

Personal data

Full name: Juan Ignacio Climente Plasencia,
born 27/03/1978 in Segorbe (Spain).
Home address: Avda. Corts Valencianes 31, 3E,
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**Present coordinates**

Departament de Química Física i Analítica
Universitat Jaume I
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Education and degrees

- **Graduated in Chemistry** at Universitat Jaume I in 2000: *Student of the Year Award on Chemistry*.
- **M.Sc.** in Theoretical and Computational Chemistry at Universitat Jaume I (2003).
- **European Ph.D.** in Theoretical and Computational Chemistry. Universitat Jaume I (March 2005): *Ph.D. of the Year on Basic Sciences*.
Ph.D. supervision: Prof. J. Planelles.
Title of Thesis: "Integration of the Multi-band k-p Hamiltonian in Axial Symmetry".

Professional Experience**TEACHING**

2008-2014: Teaching assistant at Universitat Jaume I.

2002-2004: Teaching assistant at Universitat Jaume I.

I gave lectures to undergraduate students of Chemistry on "Computer Science Applied to Chemistry", "Advanced Experimentation in Physical Chemistry" and "Symmetry in Chemistry", obtaining high scores in the teaching evaluation survey filled in by the students. I am also lecturing "Solid State Physics" for graduate students.

RESEARCH

2013-: Associate Professor at Universitat Jaume I (Castelló, Spain).

2008-2013: Ramon y Cajal Researcher at Universitat Jaume I (Castelló, Spain).

2005-2008: Marie Curie post-doctoral fellow at CNR-INFM S3 Center (Modena, Italy).

1999-2005: Pre-doctoral research fellow at Universitat Jaume I (Castelló, Spain).

RESEARCH STAYS IN FOREIGN INSTITUTIONS

2010: Invited stay at the CNR-Nano S3 center (Modena, Italia), working with Prof. G. Goldoni on the optical properties of semiconductor-metal nanohybrids (0.5 months).

2009: Invited stay at the National Chiao Tung University (Hsinchu, Taiwan), working with Prof. S.J. Cheng on spin relaxation of excitons in self-assembled quantum dots (2 months).

2007: Short stay at the Institute of Microstructural Sciences -National Research Council of Canada- (Ottawa, Canada), working with Dr. P. Hawrylak on tunnelling properties of valence band holes in quantum dots (2 months).

2004: Short stay at the AGH University of Science and Technology (Krakow, Poland), working with Prof. J. Adamowski on electronic correlations of two electrons in self-assembled rings. (2 months).

2003: Short stay at the Institute of Microstructural Sciences -National Research Council of Canada- (Ottawa, Canada), working with Dr. P. Hawrylak on magnetic properties of diluted magnetic (III-V) semiconductor quantum dots (3.5 months).

2002: Short stay at the Institute of Physics of Nicholas Copernicus University (Torun, Poland), working with Prof. W. Jaskólski on numerical simulations of the electronic structure of self-assembled rings. (3 months).

2001: Short stay at the Institute of Physics of NCU (Torun, Poland), working with Prof. W. Jaskólski on numerical simulations of the electronic structure of multishell nanocrystals. (3 months).

MANAGEMENT AND ORGANIZATION

- Principal investigator in 1 European, 1 National and 2 local Research Projects.
- Member of the Commission for the Reform of the Chemistry Degree Curriculum of Universitat Jaume I (2001).

OTHERS

- Referee of the Physical Review, Institute of Physics, American Institute of Physics, Elsevier.
- Young Researcher Award by Universitat Jaume I-Banco Santander (Basic Sciences, 2011);
- Cultural Merit Award in the city of Vall de Uxó (2010).

