

PERSONAL INFORMATION

Niccolò Sellati

PH.D. EXPERIENCE

November 2022 – Present

Ph.D. student in Physics

Physics Department, Sapienza University of Rome

Thesis project: "Optical response of hybrid light-matter modes", supervisor Prof. Lara Benfatto

Invited talks – "Collective modes of superconductors", Ph.D. students' seminars, Physics Department, Sapienza University of Rome (Italy), 2024

Contributed talks – "Signatures of Josephson plasmons in density-density response of bilayer superconductors", "Electrons, Photons and Plasmons (EPP2024)" conference, Nyon (Switzerland), 2024
– "Generalized Josephson plasmons in bilayer superconductors", "CMD30-FisMat" conference, Milan (Italy), 2023

Posters – "Signatures of Josephson plasmons in density-density response of bilayer superconductors", Winter School "New Frontiers in Quantum Materials in Equilibrium and Beyond", Saas-Fee (Switzerland), 2025
– "Collective excitations of superconductors", "Opening the Young Research" Ph.D. Students' poster session, Physics Department, Sapienza University of Rome (Italy), 2024
– "Signatures of Josephson plasmons in density-density response of bilayer superconductors", Autumn School on Correlated Electrons (Correl24), Juelich (Germany), 2024
– "Terahertz driving of phonon-polaritons in non-centrosymmetric systems: a unified theoretical description", Gordon Research Conference "Ultrafast Phenomena in Cooperative Systems", Barga (Italy), 2024
– "Generalized Josephson plasmons in bilayer superconductors", "Low-Energy Electrodynamics in Solids (LEES2023)" conference, Sankt Pölten (Austria), 2023

Schools I have been admitted and participated to the following schools:
– Winter School "New Frontiers in Quantum Materials in Equilibrium and Beyond", Saas-Fee (Switzerland), winter 2025
– Autumn School on Correlated Electrons, Juelich (Germany), autumn 2024

Referee experience Physical Review X, Physical Review B, npj Quantum Materials

Tutoring experience – "Laboratorio di Segnali e Sistemi" for the Bachelor's Degree in Physics, Sapienza University of Rome, academic year 2024/25

EDUCATION

September 2020 - September 2022

Master's Degree in Physics

Physics Department, Sapienza University of Rome

Thesis title: "Properties of plasma modes in bilayer superconductors", supervisor Prof. Lara Benfatto

Grade: 110/110 cum laude

Successfully completed the excellence program

September 2017 - September 2020

Bachelor's Degree in Physics

Physics Department, Sapienza University of Rome

Thesis title: "Conduzione ed effetti termoelettrici nei metalli attraverso il modello semiclassico della dinamica degli elettroni di Bloch", supervisor Prof. Sergio Caprara

Grade: 110/110 cum laude

September 2012 - July 2017 **High school diploma**

Liceo Scientifico "Morgagni" Roma

Grade: 100/100

March 2017 Physics Masterclass 2017 at Università degli Studi Roma Tre

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](https://eur-lex.europa.eu/legal-content/it/TXT/?uri=CELEX%3A31998%2F04%2F0001)

Computer skills – $\text{\LaTeX}$, C, Python and Wolfram Mathematica programming languages
– Microsoft Office suite
– Adobe Photoshop

PUBLICATIONS

- [1] Niccolò Sellati and Lara Benfatto. *Ghost Josephson plasmon in bilayer superconductors*. 2024. arXiv: 2412.14927 [cond-mat.supr-con]. URL: <https://arxiv.org/abs/2412.14927>.
- [2] 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*. 2024. arXiv: 2411.10160 [cond-mat.mtrl-sci]. URL: <https://arxiv.org/abs/2411.10160>.
- [3] 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>.
- [4] 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>.
- [5] N. Sellati, F. Gabriele, C. Castellani, and L. Benfatto. "Generalized Josephson plasmons in bilayer superconductors". In: *Phys. Rev. B* 108 (1 July 2023), p. 014503. URL: <https://link.aps.org/doi/10.1103/PhysRevB.108.014503>.

Il sottoscritto dichiara di essere consapevole che il presente curriculum vitae sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

Data 22/01/2025

F.to Niccolò Sellati