

María Hita Pérez

Predoctoral Researcher at QUINFOG (IFF, CSIC)

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Areas of interest:

Quantum Computing, Quantum Information, Quantum Chaos,
Quantum Mechanics, Machine Learning, Cryptography.

Education

- Oct. 2020 – **PhD. Program in Physics**, Universidad Complutense de Madrid.
Now Design and modelization new superconducting circuits for quantum technologies.
In QUINFOG at Instituto de Física Fundamental (CSIC).
- Oct. 2018 – **MSc. Nuclear Physics**, Universidad Complutense de Madrid*, 60 ECTS.
- Sept. 2019 *Average grade: 9.51/10*
Thesis: Study of short range correlations in incomplete spectra of quantum chaotic and intermediate systems,
grade: 10/10.
In collaboration with Instituto de Estructura de la Materia (CSIC) and Nuclear Physics Group (UCM).
- Sept. 2014 – **BSc. Physics, Fundamental Physics**, Universidad Complutense de Madrid, 240 ECTS.
- June 2018 *Admission grade: 12.356/14*
Average grade: 8.11/10
Thesis: Quantum Chaos and Random Matrices, grade: 8/10.
- Sept. 2012 – **Spanish Baccalaureate Diploma, Science and Technology Baccalaureate**, Colegio Madres Con-
June 2014 cepcionistas de Madrid.
Average grade: 9.76/10

Grants, Contracts and Projects

- Oct. 2020 – **Research Assistant**, Quantum Information and Foundations Group, Instituto de Física Funda-
Now mental, Consejo Superior de Investigaciones científicas.
Working in the design and modelization of new superconducting circuits for quantum optimizers and quantum computers within AVaQus project.
- March 2019 – **Master's Thesis**, Instituto de Estructura de la Materia, Consejo Superior de Investigaciones
Sept. 2019 Científicas.
Project: Research work on spectral statistics of quantum systems with intermediate dynamics between regularity and chaos.
Currently working on a paper based on this project for subsequent submission to *Physical Review E*
- Dec. 2018 – **UCM Student Collaboration Scholarship**, Quantum, Thermal and Electronic Physics De-
June 2019 partment, Universidad Complutense de Madrid.
Project: Introduction to Nuclear Physics Research.

Awards

- Aug. 2020 **Best Academic Record in a Nuclear Master 2018-2019**, Sociedad Nuclear Española.
Awarded to the best academic records in masters degrees with nuclear content in Spain, 2018-2019.
- Oct. 2018 **Beca Excelencia UCM**, Universidad Complutense de Madrid.
Awarded to students with good academic record as recognition and support for the start of official master's degree studies at Universidad Complutense de Madrid.
- June 2014 **Matrícula de Honor en Bachillerato**, Ministerio de Educación, Gobierno de España.
Awarded to the best academic record in each Spanish Baccalaureate class.

*Master in collaboration with Universidad Autónoma de Madrid, Universidad de Salamanca, Universidad de Sevilla, Universidad de Barcelona, Universidad de Granada.

Peer Review Papers

Three-Josephson Junctions Flux Qubit Couplings, M. Hita-Pérez, J. Jaumà, M. Pino, J. J. García-Ripoll, *Appl. Phys. Lett.* **119**, 222601 (2021).

Ultrastrong Capacitive Coupling of Flux Qubits, M. Hita-Pérez, J. Jaumà, M. Pino, J. J. García-Ripoll, Accepted for publication on *Physical Review Applied*.

Talks and Congress

01-02 Dec. 2021 *3-Josephson Junctions Flux Qubit Couplings for Adiabatic Quantum Computation*, oral contribution, **Jornadas de Doctorandos de Invierno UCM**, online event.

23-25 Nov. 2021 *3-Josephson Junctions Flux Qubit Couplings for Quantum Computation*, oral contribution, **Quantum 2021 International Conference-Imaginenano 2021**, Bilbao (Spain).

22-25 Jun. 2021 *3-Josephson Junctions Flux Qubit Couplings and Non-Stoquasticity*, poster contribution, **Adiabatic Quantum Computing Conference 2021**, online event.

Courses

Sept. 2021 **Tensor Network based approaches to Quantum Many-Body Systems**, *One-week Summer School*, Institute de Ciències del Cosmos, Universitat de Barcelona.

Sept. 2020 **Summer School on Quantum Computing: Software for Near Term Quantum Devices**, *One-week Online Summer School*, Menéndez-Pelayo International University.

Skills

Operating Systems: Ubuntu Linux, Windows.

Scientific Software: MATLAB, Maple, SciDaVis, Mathematica.

Programming Languages: Python.

Office Software: L^AT_EX, LibreOffice, Microsoft Office.

Languages: Spanish (mother tongue), English (upper intermediate), French (basic knowledge).

Other Interests

2015–2020 **Working as Artistic Skating Trainer**, in multiple schools and clubs all around Madrid.

2004–2019 **Piano Lessons**, Municipal Arts School of Villanueva del Pardillo.

2004–2014 **Musical Theory Lessons**, Municipal Arts School of Villanueva del Pardillo.

July–Aug. 2015 **Ruta Inti: “Cervantes y la cuna de la cultura occidental”**, social, cultural and adventure program for young people from all over the world, www.rutainti.com (site in Spanish).

Currently **Volunteer in Cruz Roja Juventud**, within the school success program that provides support and tutoring to children in vulnerable situation.

Sporadically **Private tutor**, physics, chemistry and mathematics for high school students.

Sporadically **Volunteer in Charity Projects**, including helping, supporting and assisting at residences for elderly people and children with Down syndrome.