List of publications**SCIENTIFIC PAPERS**

- [1] J.G. Díaz, J. Planelles, J.I. Climente, W. Jaskólski, "Semiconductor nanocrystals in a magnetic field", *Physical Review B*, **65** (2002) 245302.
- [2] J. Planelles, J.I. Climente, J.G. Díaz, W. Jaskólski, "Hole energy structure of multishell nanocrystals in a magnetic field", *Journal of Physics: Condensed Matter*, **14** (2002) 12537.
- [3] J.I. Climente, J. Planelles, W. Jaskólski, J.I. Aliaga, "Magneto-optical transitions in multilayer semiconductor nanocrystals", *Journal of Physics: Condensed Matter*, **15** (2003) 3593.
- [4] J.I. Climente, J. Planelles, W. Jaskólski, "Magneto-optical transitions in nanoscopic rings", *Physical Review B*, **68** (2003) 075307.
- [5] J.L. Movilla, J.I. Climente, J. Planelles, "Effects of a thin AlAs layer on InAs quantum dot electronic structure", *Journal of Applied Physics*, **94** (2003) 4515.
- [6] J.I. Climente, J. Planelles, J.L. Movilla, "Magnetization of nanoscopic quantum rings and dots", *Physical Review B*, **70** (2004) 081301(R).
- [7] J. Planelles, and J.I. Climente, "Far-infrared absorption of self-assembled semiconductor rings", *Collection of Czechoslovak Chemical Communications*, **70** (2005) 605.
- [8] J.I. Climente, M. Korkusinski, P. Hawrylak, J. Planelles, "Voltage control of the magnetic properties of charged semiconductor quantum dots containing magnetic ions", *Physical Review B*, **71** (2005) 125321.
- [9] J.I. Climente, J. Planelles, F. Rajadell, "Energy structure and far-infrared spectroscopy of two electrons in a self-assembled quantum ring", *Journal of Physics: Condensed Matter*, **17** (2005) 1573.
- [10] F. Rajadell, J. Planelles, J.I. Climente, "Calculation of the strain tensor of self-assembled quantum dots buried in a semiconductor matrix", *Revista Española de Física* (january-march 2007).
- [11] J.I. Climente, J. Planelles, "Far-infrared absorption of vertically coupled self-assembled quantum rings", *Physical Review B*, **72** (2005) 155332.
- [12] J. Planelles, J.I. Climente, "Semiconductor concentric double rings in a magnetic field", *European Physical Journal B*, **48** (2005) 65.
- [13] J.I. Climente, J. Planelles, M. Pi, F. Malet, "Magnetic-field dependence of hole levels in self-assembled InGaAs quantum dots", *Physical Review B*, **72** (2005) 233305.
- [14] J. Planelles, J.I. Climente, J.L. Movilla, "Aharonov-Bohm effect for pedestrian", in "Symmetry, Spectroscopy and SCHUR", Proceedings of the Prof. Brian G. Wybourne Commemorative Meeting, Torun 12-14, June 2005, Eds.: R.C. King, M. Bylicki and J. Karwowski, N. Copernicus Univ. Press, Torun 2006, pp.223-230.

