

ABOUT ME

I am currently working as a researcher at the Sensors and Devices Center of the Bruno Kessler Foundation (FBK), where I focus primarily on Raman and Photoluminescence (PL) characterization of quantum systems. My work bridges solid state physics, quantum technologies, and experimental optics, contributing to the development of advanced quantum and sensing platforms. With a solid scientific background and extensive laboratory experience, I have built expertise in optical spectroscopy, instrumentation, and cross-disciplinary data analysis, collaborating in both national and international research projects.

EDUCATION AND TRAINING

[31 Oct 2017 - 31 Dec 2021] **PhD in Civil, Environmental and Mechanical Engineering**
University of Trento
City: Trento | **Country:** Italy | **Level in EQF:** EQF level 8

[31 Aug 2014 - 31 Aug 2017] **Master's degree in physics**
University of Rome, Tor Vergata
City: Rome | **Country:** Italy | **Field(s) of study:** Material Science | **Final grade:** Graduated Summa cum Laude | **Level in EQF:** EQF level 7

WORK EXPERIENCE

[1 Sep 2023 - Present] **Researcher**
Fondazione Bruno Kessler – Trento, Italy
My research focuses on the Raman and photoluminescence (PL) characterization of diamond color centers, including nitrogen-vacancy (NV) and group-IV color centers (SiV, GeV). My work bridges the fabrication of color centers with their optical characterization, providing key feedback for device optimization. Using confocal Raman/PL spectroscopy down to single-photon detection, Hanbury Brown and Twiss (HBT) interferometry and life-time measurement, I investigate the properties of both ensemble quantum emitters and single-photon emitters. My research supports the development of diamond-based quantum chips that can be heterogeneously integrated with complementary photonic and electronic material platforms.

[1 Sep 2024 - Present] **Responsible for the Quantum Spectroscopy Laboratory**
Fondazione Bruno Kessler – Trento, Italy
Responsible for the Quantum Spectroscopy Laboratory at FBK, which is equipped with a Raman and photoluminescence (PL) spectroscopy system with single-photon sensitivity, a HBT interferometer and a TCSPC system for lifetime measurements.

[31 Jan 2026 - Present] **Science Ambassador**
Fondazione Bruno Kessler – Trento, Italy
Active involvement in science communication and public engagement. As a Science Ambassador for Quantum Technologies, I promote quantum science and its societal impact through outreach initiatives aimed at the public. As an official representative of FBK, I was invited to speak at the Co.Scienza Festival in Trento, where I presented the Foundation's research activities in diamond quantum technologies and engaged with a broad audience to raise awareness of advances in quantum science. I have contributed to the organization of scientific schools and hands-on activities for high school and university students, promoting education in quantum technologies and advanced materials. I also design and organize science outreach activities for younger children, fostering curiosity and interest in STEM disciplines through interactive educational initiatives.

SKILLS

Photoluminescence (PL) and Raman spectroscopy / Confocal optical microscopy / Single-photon detection and quantum optics / Hanbury Brown and Twiss (HBT) interferometry / Time-correlated single-photon counting (TCSPC) / Scanning Electron Microscopy (SEM) / Scanning Probe Microscopy (SPM) / Optical spectroscopy and microscopy / Quantum technologies and diamond color centers / Scientific data analysis / MATLAB / OriginPro / Microsoft Office / Scientific communication and dissemination

LANGUAGE SKILLS

Mother tongue: Italian

Other language: English

LISTENING C1 - READING C1 - WRITING C1

SPOKEN PRODUCTION C1 - SPOKEN INTERACTION C1

PROJECTS

[1 Sep 2026 - Present]

DIREQT:

I am the Scientific Project Manager for FBK in the DIREQT project, supporting the development of European pilot production capabilities for next-generation diamond quantum chips in Europe. The project aims to establish reliable and accessible quantum chip fabrication infrastructures for industry, research centers, and academia through a shared-cost service model.

[31 Dec 2025 - Present]

IPCEI ME/CT:

Researcher, within the IPCEI ME/CT (Important Project of Common European Interest in Microelectronics and Communication Technologies) project.

[31 Aug 2023 - 30 Nov 2025]

PNRR – NQSTI:

Researcher, within the Italian National Recovery and Resilience Plan (PNRR), as part of the National Quantum Science and Technology Institute (NQSTI), to carry out research on the development and characterization of color centers in diamond through advanced ion implantation, irradiation, and annealing techniques for quantum technology applications.

CONFERENCES AND SEMINARS

- [8 Jun 2026 – 12 Jun 2026] Budapest, H - **Defects in Solids for Quantum Technologies - DSQT 2026**
Oral Presentation: A Tunable Hard-Mask Approach for Spatially Resolved NV Center Engineering in Diamond
- [14 Apr 2026 – 17 Apr 2026] Naples, IT – **NQSTI - PNRR 2026**
Poster: Engineering Germanium-Vacancy Center Arrays in Diamond Nanopillars for Quantum Applications
- [4 Mar 2026 – 6 Mar 2026] Hasselt, B - **Hasselt Diamond Workshop - SBDD 2026**
Poster: Influence of Surface Chemistry on the Optical Properties of IV Group Color Centers in Diamond
- [11 Dec 2025 – 12 Dec 2025] Catania, IT - **Italian Women in Quantum Technologies - IWQT 2025**
Oral Presentation (Invited): Centri di colore in diamante: strumenti e tecniche per una fabbricazione flessibile
- [31 Aug 2025 – 4 Sep 2025] Glasgow, UK - **35th International Conference on Diamond and Carbon Materials - ICDCM 2025**
Oral Presentation: Formation of group IV vacancy color centers in diamond by FIB: role of graphitization
- [20 May 2025 – 23 May 2025] Grenoble, FR - **Quantum Matter 2025**
Oral Presentation: Engineering Germanium-Vacancy Center Arrays in Diamond Nanopillars for Quantum Applications
- [5 Feb 2025 – 7 Feb 2025] Rome, IT – **NQSTI - PNRR 2025**
Oral Presentation: Fabrication of color centers in semiconductors by focused ion beam
- [28 Feb 2024 – 1 Mar 2024] Hasselt, B - **Hasselt Diamond Workshop - SBDD 2024**
Poster: Shallow NV⁻ colour centres in diamond