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Skills

Density Functional Theory
Phonon calculations
Molecular Dynamics
Crystal Structure Prediction
Graph Neural Networks
Data Analysis
Machine Learning Methods
Numerical Simulation
Scientific Programming

Languages

English (Full Professional Proficiency)
Spanish (Native)
Catalan (Native)

Awards and grants

Joan Oró FI 2024, predoctoral research grant (May 2024 - May 2027)

Best Predoctoral Research Awards (1st edition) of the Department of Physics of UPC, second prize (Feb 2024)

Pol Benítez Colominas

FI PhD candidate at UPC
Barcelona, Catalonia, Spain

Profile

I am a PhD student in Computational Physics at UPC, working under the supervision of Prof. Claudio Cazorla. My research focuses on computational condensed matter physics, utilizing first-principles methods and machine learning techniques. Among other topics, I study how anharmonic phonon modes influence the optoelectronic properties of crystalline solid-state systems, or explore the use of graph neural networks for materials property prediction.

Experience

Universitat Politècnica de Catalunya; Barcelona, Spain:

- **Predoctoral Researcher**, Sep 2023 - Present
- **Teaching Assistant**, Feb 2023 - Present
- **Postgraduate Researcher**, Jan 2023 - Aug 2023

University of Cambridge; Cambridge, UK. **Visiting Researcher**, Sep 2024 – Nov 2024

Universitat de Barcelona; Barcelona, Spain. **Undergraduate Researcher**, Feb 2021 - May 2022

Education

Universitat Politècnica de Catalunya - PhD in Computational and Applied Physics (2023 - Present)

Universitat Politècnica de Catalunya - Master's degree in Engineering Physics (2022 - 2023)

Universitat de Barcelona - Degree in Physics, Mention in Fundamental Physics (2016 - 2022)

Research topics

Materials modelling for energy and optoelectronic applications

Electron-phonon coupling effects in optoelectronic materials

Crystal structure prediction with MLIPs

Crystal graph neural networks for materials property prediction