- [15] J.I. Climente, J. Planelles, M. Barranco, M. Pi y F. Malet, "Electronic structure of few-electron concentric double quantum rings", *Physical Review B*, **73** (2006) 235327.
- [16] J. Planelles, J.I. Climente, and F. Rajadell, "Quantum rings in tilted magnetic fields", *Physica E*, **33** (2006) 370.
- [17] F. Malet, M. Barranco, E. Lipparini, R. Mayol, M. Pi, J.I. Climente, and J. Planelles, "Vertically coupled double quantum rings at zero magnetic field", *Physical Review B*, **73** (2006) 245324.
- [18] F. Malet, M. Barranco, E. Lipparini, R. Mayol, M. Pi, J.I. Climente, and J. Planelles, "Vertical homonuclear quantum ring molecules", *Physica Status Solidi (c)*, **3** (2006) 3652.
- [19] J.I. Climente, A. Bertoni, M. Rontani, G. Goldoni, and E. Molinari, "Phonon-induced electron relaxation in correlated quantum dots", *Physica Status Solidi (c)*, **3** (2006) 3660.
- [20] J.I. Climente, A. Bertoni, G. Goldoni, and E. Molinari, "Phonon-induced electron relaxation in weakly confined single and coupled quantum dots", *Physical Review B*, **74** (2006) 035313.
- [21] J.I. Climente, A. Bertoni, M. Rontani, G. Goldoni, and E. Molinari, "Effect of the Coulomb interaction on the electron relaxation of weakly confined quantum dot systems using the full configuration approach", *Physical Review B*, **74** (2006) 125303.
- [22] J. Planelles, F. Rajadell, J.I. Climente, M. Royo, and J.L. Movilla, "Electronic states of laterally coupled quantum rings", *Journal of Physics: Conference Series (Proceedings of the ICN+T 06 Meeting, Basilea)*, **61** (2007) 936.
- [23] J.I. Climente, A. Bertoni, G. Goldoni, M. Rontani, and E. Molinari, "Magnetic field dependence of triplet-singlet relaxation in quantum dots with spin-orbit coupling", *Physical Review B*, **75** (2007) 081303(R).
- [24] J. Planelles, F. Rajadell, and J.I. Climente, "Electron states in quantum rings with defects under axial or in-plane magnetic fields", *Nanotechnology*, **18** (2007) 375402.
- [25] J.I. Climente, and J. Planelles, "Nanoscopic semiconductor quantum rings", *Contributions to Science*, **3** (2007) 447.
- [26] J.I. Climente et al., "Directionality of acoustic phonon emission in weakly-confined quantum dots", *Physical Review B*, **75** (2007) 245330.
- [27] J.I. Climente, A. Bertoni, M. Rontani, G. Goldoni, and E. Molinari, "Effect of electron-electron interaction on the spin relaxation of quantum dots with spin-orbit coupling", *Physical Review B*, **76** (2007) 085305.
- [28] J.I. Climente, M. Korkusinski, G. Goldoni, and P. Hawrylak, "Theory of valence band holes as Luttinger spinors in coupled quantum dots", *Physical Review B*, **78** (2008) 118835.
- [29] A. Bertoni, J.I. Climente, M. Rontani, G. Goldoni, and U. Hohenester, "Signatures of molecular correlations in few-electron dynamics of coupled quantum dots", *Physical Review B*, **76** (2007) 233303.

