Matteo Castagnola, Ph.D.

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Linkedin NTNU profile GoogleScholar profile

Employment History

Nov. 2022 – Present **Ph.D., Norges teknisk-naturvitenskapelige universitet (NTNU)**
Theoretical and Computational Chemistry – Molecular Polaritons – *Ab Initio* Quantum Electrodynamics

Education

2017 – 2022 **Second-level university Master in Chemistry, Scuola Normale Superiore (SNS)**
Final Grade 100/100 cum Laude. Awarded with a 5-year full scholarship.

2020 – 2022 **Master's degree in chemistry, Pisa University** Final Grade 110/110 cum Laude
Thesis title: *Ab initio response methods for entangled light-matter systems in the strong coupling regime.*

2017– 2020 **Bachelor's degree in chemistry, Pisa University** Final Grade 110/110 cum Laude
Thesis title: *Optical response properties of metal nanoparticles: fully atomistic classical model.*

Research Publications

Journal Articles

1. **M. Castagnola**, T. S. Haugland, E. Ronca, H. Koch, and C. Schäfer, "Collective strong coupling modifies aggregation and solvation," *The Journal of Physical Chemistry Letters*, vol. 15, pp. 1428–1434, 2023.
2. **M. Castagnola**, R. R. Riso, A. Barlini, E. Ronca, and H. Koch, "Polaritonic response theory for exact and approximate wave functions," *Wiley Interdisciplinary Reviews: Computational Molecular Science*, e1684, 2023.
3. T. Giovannini, L. Bonatti, P. Lafiosca, *et al.*, "Do we really need quantum mechanics to describe plasmonic properties of metal nanostructures?" *ACS photonics*, vol. 9, no. 9, pp. 3025–3034, 2022.

Skills

Languages Full professional reading, writing, and speaking proficiencies in **English** and **Italian**
Coding Fortran, Python, GitLab, LaTeX

Miscellaneous Experience

Program Developing

$e^{\mathcal{T}}$ Program Developer, an open source electronic and QED structure program – eT program website

Summer Schools

2023 **Modern Wavefunction Methods (MWM)**, Pisa
2019 **International Summer School on Vibrational Spectroscopy (VISPEC)**, Perugia