

FRANCESCO LORENZI

Born in Arzignano (Vicenza) on September 15th 1998

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POSITION

- Oct. 2023 - now **Ph.D. candidate** in Physics - Università degli studi di Padova
Quantum Information and Matter group.
Supervisor: Prof. Luca Salasnich.
- 2020-Sep. 2022 **M.Sc.** in ICT for Internet and Multimedia - Università degli studi di Padova
Final grade: 110/110 *with honors*.
Exam score weighted average 30/30.
Thesis title: Nonlinear noise in WDM systems: study of classical and quantum channel interaction and capacity.
- 2017-2022 **B.Sc.** in Ingegneria dell'Informazione - Università degli studi di Padova
Final grade: 110/110 *with honors*.
Thesis title: Dispersione cromatica e non linearità in fibra ottica, un'analisi simulativa.

OTHER RELEVANT EDUCATION EXPERIENCES

- Oct. 2023 - Feb. 2024 Visiting researcher at Universitat Politècnica de Catalunya on effective interaction theories for ultracold atoms, and Monte Carlo methods, Barcelona (Spain).
- Sep. 2023 Speaker at CMD30/FisMat2023 conference, Milano (Italy).
- Feb. 2023 Participation to the Statistical Field Theory 2023 School, at the Galileo Galilei Institute of Theoretical Physics, Firenze (Italy).
- Jan. 2023 Participation to the XII series of Majorana Lectures, entitled: “Solving quantum many-body problems with classical and quantum computers”, held by prof. Ignacio Cirac, Università degli studi di Napoli (Italy).
- 2021-now Tutoring activity for the course of “Fisica 1” and “Fondamenti di Algebra lineare e Geometria”. Overall funding: $\approx 2\text{k€}$, Università degli studi di Padova (Italy).

PUBLICATIONS

- 2024 F. Lorenzi and L. Salasnich, “Atomic soliton transmission and induced collapse in scattering from a narrow barrier”, *Sci. Rep.* **14**, 4665 (2024).
- 2023 A. Bardin, F. Lorenzi and L. Salasnich, “Quantum fluctuations in atomic Josephson junctions: the role of dimensionality”, *New J. Phys.* **26**, 013021 (2023).

- 2023 F. Lorenzi, G. Marcon, A. Galtarossa, L. Palmieri, A. Mecozzi, C. Antonelli and M. Santagiustina, “Nonlinear Interference Noise in Raman-Amplified WDM Systems”, *J. Lightwave Technol.* **41**, 6465 (2023).
- 2023 F. Lorenzi, A. Bardin and L. Salasnich, “On-shell approximation for the *s*-wave scattering theory”, *Phys. Rev. A* **107**, 033325 (2023).
- 2022 F. Lorenzi, G. Marcon, A. Galtarossa, L. Palmieri, A. Mecozzi, C. Antonelli and M. Santagiustina, “Model for Nonlinear Interference Noise in Raman-amplified WDM Systems”, presented to *2022 European Conference on Optical Communications (ECOC)*.

AWARDS AND FUNDING

- 2021 “Premio di studio del Rotary Club di Padova” entitled to prof. Carlo Giacomo Someda – for excellent curriculum and support to community. Amount: 1.2k€.

RELEVANT SKILLS

Programming skills

Advanced level: Python, Julia, Matlab, Git/GitHub, \LaTeX .

Intermediate level: C, C++, CST-FEM, Rust.

Basic level: Fortran, ASMx86, HTML, SQL, PHP.

Language skills

English: *B2 - FCE*.

RESEARCH INTERESTS

Solitons in optical and matter-wave media • Ultracold atom theory and Bose-Einstein condensation • Scattering theory • Nonlinear Waves theory and numerical methods

OTHER INTERESTS

Integrable systems • Information and control theory • Optical and quantum communications

updated March 13, 2024.