TOMMASO PERANI

Ph.D. candidate in Physics

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EDUCATION

Ph.D. candidate in Physics

University of Pavia

Oct 2018 – Present Pavia, Italy

Analysis and optimization of light confinement in photonic structures for applications ranging from optical sensing to the enhancement of the light-matter interaction at the fundamental level.

- *Graduate School Courses*: Advanced Theory of Solids, Photonics, Quantum Computing, Computational Methods in Physics, Python-based Methods and Applications in Physics.
- *Additional Elective Courses*: Agile Project Management, Soft Skills.
- *Summer School*: "Quantum devices for non-classical light generation and manipulation" (Sept, 30th – Oct, 5th 2019, EMFCSC, Erice, Italy)

M.Sc. in Physics

University of Pavia

Oct 2014 – Apr 2018 Pavia, Italy

Specialization in Condensed Matter Physics. Completion of advanced courses in the primary field (including Theoretical and Experimental Solid State Physics, Classical and Quantum Optics, Photonics, and Nanostructured Materials) as well as extra-curricular related areas (Biophysics, Astrophysics).

- *Dissertation*: "Design of a Bloch-surface-wave photonic-crystal nanobeam cavity", *supervisor*: Prof. Marco Liscidini, *grade*: 110/110.

B.Sc. in Physics

University of Pavia

Oct 2011 – Oct 2014 Pavia, Italy

Thorough understanding of the core areas of physics (including Classical Mechanics, Thermodynamics, Electrodynamics, Statistical Physics, and Quantum Mechanics), with strong foundations of mathematical, analytical, and laboratory skills.

- *Dissertation*: "Effects of Mn on low-frequency dynamics in Fe-based superconductors", *supervisor*: Prof. Pietro Carretta, *grade*: 110/110 cum laude.

Collegio Ghislieri alumnus

Collegio Ghislieri

Oct 2011 – Jul 2017 Pavia, Italy

Historic college of academic excellence. National admission test and compliance with the merit requirements for the maintenance of the place.

- St John's College visiting student (University of Cambridge, UK), Dec 2014.
- Founder member of "GhislieriScienza", student scientific society. Organization of exhibits, workshops, and lectures with a view to furthering public knowledge of science.

High school diploma

Liceo scientifico Edoardo Amaldi

Sept 2006 – Jul 2011 Alzano Lombardo, Italy

- Mathematics, Science, and IT high school; *grade*: 100/100.
- "Elena Piazzini" merit scolarship.
- Students' guide to "Bergamo Scienza", international science festival, Bergamo, Italy (2009–2011).

ABOUT

"Hunc igitur terrorem animi tenebrasque necessest non radii solis neque lucida tela diei discutiant, sed naturae species ratioque."

I am currently a Ph.D. candidate in the Department of **Physics** at the University of Pavia, Italy. I am mostly concerned with **classical and quantum optical properties of photonic structures**.

Personal information

Full name	Tommaso Perani
Nationality	Italian
Date of birth	March 9, 1992
Study address	Dept. of Physics (room 2-49) University of Pavia Via A. Bassi 6 27100 Pavia, Italy

SKILLS

Languages

Italian native speaker

English C1 (full professional proficiency)
Cambridge FCE (grade A), 2011

French B1 (limited working proficiency)
DELF B1 (grade 91/100), 2016

Computer skills

OS Mac OS X • Windows • Ubuntu
Programming Python • Fortran • C++ • LaTeX
Software Origin (data graphing and analysis) • Lumerical, Meep (FDTD simulation for electromagnetic systems) • Competent with most office suites

Other

BLSD certificate Basic life support and usage of defibrillator (2015, Green Cross, Pavia, Italy)
Sports Swimming

PUBLICATIONS

Peer-reviewed Journals

- Tommaso Perani and Marco Liscidini (2020). “Long-range Bloch surface waves in photonic crystal ridges”. In: *Opt. Lett.* 45.23, pp. 6534–6537. DOI: 10.1364/OL.412625.
- Tommaso Perani, Daniele Aurelio, and Marco Liscidini (2019). “Bloch-surface-wave photonic crystal nanobeam cavity”. In: *Opt. Lett.* 44.21, pp. 5133–5136. DOI: 10.1364/OL.44.005133.

Conference Proceedings

- Tommaso Perani and Marco Liscidini (2021a). “Hybrid Confinement of Visible Light in a Nanophotonic Resonator”. In: *JEOS:RP EOSAM 2021 Special Issue*, in press.
- Daniele Aurelio, Tommaso Perani, and Marco Liscidini (2018). “Light Confinement in Resonators Based on Bloch Surface Waves”. In: *2018 20th International Conference on Transparent Optical Networks (ICTON)*, pp. 1–3. DOI: 10.1109/ICTON.2018.8473963.

CONFERENCES AND WORKSHOPS

Contributed Talks

- Tommaso Perani and Marco Liscidini (2021b). "Hybrid Confinement of Visible Light in a Nanophotonic Resonator". *2021 European Optical Society Annual Meeting (EOSAM)*. Rome, Italy.

Presented Posters

- Tommaso Perani and Marco Liscidini (2020). "Bloch-surface-wave nanobeam cavity". *2020 Conference on Lasers and Electro-Optics (CLEO)*. San Jose, USA.
- Tommaso Perani and Marco Liscidini (2019). "Bloch-surface-wave photonic crystal nanobeam cavity". *Quantum devices for non-classical light generation and manipulation Graduate Summer School*. Erice, Italy.

EXPERIENCE

PF24

University of Pavia

Mar–Jul 2018 — Pavia, Italy

Training course for the attainment of 24 ECTS credits in anthropo-psycho-pedagogical disciplines, and teaching methodologies and technologies.

Tutoring and grading

University of Pavia

Oct 2014 – Present — Pavia, Italy

- Project: *Physics*, Dept. of Pharmacology (2019–2021).
- Project: *Mathematics and Statistics*, Dept. of Pharmacology (2018–2022).
- Project: *Mathematics*, Dept. of Biotechnology (2014–2015, 2016–2017).
- Project: *Mathematics and Physics*, School of Medicine (2014–2015).
- Project: *English for Science*, Dept. of Biology (2014–2015).

REFEREES

Prof. Marco Liscidini

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