

ELENA MISSALE

Curriculum Vitae

@ emissale@fbk.eu

ORCID  0000-0002-7056-7825

 Trento, Italy

PERSONAL PROFILE

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 materials science, 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.

EXPERIENCE

Researcher

Fondazione Bruno Kessler

 Sep 2023 - Present

 Trento, IT

- Conducting Raman and PL characterization of quantum materials and devices.
- Operating advanced spectroscopic instrumentation and processing optical data.
- Supporting the development and characterization of color centers in diamond and Silicon.

Research Fellowship

University of Trento

 Feb 2021 - Sep 2023

 Trento, IT

- Study of the mechanical and strain engineering properties of nano-materials (e.g. polymeric ultra-thin films) by performing tensile testing measurements
- Chemical-physical characterization of nanomaterials by using Raman spectroscopy, X-ray photoelectron spectroscopy and Atomic Force Microscopy techniques

Ph.D. (PIRELLI TYRE S.p.A scholarship)

University of Trento

 Nov 2017 - Jan 2021


 Trento, IT

- Experimental and numerical analysis to study the sliding friction of deformable rubber-like or composite materials
- Designed and built an experimental setup for frictional testing under various conditions

Internship

DAFNE-Light laboratory, INFN-LNF

 Dec 2016 - Sep 2017

 Frascati (Rome), IT

- Conducted FT-IR spectroscopy for quantitative lipid analysis in yeast cells

Internship

ISIS-Diamond-STFC Rutherford Appleton Laboratory

 April 2016

 Oxford, UK

- Calibration of the neutron spectrometer 'Vesuvio'

Internship

LAMPS laboratory, INFN-LNF

 Dec 2013 - May 2014

 Frascati (Rome), IT

- Investigation of the magnetic susceptibility for a high-temperature superconductor (HTSC)

EDUCATION

Ph.D. in Civil, Environmental and Mechanical Engineering

University of Trento

 Nov 2017 - Jan 2021

Master's Degree in Physics

University of Rome "Tor Vergata"

 Sep 2014 - Sep 2017

Final mark: 110 Cum Laude

SKILLS AND TECHNIQUES

- **Optical Characterization:** Raman spectroscopy, Photoluminescence (PL), FT-IR, XPS
- **Microscopy:** AFM, SEM
- **Mechanical Testing:** Tensile testing machine, strain engineering
- **Software and Data Analysis:** Matlab, C++, OriginPro, Excel, Corel Draw, Autocad, Microsoft Office
- **Operating Systems:** Windows, Linux

LANGUAGES

Italian: Native

English: Listening: C1 (Listening, Reading, Speaking, Writing)

AWARDS AND ACHIEVEMENTS

Women in STEM Conference Support Awards at 11th European Solid Mechanics Conference (ESMC 2022).

CONFERENCES

Quantum Systems

- NQSTI 2025, Rome, IT

Oral: Fabrication of color centers in semiconductors by focused ion beam

- Hasselt Diamond Workshop - SBDD 2024, Hasselt, BE

Poster: Shallow NV- colour centres in diamond

- QSG 2024, Trento, IT

Poster: Shallow NV- colour centres in diamond

Mechanics and Materials Science

- ESMC11-Euromech 2022, Galway, IE

Oral: A methodology for tensile testing of large polymer films with nanoscale thickness

- AIMETA2019, Rome, IT

Oral: Emergence of velocity strengthening and weakening behaviour in viscoelastic materials.

- ECOTRIB2019, Wien, AT

Poster: Emergence of velocity strengthening and weakening behaviour in viscoelastic materials

- ESMC10-Euromech 2018, Bologna, IT

Poster: Frictional properties of viscoelastic materials at high sliding velocity

- QCM2018, Frascati, IT

Poster: Quantum tribology and related systems

- Ugo Fano Prize 2016, Rome, IT

Poster: Lipid content variation in yeast detected by FT-IR spectroscopy.

- NEEM2015, Rome, IT

Poster: Calibration of AC magnetic gradiometer and characterization of magnetite in glass ceramics

PARTICIPATION TO PROJECTS

MONolithic STRain Engineering platform for TWO-Dimensional materials (MONSTRE 2D)

University of Trento

📅 Feb 2021- Sep 2023

📍 Trento, IT

Funding agency: MIUR-Ministero Istruzione Università e Ricerca

Topic: Investigation of strain engineering and nanoscale deformation control in two-dimensional (2D) layered materials.

Impact innovation 2021

University of Trento

📅 July 2021-Nov 2021

📍 Trento, IT

Funding agency: Fondazione VRT

Topic: Mechanical characterization of ultra-thin films for for new generation biomedical devices <https://www.fondazionevrt.it/8-impact-innovation-2021>.