- [30] A. Bertoni, J.I. Climente, M. Rontani, G. Goldoni, and U. Hohenester, "Few-particle electron dynamics in coupled quantum dots with phonon interaction", *Physica Status Solidi c* **5**, 158 (2008).
- [31] J.I. Climente, M. Korkusinski, G. Goldoni, and P. Hawrylak, "Effect of spin-orbit coupling on the entanglement of valence band holes in coupled quantum dots", *Physica E* **40** (2008) 1862.
- [32] J.I. Climente, A. Bertoni, G. Goldoni, M. Rontani, and E. Molinari, "Spin relaxation due to spin-orbit coupling in multi-electron quantum dots", *Physica E* **40** (2008) 1804.
- [33] J.I. Climente and J. Planelles, "Characteristic molecular properties of one-electron double quantum rings under magnetic fields", *Journal of Physics: Condensed Matter* **31**, (2008) 035212.
- [34] M.F. Doty, J.I. Climente, M. Korkusinski, M. Scheibner, A.S. Bracker, P. Hawrylak, and D. Gammon, "Antibonding ground states in semiconductor artificial molecules", *Physical Review Letters* **102**, 047401 (2009).
- [35] J.I. Climente, A. Bertoni, and G. Goldoni, "Photoluminescence spectroscopy of trions in quantum dots: a theoretical description", *Physical Review B* **78** (2008) 155316.
- [36] J.I. Climente, "Tuning the tunnel coupling of quantum dot molecules with longitudinal magnetic fields", *Applied Physics Letters* **93** (2008) 223109.
- [37] J.I. Climente, M. Royo, J.L. Movilla, and J. Planelles, "Coulomb correlation amplification by dielectric mismatch in semiconductor nanorods", *Physical Review B* **79** (2009) 161301(R).
- [38] J. Planelles, J.I. Climente, M. Royo and J.L. Movilla, "Correlation in narrow nanorods: a variational potential configuration interaction scheme", *Journal of Physics: Condensed Matter* **21** (2009) 215801.
- [39] F. Rajadell, J.I. Climente, J. Planelles and A. Bertoni, "Excitons, biexcitons and trions in CdSe nanorods", *Journal of Physical Chemistry C* **113** (2009) 11268.
- [40] J.L. Movilla, J.I. Climente and J. Planelles, "Dielectric polarization in axially-symmetric nanostructures: a computational approach", *Computer Physics Communications* **181** (2010) 92.
- [41] J.I. Climente, J. Planelles, and F. Rajadell, "Temperature dependence of the spectral bandshape of CdSe nanodots and nanorods", *Physical Review B* **80**(2009) 205312.
- [42] M.F. Doty, J.I. Climente, A. Greulich, A.S. Bracker, and D. Gammon, "Hole spin mixing in InAs quantum dot molecules", *Physical Review B*, *Physical Review B* **81**, 035308 (2010).
- [43] J. Planelles, F. Rajadell and J.I. Climente, "Hole band mixing in CdS and CdSe quantum dots and quantum rods", *Journal of Physical Chemistry C* **114**, 8337 (2010).
- [44] J.M. Badia, M. Castillo, J.I. Climente, M. Marques, R. Mayo, J.L. Movilla, J. Planelles, and E.S. Quintana-Orti, "Solving large-scale linear systems on clusters using secondary storage", *Proceedings of the 10th Interational Conference on Computational and Mathematical Methods*, p.113 (2010).

- [45] J. Planelles, J.I. Climente, F. Rajadell, M. Doty, A. Bracker and D. Gammon, "Effect of strain and variable mass on the formation of antibonding hole ground states in InAs quantum dot molecules", *Physical Review B* **82**, 155307 (2010).
- [46] M. Doty, J.I. Climente, A. Greilich, M. Yakes, A.S. Bracker and D. Gammon, "Opportunities for single hole-spin control using delocalized states of quantum molecules", *Journal of Physics: Conference Series* **245**, 012002 (2010).
- [47] J.M. Badia, J.L. Movilla, J.I. Climente, M. Castillo, M. Marqués, R. Mayo, E.S. Quintana-Ortí, and J. Planelles, "Large-scale linear systems solver using secondary storage: self-energy in hybrid nanostructures", *Computer Physics Communications* **182**, 533 (2011). 2nd version of the code in *ibid* **182**, 2441 (2011).
- [48] M. Royo, J.I. Climente, J.L. Movilla, and J. Planelles, "Dielectric confinement of excitons in type-I and type-II semiconductor nanorods", *Journal of Physics: Condensed Matter* **23**, 015301 (2011).
- [49] J.I. Climente, and J. Planelles, "Enhancement of light hole character in semiconductor quantum rings", *Journal of Nanoelectronics and Optoelectronics* **6**, 81 (2011).
- [50] Y.H. Liao, J.I. Climente, and S.J. Cheng, "Dominant channels of exciton spin relaxation in photo-excited self-assembled (In,Ga)As quantum dots", *Physical Review B* **83**, 165317 (2011).
- [51] G. Muñoz-Matutano, M. Royo, J.I. Climente, J. Canet-Ferrer, D. Fuster, P. Alonso-González, I. Fernández-Martínez, J. Martínez-Pastor, Y. González, L. González, F. Briones, and B. Alén, "Charge control in laterally coupled double quantum dots", *Physical Review B* **84**, 041308(R) (2011).
- [52] J.I. Climente, J.L. Movilla, G. Goldoni and J. Planelles, "Excitonic resonance in semiconductor-metal nanohybrids", *Journal of Physical Chemistry C* **114**, 8337 (2011)..
- [53] M. Royo, J.I. Climente and J. Planelles, "Emission spectrum of quasi-resonant laterally coupled quantum dots", *Physical Review B* **84**, 235312 (2011).
- [54] J.I. Climente, J.L. Movilla and J. Planelles, "Auger recombination in core/shell nanocrystals: the role of asymmetric electron-hole confinement", *Small* **8**, 754 (2012).
- [55] J.I. Climente, J.L. Movilla and J. Planelles, "Effect of interface alloying and band-alignment on the Auger recombination of heteronanocrystals", *Journal of Applied Physics* **111**, 043509 (2012).
- [56] C. Segarra, J.I. Climente and J. Planelles, "Valence band mixing of cubic GaN/AlN quantum dots", *Journal of Physics: Condensed Matter* **24**, 115801 (2012).
- [57] J.I. Climente, "Origin of positive trion triplet splitting in circular quantum dots", *Solid State Communications* **152**, 825 (2012).
- [58] S.E. Economou, J.I. Climente, A. Badolato, A.S. Bracker, D. Gammon, and M.F. Doty, "A scalable qubit architecture based on holes in quantum dot molecules", *Physical Review B* **86**, 085319 (2012).

