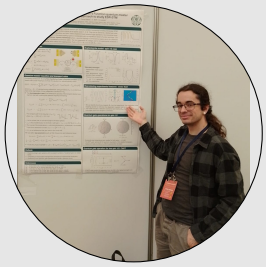

Doctor in Physics
Reina-Gálvez, Jose

Programming

High knowledge:

Fortran, Matlab, LaTeX

Average knowledge:

Wolfram Mathematica, Python, VASP, Bash

Basic knowledge:

Quantum Espresso, VirtualNanolab, Avogadro

Languages

Spanish	C2	Mother tongue
English	C1	
German	A1	

Grants

2017	Spanish Government grant for a supervised PhD program in a Spanish institution (FPI).

Codes available

2023	TimeESR

Short biography

I am a computational physicist focusing on transport in nanoscale junction under the influence of magnetic fields and strong driving. The main objective of my research is to understand electron spin resonance in such systems and to achieve quantum-coherent control with the long-term goal of applying such systems for quantum information processing. To achieve this goal, I have developed the theory as well as programmed codes for numerical simulations. In my free time I enjoy rock climbing and outdoor activities.

Education

2010–2014	**Bachelor's degree in Physics at the University of Seville.** *Bachelor's thesis*: Measurement through simulations of the first Virial coefficients of a Lennard-Jones gas. GPA: 10. Bachelor's GPA: 8.56.
2014–2015	B2 English course and A1 German course.
2015–2016	**Master's degree in Advanced Physics at the University of Barcelona.** *Master's thesis*: Discovering avalanches in a random field Ising model under fast driving of the external field. GPA: 7.9. Master's GPA: 7.7.
2021	**Doctorate in Theoretical studies on single atom electron spin resonance at Materials Physics Centre (CFM), San Sebastian.** GPA: Excellent distinction by majority. International mention.

Work Experience

2012–2013	Student intern in the Condensed Matter Physics department at the University of Seville.
2014–2015	Private lessons in Physics and Mathematics at the university level.
2017–2021	**PhD candidate at Materials Physics Centre (CFM)** under the supervision of Nicolas Lorente Palacios and Fernando Delgado Acosta. Thesis title: Magnetism at nanoscale: exploring new routes (Physics of spin devices).
2021–Now	**Postdoctoral researcher at Center for Quantum Nanoscience (QNS)**, Seoul, Republic of Korea.

Teaching

2023–Now	**Supervision of a PhD candidate** at the Center for Quantum Nanoscience (QNS).

Courses & conferences

May 2018	Basic python course at Material Physics Center.
February–June 2019	DMFT and group theory courses at DIPC.
March 2018, 2021–2024	Talks at **DPG spring meeting**.
September 2018	Talk at **Spin on Surfaces workshop (SoS II)**.
October 2022	Talk at **KPS fall meeting**.

Research Stays

October–December 2018 and January 2019	Thesis work at University of La Laguna, Santa 2017 Cruz de Tenerife, Canary Islands, with professor **Fernando Delgado Acosta**.
March–June 2020	Collaboration with professor **Liliana Arrachea** at University of San Martín, Buenos Aires, Argentina. Topic: Floquet-Green's Function theory applied to ESR.
March 2022	Collaboration with **Nicolas Lorente** at Material Physics Center. Topic: Many-body effects in electron spin resoanance.

Invited talks

June 8th 2023	**8th Conference on Spin Polarized STM and Nanoscale Magnetic Imaging**. Title: Modulation of the tunneling barrier in an SAIM to study ESR-STM.
September 14th 2023	**Spin on Surface workshop (SoS III)**. Title: Modulation of the hopping in an SAIM to study ESR-STM: Reproducing experimental features.

Publications

First author	**Reina Galvez, J.**, Wolf, C., Delgado, F. & Lorente, N. Cotunneling mechanism for all-electrical electron spin resonance of single adsorbed atoms. *Phys. Rev. B* **100,** 035411 (3 July 2019). **Reina-Gálvez, J.**, Lorente, N., Delgado, F. & Arrachea, L. All-electric electron spin resonance studied by means of Floquet quantum master equations. *Phys. Rev. B* **104,** 245435 (24 Dec. 2021). **Reina-Gálvez, J.**, Christoph, W. & Lorente, N. Many-body nonequilibrium effects in all-electric electron spin resonance. *Phys. Rev. B* **107,** 235404 (23 June 2023).
Co-author	Zhang, X., **Reina-Gálvez, J.**, Wolf, C., Wang, Y., Aubin, H., *et al.* Influence of the Magnetic Tip on Heterodimers in Electron Spin Resonance Combined with Scanning Tunneling Microscopy. *ACS Nano* **17,** 16935–16942 (2023). Wolf, C., Delgado, F., **Reina, J.** & Lorente, N. Efficient Ab Initio Multiplet Calculations for Magnetic Adatoms on MgO. *The Journal of Physical Chemistry A* **124.** PMID: 32098473, 2318–2327 (2020). Phark, S., Bui, H. T., Ferrón, A., Fernández-Rossier, J., **Reina-Gálvez, J**, *et al.* Electric-Field-Driven Spin Resonance by On-Surface Exchange Coupling to a Single-Atom Magnet. *Advanced Science* **10,** 2302033 (2023).