



I obtained my PhD degree at the UAM. After this, I received a NATO fellowship at MPI, HFML in Grenoble, where I spent about two years as postdoc researcher. Afterwards, I received a postdoctoral grant (UAM). There, I became Honorary Professor for 8 years and I got a permanent position at the CSIC, I was director of the Condensed Matter Theory Department at the ICMM, and became Research Professor in 2005. At present, I lead the group at ICMM: “New Platforms and Nanodevices for Quantum Simulation and Quantum Computation” <https://wp.icmm.csic.es/npgsic/> and belong to the University Institute Gregorio Millán on Nanoscience and Industrial Math. (UC3M).

I was involved in several EU networks and invited for research stays in different centers as PTB, Hamburg U., MPI (Stuttgart), UTB (Berlin), Aalto U. (Helsinki), NRC (Ottawa), Utrecht U., UBC (Vancouver), UNAM (Ensenada), Milan U., Regensburg U., Surrey U., etc....

I have supervised 15 PhD students (2 more in progress), 11 of them work successfully in Academia: 7 with permanent positions and 4 with postdoc positions. I participate in the Masters of Nanoscience (UAM), Theoretical Physics (UCM), Quantum Technologies at UIMP-CSIC and in the master on Quantum Technologies at the UC3M of Madrid.

I gave more than hundred invited talks and more than sixty invited seminars in research centers and participated in different activities related with gender issues. I was member of the panel for elaborating the Equality Plan for the Spanish Physical Society (RSEF).

I participated in the organizing, scientific, steering or advisory committees of around 40 conferences, Chairwoman of the “ICSNN 2018”, co-chair of “Spin qubit V”, 2022 and Co-organizer of the mini-colloquia on “Fundamental Bounds in nano-engines”, at CMD30, FisMAT 2023.

I participated in several national and international projects as Marie Curie Research Training Networks (RTN), TMR and ITN networks, Costs actions and Bilateral Projects. PI of 23 of them.

Member of several scientific panels in Spain and abroad: ANEP, responsible for Condensed Matter Physics for five years, member of the Materials Science Committee at CSIC, Referee of “Junior leader”, La Caixa, etc... panel member of the FWO (Flanders), for evaluating Collaborative Research Centers in Germany and Excellence Centers in Denmark, research grants at Hong Kong U, Helmholtz Young Investigators Group Grants DFG, panel for ERC Starting grants (P3), for evaluating the Excellence Center NCCR SPIN, Basel U. (SNSF), for selecting Scientific Director at Tyndall, Cork, etc.... Member of several panels for positions in the EU, Switzerland, Hong Kong, Ireland, Canada and Spain.

Selected member of the C8 IUPAP Commission: “Semiconductor Physics” from 2017 and Secretary from 2021.

Elected Chair of the IUPAP C8 commission from 01/01/2025

Awarded with a Mercator Fellow position, CRC1277: “Emergent Relativistic Effects in Condensed Matter, From Fundamental Aspects to Electronic Functionality”, Regensburg U. 2017-2021. Distinction by the CSIC for the scientific merits 2017-2018.

Nominated for President of the EPS, Paris, April 2018.

Fellow of the APS (Quantum Information Division), 2022.

Outstanding Referee of the APS.

I investigate theory of quantum transport in semiconductor nanostructures, in particular spin qubits in quantum dots (QDs), their manipulation and the transfer of quantum information in QDs arrays. I investigate time periodic driven systems by Floquet theory: the interplay between topology, driving and interaction, in both fermionic and bosonic systems. I analyze the role of topological edge states for the transfer of quantum information. I investigate hybrid systems, in particular, quantum cavities coupled to matter.

I published over 200 publications JCR, including a review in Phys. Reports on Transport in AC driven Systems (with more than 600 cites), around 40 publications in conference proceedings and book chapters. Editor of two books. Co-editor of EPL till March 2023 and associated editor of Frontiers in Quantum Science and Technology.