europass Curriculum vitae

PERSONAL INFORMATION

Giovanni Caldarelli

EDUCATION AND TRAINING

Oct 2020-Present — **PhD, Sapienza University of Rome (Italy)**

Research subject: Transport phenomena in solid state physics

Advisors: L.Benfatto, F.Mauri

Oct 2018-Oct 2020 — **Master degree in Physics, Sapienza University of Rome (Italy), 110/110 with honors**

Thesis title: Thermal transport in complex crystals

Thesis advisor: L.Benfatto, F.Mauri

Oct 2015- Oct 2018 — **Bachelor degree in Physics, Sapienza University of Rome (Italy), 110/110 with honors**

Thesis title: Hartree-Fock approximation for Hydrogen molecule.

Thesis advisor: T.Scopigno

Sep 2010- Jul 2015 — **High School, "Liceo Ginnasio Statale Orazio", Rome (Italy), 90/100**

LANGUAGE SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	B2	B2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

PRIZES AND AWARDS

2023

Research grant "Avvio alla ricerca" awarded by "La Sapienza" University of Rome for early career researchers. Project "Modeling vibrational spectroscopy in crystals exhibiting cooperative phenomena", awarded 2000€ in research funds

2020

PhD scholarship in "Physics PhD School Vito Volterra" at "La Sapienza", University of Rome, Italy (Accepted position)

PhD scolarship in "Theory and numerical simulation of Condensed Matter" at SISSA, Trieste, Italy (Offered position)

Excellence program of Master Degree in Physics at "La Sapienza" University of Rome, Italy (10% student accepted)

High-performance computing calls

2022 — ISCRA C call (CINECA) - accepted project "Thermal Transport in Anharmonic Systems (TheTrAhs)", 100 000 CPU hours

LIST OF PUBLICATIONS

Wigner Gaussian dynamics: simulating the anharmonic and quantum ionic motion

Antonio Siciliano, Lorenzo Monacelli, Giovanni Caldarelli, Francesco Mauri
Physical Review B 107 (17), 174307 (2023)

Many-body Green's function approach to lattice thermal transport

Giovanni Caldarelli, Michele Simoncelli, Nicola Marzari, Francesco Mauri, Lara Benfatto
Physical Review B 106, 024312 (2022)

ACADEMIC DETAILS

Review activity

I have been selected as peer reviewer of the American Physical Society (Physical Review B, 6 papers), Elsevier Editorial (Acta materialia, 1 paper), Nature Publishing Group (Nature communications, 1 paper)

Metrics

Google Scholar — Citations: 24, h-index: 1
Research Gate — Citations: 28, h-index: 1, Research interest score: 37.3
ORCID — 0000-0001-8524-1273

TEACHING

Nov 2022 - Jun 2023

Master thesis co-supervising

Master degree in Physics, Sapienza University of Rome

Thesis title: Relativistic corrections to LO-TO splitting, Advisor: Lara Benfatto, Candidate: Francesco Valerio Servilio (graduated with full marks and honors)

Nov 2021 - Jul 2022

Teaching assistant

Mar 2022 - Jul 2022 — Classical mechanics and thermodynamics (Fisica I), bachelor degree in Mechanical Engineering, Sapienza University of Rome. Main Lecturer: Marco Rossi

Nov 2021 - Feb 2022 — General physics (Fisica Generale), bachelor degree in Environmental Sciences, Sapienza University of Rome. Main Lecturer: Alessandro Nucara

CONFERENCES,TALKS AND EVENTS

Talks

Oct 2022 — European Theoretical Spectroscopy Facility (ETSF) Webinar - Invited

Attended events

Jul 2023 — Stochastic Self-Consistent Harmonic Approximation (SSCHA) 2023 school in San Sebastian - attendee

Jun 2023 — Condensed Matter Theory (CMT) at Brixen, meeting of the condensed matter theory Italian community - attendee

Jan 2023 — 21st International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods at ICTP Trieste - Poster presentation

Dec 2022 — CECAM Mixed-Gen Season 3, Theory and numerical simulation of transport processes in condensed matter (online) - attendee

Sep 2022 — MORE-TEM project workshop (Universitat Wien) - attendee

Aug 2022 — Psi-k 2022 conference at SwissTech Convention Center, EPFL, Lausanne (Switzerland) - Poster presentation

Dec 2021 — CECAM workshop: Capturing Anharmonic Vibrational Motion in First-Principles Simulations - attendee

May 2021 — MaX School on Advanced Materials and Molecular Modelling with Quantum ESPRESSO (online) - attendee

ADDITIONAL INFORMATION

Software skill

I have extended knowledge of Python coding language for scientific programming. I have experience of software for materials modeling and simulation of solid state physics as QUANTUM ESPRESSO, Phonopy, Phono3py.