

Francesco Guidarelli Mattioli

Ph.D. student in Physics

Ai fini della pubblicazione

Research

- 2022-now **Winner of Ph.D. position**, *Department of Physics, University of Rome La Sapienza.*
Competitive selection - yes
Research project, three years.
Machine Learned Multi-body potentials for effective field representation from water to proteins.
Publication, 2023.
J. Chem. Phys. 158, 104501 (2023); DOI: 10.1063/5.0139245
J. Phys. Chem. B, 127(17), 3894-3901 (2023); DOI: 10.1021/acs.jpcc.3c00693
- 2021-now **Scientific Collaboration**, *SISSA. Group of Alessandra Magistrato*
Research project.
Exploring Brr2 helicase protein via full-atoms molecular dynamics.
- 2021 **Research grant type B**, *Department of Physics, University of Rome La Sapienza.*
Competitive selection - yes
Research project, one year.
Represent Effective interactions between proteins via Neural Network potential energy surface (NNPES)

Conferences

- 19-23 June **Selected for 5 days Psi-k-CECAM Research Conference**, *Bridging length scales with 2023 machine learning: from wavefunctions to thermodynamics, Freie Universität, Berlin.*
Competitive selection - yes Contribute - Poster
- 4-8 **Selected for 5 days International Soft Matter Conference**, *Osaka International September Convention Center, Osaka, Japan.*
- 2023 **Competitive selection - yes Contribute - Poster**

Education and Schools

May 2022 **Selected for 5 days CECAM School, Hybrid QMMM Approaches to Biochemistry and Beyond, CECAM EPFL, Lausanne.**

Competitive selection - yes

2018-2020 **Master's degree, Physics, University of Rome La Sapienza.**

Final grade - 110/110 with honors, Average exams score - 29,76/30, Number of honors 6

Research Experience as graduate student

Physics Laboratory, Experimental research, one month, IIT@Sapienza laboratory.
Measurement and Analysis of CARS peaks on Alzheimer nervous tissue

Thesis project, Computational research, eight months, SISSA, prof.ssa Alessandra Magistrato.

Molecular Dynamics Simulation and Analysis of a large protein: Molecular mechanism of Brr2 helicase investigated via molecular dynamics simulations

2013-2016 **Bachelor's degree, Biomedical engineering, University of Rome La Sapienza.**

Final grade - 110/110 with honors, Average exams score - 27,64/30, Number of honors 5

Research Experience as undergraduate student

Thesis project, Experimental research, six months, SBAI Acoustics laboratory, La Sapienza, Rome.

Deriving hydrodynamic properties of biological-like liquids by the use of quartz crystal microbalance (QCM).

Teaching Experience

March 2023 - **Physics Exercise Lectures for Aerospace Engineering, Department of Engineering,**

July 2023 *University of Rome La Sapienza.*

Competitive selection - yes

October 2022 **Mathematics Exercise Lectures for Biologists, Department of Biology, University of Rome**
- February *La Sapienza.*

2023 **Competitive selection - yes**

February **Physics Exercise Lectures for Aerospace Engineering, Department of Engineering,**
2022 - June *University of Rome La Sapienza.*

2022 **Competitive selection - yes**

2019-2020 **Physics Exercise Lectures for Biological science faculty, Department of Physics, University**
of Rome La Sapienza.

Competitive selection - yes

2018-2019 **Mechanics and Electromagnetism Laboratory assistant, Department of Physics, University**
of Rome La Sapienza.

Competitive selection - yes

Awards

2016-2018 **Second Bachelor's degree, Physics, University of Rome La Sapienza.**

Software and Programming Skills

Programming Languages: C, FORTRAN, Python, MATLAB, Bash

Deep Learning Libraries: TensorFlow (C, C++ and Python)

Molecular Dynamics software: GROMACS, VMD, Amber Tools, LAMMPS

Parallel Computing: basics of CUDA, basics of openMP

Languages

Italian: Mother Tongue

English: B2 Level

Speaking, Listening, Writing, Reading

06/07/2023

Firmato Francesco Guidarelli Mattioli