

# CURRICULUM VITAE

JUAN JOSÉ GARCÍA-RIPOLL

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## INFORMACIÓN PERSONAL

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## CAMPOS DE INVESTIGACIÓN

Información cuántica; computación cuántica; átomos ultrafríos;  
qubits superconductores; control cuántico.

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## EXPERIENCIA LABORAL

2008-08 / hoy      Científico Titular, Instituto de Física Fundamental, CSIC  
Tramos de investigación: 1999-2010 (2 sexenios), 1 quinquenio, 3 trienios.  
2006-12 / 2008-07      Investigador Ramón y Cajal, Universidad Complutense de Madrid  
2003-11 / 2006-10      Investigador asociado, Max-Planck Institute for Quantum Optics (MPQ),  
Garching, Germany  
2001-12 / 2003-10      Beca de investigación postdoctoral, MPQ  
2001-11 / 2001-11      Investigador ayudante, University of Innsbruck, Austria  
1998-01 / 2001-05      Beca FPU predoctoral, E.T.S.I. Industriales, Univ. Castilla-La Mancha,  
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Sexenios                      2  
Quinquenios                1

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## FORMACIÓN

1998-09 / 2001-06      Doctor en Física ("magna cum laude" and Premio Extraordinario)  
Dpto. de Óptica, Facultad de Físicas, Universidad Complutense  
Ph. D. Thesis: *"Fenómenos no lineales en ondas de materia y de luz"*  
1992-09 / 1997-09      Licenciado en Física (3.2 sobresaliente)  
Facultad de Físicas, Univ. Complutense de Madrid.  
1992 / 1994              Analista funcional y programador  
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## PREMIOS

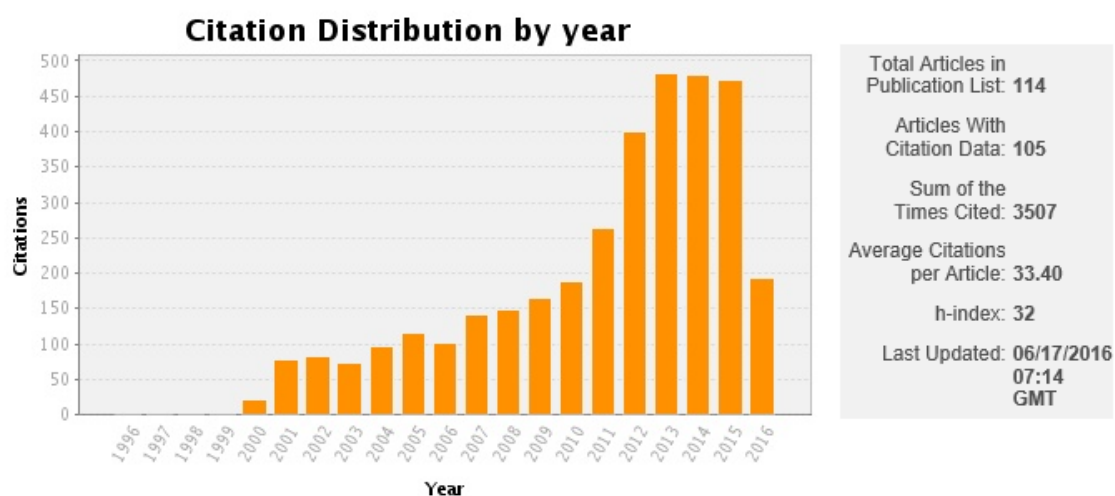
1. Premio extraordinario de doctorado, promoción 2001
  2. Premio extraordinario de licenciatura, promoción 1997
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## PUBLICACIONES

### INFORME BIBLIOMÉTRICO

Información recogida de la Web of Science el 16-06-2016

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## PATENTES

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## ARTÍCULOS EN REVISTAS REFEREADAS