- [59] J. Planelles, J.I. Climente and C. Segarra, "Electron spin relaxation in 3D quantum dots: geometrical suppression of Dresselhaus and Rashba spin-orbit interaction", *Journal of Physical Chemistry C* **116**, 25143 (2012).
- [60] X. Zhou, J. Lee, G. J. Salamo, M. Royo, J. I. Climente and M. F. Doty, "Coulomb interaction signatures in self-assembled lateral quantum dot molecules", *Physical Review B* **87**, 125309 (2013).
- [61] M. Allione, A. Ballester, H. Li, A. Comin, J. L. Movilla, J. I. Climente, L. Manna and I. Moreels, "Two-photon induced blue shift of core and shell optical transitions in colloidal CdSe/CdS quasi-type-II Quantum Rods", *ACS Nano* **7**, 2443 (2013).
- [62] J. I. Climente, C. Segarra, and J. Planelles, "Spin-orbit induced hole spin relaxation in InAs and GaAs quantum dots", *New Journal of Physics* **15**, 093009 (2013).
- [63] J. Planelles and J. I. Climente, "Magnetic field implementation in multiband k-p Hamiltonians of holes in semiconductor heterostructures", *Journal of Physics: Condensed Matter* **25**, 485801 (2013).
- [64] F. Rajadell, J. I. Climente, and J. Planelles, "Large hole spin anticrossings in InAs/GaAs double quantum dots", *Applied Physics Letters* **103**, 132105 (2013).
- [65] J. Planelles, and J. I. Climente, "The role of alternance symmetry in magnetoconductance", *Physical Review B* **89**, 155428 (2014).
- [66] J. I. Climente and J. Planelles, "Exciton storage in type-II quantum dots using the optical Aharonov-Bohm effect", *Applied Physics Letters* **104**, 193101 (2014).
- [67] C. Segarra, J. Planelles and J.I. Climente, "Control of electron spin-orbit anisotropy in pyramidal InAs quantum dots", *Physica E* **66**, 234 (2015)..
- [68] A. Achtstein, A. Ballester, J. L. Movilla, J. Hennig, J. I. Climente, A. Prudnikau, A. Antanovich, R. Scott, M. V. Artemyev, J. Planelles and U. Woggon, "One and two-photon absorption in CdS nanodots and wires: the role of dimensionality in the one and two-photon luminescence excitation spectrum", *submitted*.
- [69] X. Zhou, M. Royo, W. Liu, J. H. Lee, G. J. Salamo, J. I. Climente, and M. F. Doty, "Diamagnetic and paramagnetic shifts in self-assembled InAs lateral quantum dot molecules", *submitted*.
- [70] C. Segarra, J. Planelles, J.I. Climente, F. Rajadell. "Anisotropy of spin-orbit induced electron spin relaxation in [001] and [111] grown GaAs quantum dots", *submitted*.
- [71] S. Christodoulou, F. Rajadell, A. Casu, G. Vaccaro, J. Grim, A. Genovese, L. Manna, J.I. Climente, F. Meinardi, G. Raino, T. Stoferle, R. F. Mahrt, J. Planelles, S. Brovelli, and I. Moreels, "Beyond Quantum Confinement: the Formation of Long-lived Indirect Excitons via Piezo-Electric Fields in Strained CdSe/CdS Nanocrystals", *submitted*.

