons", Nyon, 2024 My poster "Contribution of Collective Excitations to Third Harmonic Generation in Superconducting MgB₂" has been presented in the following conferences/summer schools: "Low-Energy Electrodynamics in Solids", Sankt Pölten, 2023 "Condensed Matter Theory at Brixen (CMT@Brixen)", Bressanone, 2023 "Strongly Correlated Matter: from Quantum Criticality to Flat Bands", International Centre for
	 Theoretical Physics (ICTP), Trieste, 2022 "Exosup2022: School on Exotic Superconductivity", Institut d'Ètudes Scientifiques de Cargèse (IESC), Cargèse, 2022 "From optical to THz control of materials Faraday Discussion", Royal Society of Chemistry, London (online), 2022
Schools	I have been admitted and participated to the following schools:
	 Winter School "New Frontiers in Quantum Materials in Equilibrium and Beyond", Saas-Fee, winter 2025 Autumn School on Correlated Electrons, Juelich, autumn 2024
	 Summer School on Exotic Superconductivity, Cargèse, summer 2022
Referee experience	National Science Review, Physical Review X

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Tutoring experience	 "Meccanica" for the Bachelor's Degree in Physics, Sapienza University of Rome, academic year 2023/24 "Fisica" for the Bachelor's Degree in Biotecnologie Agro-Industriali, Sapienza University of Rome, academic year 2022/23 					
Scientific visits	 September 2023: Kavli Institute for Theoretical Physics (Santa Barbara, USA), program "Quantum Materials With and Without Quasiparticles" 					
EDUCATION						
October 2019 - July 2021	Master's Degree in Physics Physics Department, Sapienza University of Rome Thesis title: "Study of nonlinear THz response in multiband superconductors", supervisor Prof. Lara Benfatto					
November 2019 - November 2021 September 2020	Master's student at Sapienza School for Advanced Studies (SSAS) Annual SSAS research project: "Role of electron-phonon interaction in graphene photoemis- sion spectra: a many-body approach", supervisor prof. Lara Benfatto					
October 2016 - July 2019	Bachelor's Degree in Physics Physics Department, University of Trieste Thesis title: "Studio delle funzioni di risposta lineare di un metallo attraverso il metodo vari- azionale di Gutzwiller", supervisors Prof. Michele Fabrizio and Prof. Fulvio Parmigiani					
October 2016 - July 2019 September 2018 - October 2018	Grade: 110/110 cum laude Bachelor's student at Collegio Universitario "Luciano Fonda" Traineeship at the synchrotron facility Elettra in Trieste, supervisor Prof. Fulvio Parmigiani					
September 2011 - July 2016	High school diploma Liceo Scientifico "Filippo Masci" Chieti Grade: 100/100 cum laude					
September 2015 September 2014	Summer schools in Physics at University of Udine and University of Trieste Summer school in Physics at Gran Sasso National Laboratory					
FUNDING, PRIZES AND AWARDS						
2024-2025	Sapienza ateneo project "avvio alla ricerca" (€2000), title: "Investigating Collective Excitations in Quantum Materials with 2D THz spectroscopies"					
2023	Ermenegildo Zegna Founder's Scholarship (€4000) for participation to KITP Program "Quan- tum Materials With and Without Quasiparticles"					
2023 2019	Best poster prize at the conference LEES 2023 Sapienza scholarship "Wanted the Best"					
	Capienza com					
PERSONAL SKILLS						
Mother tongue	Italian					
Other languages	UNDERS	TANDING	SPEA	KING	WRITING	
	Listening	Reading	Spoken interaction	Spoken production		
English	C1	C2	C1	C1	B2	
	International English Language Testing System (IELTS)					
	Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user Common European Framework of Reference for Languages					



Computer skills

- s LATEX, Python and FORTRAN programming languages
 - Microsoft Office suite
 Adobe Photoshop
 - Adobe Photoshop

PUBLICATIONS

- [1] Niccolò Sellati, Jacopo Fiore, Stefano Paolo Villani, Lara Benfatto, and Mattia Udina. *Phonon-Polaritons in Non-Centrosymmetric Systems: Theory of Terahertz Pump-Optical Probe Spectroscopy*. URL: https://arxiv.org/abs/2411.10160.
- [2] Jacopo Fiore, Niccolò Sellati, Francesco Gabriele, Claudio Castellani, Goetz Seibold, Mattia Udina, and Lara Benfatto. "Investigating Josephson plasmons in layered cuprates via nonlinear terahertz spectroscopy". In: *Phys. Rev. B* 110 (6 Aug. 2024), p. L060504. URL: https://link.aps.org/doi/10.1103/PhysRevB.110.L060504.
- Kota Katsumi, Jacopo Fiore, Mattia Udina, Ralph Romero, David Barbalas, John Jesudasan, Pratap Raychaudhuri, Goetz Seibold, Lara Benfatto, and N. P. Armitage. "Revealing Novel Aspects of Light-Matter Coupling by Terahertz Two-Dimensional Coherent Spectroscopy: The Case of the Amplitude Mode in Superconductors". In: *Phys. Rev. Lett.* 132 (25 June 2024), p. 256903. URL: https://link.aps.org/doi/10. 1103/PhysRevLett.132.256903.
- [4] Niccolò Sellati, Jacopo Fiore, Claudio Castellani, and Lara Benfatto. "Optical Absorption in Tilted Geometries as an Indirect Measurement of Longitudinal Plasma Waves in Layered Cuprates". In: Nanomaterials 14.12 (2024). URL: https://www.mdpi.com/2079-4991/14/12/1021.
- [5] Jacopo Fiore, Mattia Udina, Marco Marciani, Goetz Seibold, and Lara Benfatto. "Contribution of collective excitations to third harmonic generation in two-band superconductors: The case of MgB₂". In: *Phys. Rev. B* 106 (9 Sept. 2022), p. 094515. URL: https://link.aps.org/doi/10.1103/PhysRevB.106.094515.
- [6] Mattia Udina, Jacopo Fiore, Tommaso Cea, Claudio Castellani, Goetz Seibold, and Lara Benfatto. "THz non-linear optical response in cuprates: predominance of the BCS response over the Higgs mode". In: *Faraday Discuss.* 237 (0 2022), pp. 168–185. URL: https://pubs.rsc.org/en/content/articlelanding/2022/FD/D2FD00016D.