

ANDREA LANTERI

MSc in Physics, EPFL

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andrea-lanteri Androme6

EDUCATION

Master's Degree in Physics

EPFL 2024 - 2026

Final GPA: 5.70/6. Focus on Computational Condensed Matter Physics, with advanced training in Quantum Optics, Quantum Computing and Statistical Physics. Expertise in superconducting circuit QED and computational quantum physics.

Thesis & relevant research projects:

- Master's Thesis:** Stabilization of cat states via single-photon ultrastrong nonlinear coupling. Derived effective analytical models and simulated the driven-dissipative setup from first principles using QuantumToolbox.jl.
- Computational Condensed Matter Project:** Ab initio electron-defect scattering relaxation times in graphene via DFT calculations with Quantum ESPRESSO.
- Quantum Computing Project:** Implemented quantum state tomography via classical shadows in Qiskit, benchmarking performance under simulated noise.
- Plasma Physics Project:** Simulated nonlinear dynamical instabilities in confined plasmas using MATLAB.

Bachelor's Degree in Physics

University of Genoa 2021 - 2024

- Graduated with a final grade of 110/110 cum laude. Achieved the highest GPA in the cohort at the end of each year.
- Selected for the IANUA Excellence Institute (IT track). Highlight: "Quantum Information Theory" seminars led by an IQM Quantum Computers expert.
- Lab Experience: Design and analysis of linear TI analog and digital electronic circuits for signal processing and acquisition, statistical data analysis, error treatment and report writing.

SKILLS & EXPERTISE

- Programming:** Python, Julia, C++, MATLAB, Java
- Quantum Software:** Qiskit, QuTiP, QuantumToolbox.jl, Quantum ESPRESSO
- Quantum Expertise:** Superconducting circuit QED, spin qubits, quantum circuits and algorithms, hardware noise, error correction, open quantum systems
- Machine Learning:** Transformers, diffusion models, Bayesian inference, Monte Carlo methods, kernel methods
- Lab & Dev Tools:** Git, Slurm, ROOT, LTSpice, LabVIEW, Arduino, SciDAVis

LANGUAGES

Italian – Native
English – C1, Cambridge FCE 188/190
French – B1

AWARDS

- IRIS Award 2023: top first-year student in "Mathematical, Physical, and Natural Sciences".

EXPERIENCE

EPFL Quantum Hackathon

EPFL

Feb 2026 Lausanne

1st-place winner of the Alice & Bob challenge. Leveraged classical error correction to design quantum codes adapted to strongly biased architectures (cat qubits). Simulated and benchmarked logical error rates, encoding efficiency, Hamming distance and hardware connectivity.

CERN Quantum Materials Hackathon

Open Quantum Institute

Jul 2026 CERN IdeaSquare

Led a team benchmarking computational quantum methods for calculating bond dissociation energies relevant to pollutant persistence in water, in the context of the UN Sustainable Development Goals.

Mathematical Physics Schools

SwissMAP

2025/2026 Les Diablerets

Selected for limited-enrollment Mathematical Physics Schools covering topics including Quantum Information Theory, Statistical Mechanics, Conformal Field Theory and Random Matrix Theory.

Science Festival Guide

Festival della Scienza Association - INFN

Oct 2023 - Nov 2023 Genoa

Guided visitors through an INFN exhibition on eminent physicists, developing scientific communication skills with diverse audiences.

CyberChallenge

Cybersecurity National Lab

Feb 2023 - May 2023 Genoa

Selected for a limited-enrollment course in computer security, culminating in a regional Capture The Flag (CTF) competition.

Samsung Innovation Campus

Samsung Electronics Italia

Sep 2022 - Dec 2022 Genoa

- Selected for a limited-enrollment course on Industry 4.0 technologies and professional skills.
- Winner of the final project contest. Led a team in designing and showcasing PLANT PARENT, a plant well-being product with sensors, actuators, cloud infrastructure and smartphone interface.

PASSIONS

Climbing, Trekking, Problem Solving, Mathematics, History, Swimming, App Development, Music, Cinema.