BOOK CHAPTERS

M.F. Doty and J.I. Climente, "Optical probing of holes in quantum dot molecules: structure, symmetry, and spin", in "Quantum Dots: Optics, Electron transport and future applications", ed. by A. Tartakovskii (Cambridge University Press, 2012, ISBN-13: 9781107012585).

C. Segarra, J. Planelles and J.I. Climente, "Hole mixing in semiconductor quantum rings", in "Physics of Quantum Rings", ed. by V. Fomin (Springer, 2013, ISBN 978-3-642-39196-5).

EDUCATIONAL BOOKS

J. Planelles, J.I. Climente, J.G. Díaz, "Espectroscopia" [Spectroscopy], Col.lecció Ciències Experimentals, Universitat Jaume I, 2002. ISBN 84-8021-393-0.

Conference contributions and seminars**TALKS AND SEMINARS**

1. Seminar at Italian Institute of Technology (Genova, December 2014): "Optics of colloidal CdSe/CdS nanocrystals: a theoretical overview".
2. Seminar at Technische Universität Berlin (Berlin, June 2014): "Optics of colloidal CdSe/CdS nanocrystals".
3. Talk at Quantum Dot Conference 2014 (Pisa, May 2014): "Two-photon absorption in colloidal CdSe-CdS dot-in-rods".
4. Invited talk at Spintronics Day Workshop in University of Basque Country (Bilbao, November 2013): "Hole spin relaxation in III-V quantum dots".
5. Talk at Nano2CSF Meeting (Valencia, September 2013): "Auger recombination in core-shell nanocrystals".
6. Talk at Symposium on Electron Structure of Semiconductors, Graphene and Novel 2D Materials (Valencia, July 2013): "Hole spin relaxation in III-V quantum dots".
7. Seminar at University of California Merced (Merced, November 2012): "Auger recombination in hetero-nanocrystals".
8. Talk at the International Conference on the Physics of Semiconductors (Zurich, August 2012): "Auger recombination in nanocrystals with asymmetric electron-hole confinement".
9. Talk at the Quantum Dot Conference (Santa Fe, USA, May 2012): "Auger recombination suppression in nanocrystals with asymmetric electron-hole confinement".
10. Invited talk at the International Workshop on Hybrid Excitations in Nanomaterials (Modena, December 2011): "Excitons in semiconductor nanocrystals with polarized environment".
11. Talk at the 12th International Conference on Optics of Confined Excitons (Paris, September 2011): "Hole spin mixing in InAs quantum dot molecules".
12. Seminar at ICMM-CSIC (Madrid, March 2011): "Holes in vertically coupled quantum dots"

