



Gioele Casagrande

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RESEARCH INTERESTS

PhD Candidate at the University of Trento. My research interests include Quantum Information, Quantum Computing, Radiation Effects on Quantum Technologies, and Ultracold Systems.

WORKING EXPERIENCE

University of Trento, Trento (Italy) **2023 – Present**
PhD Candidate at IECS · Research on the impact of radiation effects on the reliability of quantum devices.
Quantum Science and Technologies transdisciplinary program sponsored by the Q@TN Project (2024 – Present).

EDUCATION

Ruprecht Karls University of Heidelberg, Heidelberg (Germany) **2019 – 2023**
M.Sc. in Theoretical Physics · Thesis: "Spectral Function of an Ultracold Bosonic Gas from the Functional Renormalisation Group"
Specialisation: QFT, Many-Body Systems, Quantum Phase Transitions, Condensed Matter, Particle Physics.

University of Groningen, Groningen (Netherlands) **2019**
Erasmus+ Project · Conducted during Bachelor's degree in Physics.

University of Trento, Trento (Italy) **2016 – 2019**
Bachelor's Degree in Physics (Grade: 110/110) · Thesis: "Study of the 1-D Ising Model: Measurements of Entanglement to Seek Quantum Phase Transitions"
Attended "Percorso di Approfondimento in Fisica" (Advanced physics track strictly for high-achieving students).

Liceo Scientifico Galileo Galilei, Trento (Italy) **2011 – 2016**
Scientific High School Diploma (Final Grade: 100/100)

Conservatorio di Musica "F.A. Bonporti", Trento (Italy) **2008 – 2013**
Exam of 4th year in Oboe class (Grade: 9/10)

PUBLICATIONS & CONFERENCES

- M. Vallero, G. Casagrande, F. Vella, P. Rech, "On the Efficacy of Surface Codes in Compensating for Radiation Events in Superconducting Devices", SC24 (Atlanta, USA), 2024. doi: 10.1109/SC41406.2024.00075.
- G. Casagrande, M. Vallero, F. Vella, P. Rech, "Understanding the Contributions of Terrestrial Radiation Sources to Error Rates in Quantum Devices", IEEE Trans. on Nuclear Science, 2025. doi: 10.1109/TNS.2025.3537036.
- M. Jenihhin et al., "European Test Symposium Teams: an Anniversary Snapshot," 2025 IEEE European Test Symposium (ETS), Tallinn, Estonia, 2025, doi: 10.1109/ETS63895.2025.11049652.
- M. Vallero, G. Casagrande, F. Vella, P. Rech, "Radiation-Induced Fault Detection in Superconducting Quantum Devices", Advanced Quantum Technologies, 2026. doi: 10.1002/qute.202500469.
- G. Casagrande, E. Auden, C. Cazzaniga, et al., "SQUID G.A.M.E.: Gamma, Atmospheric, and Mono-Energetic Neutron Effects on Quantum Devices", IEEE Trans. on Nuclear Science, 2026. doi: 10.1109/TNS.2026.3657307.
- M. Vallero, G. Casagrande, F. Vella, P. Rech, "TETRIS-Q: Tiling-based Effective Transient-fault Reduction on Interleaved Superconducting Qubits", accepted for publication at SC26, 2026.
- G. Casagrande, et al., "Muon Susceptibility of a SQUID: From Simulations to Beam Experiments", accepted for presentation at IEEE NSREC26, 2026.

COMPETITIONS & AWARDS

- **Best Student Paper Award:** 10.1109/SC41406.2024.00075 at Supercomputing 24
- **Olimpiadi di Problem Solving, Rome:** National Champion.
- **European Union Science Olympiad (EUSO), Padova:** Italian Silver Medal (Physics, Chemistry, Biology).
- **Olimpiadi di Informatica a squadre, Bologna:** National 2nd Place (team coding).
- **Olimpiadi Italiane di Informatica, Trento:** Regional 3rd Place, National tournament participant (IOI Italian round).

ADDITIONAL ACTIVITIES

- **Q@TN Seminars at ECT* (Jan 2026 – Present):** Co-organiser of a monthly Quantum Science seminar.
- **Summer School on Emerging Superconducting Technologies for Quantum Sensing and Computing (Jun-Jul 2026):** ECT*, Villa Tambosi, Trento.
- **Winter School on Quantum Machine Learning (Dec 2024):** ECT*, Villa Tambosi, Trento.
- **Orchestra Fuoritempo (2009 – 2017):** Co-founder and oboist. Toured internationally.

CODING SKILLS

Programming: Mathematica, Matlab, C++, C, HTML, Python, MySQL

Basic: Javascript, CSS, Java

LANGUAGES

Italian (Native) | English (C1, PhD & MSc in English)

German (B1, DSD I, lived in Germany 2 years)