13. Invited talk at the Material Research Society Fall Meeting (Boston, December 2010): "Characteristic properties of holes in vertically coupled quantum dots"
14. Talk at the workshop "Theory Days: Transport on Quantum Wires and Dots" (Toulouse, November 2010): "Spin relaxation of electrons, holes and excitons in quantum dots".
15. Seminar at CNR-Nano S3 Labs (Modena, October 2010): "Holes in coupled quantum dots: who's hiding behind the curtain?".
16. Invited talk at GEFES VI (Zaragoza, February 2010): "Holes in quantum dot molecules".
17. Seminar at National Chiao Tung University (Hsinchu, Taiwan, June 2009): "Holes in double quantum dots".
18. Seminar at University of Barcelona (Barcelona, Spain, November 2008): "Huecos en moléculas artificiales: ¿un estado fundamental antienlazante?".
19. Talk at the Workshop on Optics of Nanostructures (Torun, Poland, October 2008): "Holes in artificial molecules: an antibonding ground state?".
20. Seminar at University of Alicante (Alicante, Spain, September 2008): "Huecos en moléculas artificiales: ¿un estado fundamental antienlazante?".
21. Invited talk at the Virtual Conference of Nanoscale Science and Technology (Fayetteville, USA, July 2008): "Antibonding hole ground state in artificial molecules".
22. Talk at Quantum Dot Conference (Gyeongju, Korea, May 2008): "Antibonding hole ground state induced by spin-orbit interaction in coupled quantum dots".
23. Talk at MSS13 Conference (Genova, July 2007): "Spin relaxation due to spin-orbit coupling in few-electron quantum dots".
24. Seminar at MIT (Boston, February 2007): "*Spin relaxation due to spin-orbit coupling in few-electron quantum dots*".
25. Seminar at the Institute of Microstructures-NRC (Ottawa, February 2007): "*Spin relaxation due to spin-orbit coupling in few-electron quantum dots*".
26. Seminar at McGill University (Montreal, January 2007): "*Triplet-singlet relaxation in few-electron quantum dots*".
27. Talk at the ICPS2006 Conference (Vienna, July 2006): "*Control of acoustic-phonon-induced electron relaxation in quantum dots: the role of the piezoelectric field*".
28. Talk at the FOPS06 Exciting Workshop (München, March 2006): "*Lifetime of electrons in the excited states of quantum dots*".
29. Talk at the International Workshop Correlations in Quantum Systems (Palma de Majorca, September 2005): "*Hole Shell Filling in Self-Assembled Quantum Dots*".
30. Seminar at CNR-INFN-S3 (Modena, January 2005): "*Self-assembled quantum rings*".
31. Seminar at Universitat de Barcelona (November 2004): "*Self-assembled quantum rings*".

32. Seminar at AGH University of Science & Technology (Krakow, September 2004) : “*Self-assembled quantum rings*”.
33. Talk at the XVII Meeting of the Computational and Theoretical Chemistry Network of Catalonia (Tarragona, July 2001): “*Estructura energética de puntos cuánticos en un campo magnético*”.

POSTERS

1. Quantum Dot Conference 2014 (Pisa, Italy, May 2014): “Elucidation of the spin-orbit mechanism underlying hole spin relaxation in InAs and GaAs quantum dots”.
2. Bienal de Física (Valencia, July 2013): “Electron spin relaxation in quantum dots: playing with the dot shape”.
3. MSS-EP2DS Conference 2013 (Wroclaw, Poland, July 2013): “Hole spin relaxation in InAs and GaAs quantum dots”.
4. MSS-EP2DS Conference 2013 (Wroclaw, Poland, July 2013): “Electron spin relaxation in 3D quantum dots”.
5. Quantum Dot Conference 2012 (Santa Fe, USA, May 2012): “Excitons in semiconductor-metal nanohybrids”.
6. Quantum Dot Conference 2012 (Santa Fe, USA, May 2012): “Optical signatures of tunneling in laterally coupled quantum dots”.
7. Nanoscience with Nanocrystals (Fuengirola, Spain, May 2012): “Auger recombination suppression in nanocrystals with asymmetric electron-hole confinement”.
8. 12th International Conference on the Optics of Confined Excitons (Paris, September 2011): “Exciton spin relaxation in InAs/GaAs quantum dots”.
9. Nanomediterraneo 3 (Palma de Mallorca, June 2011): “Excitons in semiconductor-metal nanohybrids”.
10. Nanoscience with Nanocrystals (Tutzing, Germany, April 2010): “Excitons, biexcitons and trions in CdSe nanorods”.
11. Optics of Confined Excitons XI (Madrid, September 2009), “Excitons in coupled quantum dots: effects of the hole spin-orbit interaction”.
12. International Conference on Physics of Light-Matter Coupling in Nanostructures (Lecce, Italy, April 2009), “Excitons, biexcitons and trions in nanorods”.
13. Mauterndorf Winterschool on New Developments in Solid State Physics (Bad Hofgastein, Austria, February 2008): “Triplet-to-singlet spin relaxation in GaAs quantum dots”.
14. International Conference on Non-Equilibrium Transport (Tokyo, Japan, July 2007): “Triplet-to-singlet spin relaxation in GaAs quantum dots”.

15. International Conferenece on Modulated Structures MSS13 (Genova, Italy, July 2007): "Influence of valence-band spin-orbit coupling on the entanglement of excitons in coupled quantum dots".
16. Optical Properties of Low-Dimensional Systems (Ottawa, Canada, June 2007): "Modulation of phonon-induced charge and spin relaxation in quantum dots using magnetic fields".
17. International Workshop on Spin and Charge Effects at the Nanoscale (Pisa, Italy, 2006): "*Acoustic phonon-induced relaxation in quantum dots*".
18. International Workshop and Seminar on Cooperative Phenomena in Optics and Transport in Nanostructures, (Dresden, Germany, June 2004), "*Two interacting electrons in a self-assembled quantum ring*".
19. 4th Seminar Bachotek: Nanostructures, Research and Applications, (Bachotek, Poland, May 2001): "*Energy structure of nanostructures in a magnetic field*".

Previous grants and fellowships

- Ramon y Cajal fellowship (June 2008 – May 2013).
- Marie Curie (individual) Intra-European fellowship (June 2006 – May 2008).
- Marie Curie post-doctoral fellowship within the "Exciting" network (April 2005 – May 2006).
- Grant of the Spanish Ministry of Education and Science within the program for Formation of University Professors, 2001-2005.
- Research grant of Universitat Jaume I-Quantum Chemistry Group. 2000-2001.
- Grant of the Socrates-Erasmus program to attend postgraduate lectures on "Quantum Semiconductor Structures" in the Nicholas Copernicus University (Torun). 2001 (3 months).
- Research grant of the Spanish Ministry of Education and Science, given to the best students in the last year of their undergraduate studies. 1999-2000.

Participation in funded projects

- "Quantum Systems and the Sturm-Liouville problem. An interdisciplinary study." (1998-2001).
- "Confinement in quantum systems. An interdisciplinary study." (1997-2001).
- "Electronic and optoelectronic properties of semiconductor nanocrystals". (2002-2003).
- "Low-dimensional heterostructures: theoretical modelling of quantum dots in the presence of external fields." (2002-2005).
- "Electronic properties of semiconductor nanocrystals". (2005-2007).

- “Effect of spin-orbit interaction and carrier-phonon coupling on electronic transitions in correlated quantum dot”. (2006).
- “Quantum phenomena in semiconductor quantum dots”, (2007-2009).
- “Few-electron phenomena in devices based on semiconductor quantum dots”, (2007-2008).
- “Phonon-induced spin and charge relaxation in few-particle semiconductor quantum dots”, (2007). **[main researcher]**
- “Signatures of few-body correlations in semiconductor quantum nanostructures”, (2006-2008). **[main researcher]**

Computer skills

Operative systems: I am an experienced user of UNIX/Linux and Windows XP.

Programming languages: I have extensive experience in Fortran90 (serial and parallel programming), Matlab, Mathematica. Acquainted with C.

Others: I am familiar with several commercial and Open Source software utilities for graphics design and document handling, such as MS Office Package, LaTeX, Gimp, Xfig, etc.

Languages

Language	Level	Degrees
Spanish	Fluent	
Catalan	Fluent	<i>Grau Mitjà de la Junta Qualificadora de Coneixements en Valencià</i>
English	Fluent	<i>Advanced English Certificate from the (Spanish) Official School of Languages</i>
Italian	Fluent	<i>Corso di italiano avanzato per stranieri della Università di Modena</i>
Polish	Beginner	