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2. *Topological phases of shaken quantum Ising lattices*, S. Fernández-Lorenzo, J. J. García-Ripoll, D. Porrás, New J. Phys. **18**, 023030 (2016)
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4. *Driven spin-boson Luttinger liquids*, A. Kurcz, J. J. García-Ripoll, A. Bermúdez, New J. Phys. **17**, 115011 (2015)
5. *Light-matter decoupling and  $A^2$  term detection in superconducting circuits*, J. J. García-Ripoll, B. Peropadre, S. De Liberato, Sci. Rep. **5**, 16055 (2015)
6. *Measuring molecular electric dipoles using trapped atomic ions and ultrafast laser pulses*, J. Mur-Petit, J.J. Garcia-Ripoll, Phys. Rev. A **91**, 012504 (2015).

7. *Scattering in the ultrastrong regime: nonlinear optics with one photon*, E. Sánchez-Burillo, D. Zueco, J. J. García-Ripoll, L Martín-Moreno, Physical Review Letters **113**, 263604 (2014).
8. *Continuous matrix product states for coupled fields: Application to Luttinger liquids and quantum simulators*, F. Quijandría, J. J. García-Ripoll, D. Zueco, Physical Review B **90**, 235142 (2014).
9. *Inducing nonclassical lasing via periodic drivings in circuit quantum electrodynamics*, C. Navarrete-Benlloch, J. J. García-Ripoll, D. Porras, Physical review letters **113**, 193601 (2014).
10. *The Bose Hubbard model with squeezed dissipation*, F. Quijandría, U. Naether, D. Porras, J. J. García-Ripoll, D. Zueco, J. Phys. B **48**, 055302 (2015).
11. *Detection of Chern numbers and entanglement in topological two-species systems through subsystem winding numbers*, J. de Lisle, Suvabrata De, E. Alba, A. Bullivant, J. J. García-Ripoll, V. Lahtinen, J. K. Pachos, New J. Phys. **16**, 083022 (2014)
12. *Collective modes of a trapped ion-dipole system*, J. Mur-Petit, J. J. García-Ripoll, Appl. Phys. B **114**, 283–294 (2014)
13. *Entanglement detection in coupled particle plasmons*, J. del Pino, J. Feist, F. J. García-Vidal, J. J. García-Ripoll, Phys. Rev. Lett. **111**, 216805 (2014).
14. *Hybrid quantum magnetism in circuit-QED: from spin-photon waves to many-body spectroscopy*, A. Kurcz, A. Bermudez, J. J. García-Ripoll, Phys. Rev. Lett. **112**, 180405 (2014)
15. *Lattice scars: Surviving in an open discrete billiard*, V. Fernández-Hurtado, J. Mur-Petit, J. J. García-Ripoll, R. A. Molina, New J. Phys. **16**, 035005 (2014)
16. *Phase Stabilization of a Frequency Comb using Multipulse Quantum Interferometry*, A. Cadarso, J. Mur-Petit, J. J. García-Ripoll, Phys. Rev. Lett. **112**, 073603 (2014).
17. *Quantum chaos in an ultra-strongly coupled bosonic junction*, U. Naether, J. J. García-Ripoll, J. J. Mazo, D. Zueco, Phys. Rev. Lett. **112**, 074101 (2014).
18. *Bose-Hubbard models with photon pairing in circuit-QED*, B. Villalonga-Correa, A. Kurcz, J. J. García-Ripoll, J. Phys. B. **46**, 224024 (2013).
19. *Circuit QED bright source for chiral entangled light based on dissipation*, F. Quijandría, D. Porras, J. J. García-Ripoll, D. Zueco, Phys. Rev. Lett. **111**, 073602 (2013).
20. *Coupling single molecule magnets to quantum circuits*, M.D. Jenkins, T. Hümmer, M. J. Martínez-Pérez, J. García-Ripoll, D. Zueco, F. Luis, New J. Phys. **15**, 095007 (2013).
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24. *Lieb-Robinson bounds for spin-boson lattice models and trapped ions*, J Juenemann, A Cadarso, D Perez-Garcia, A Bermudez, J. J. García-Ripoll, Phys. Rev. Lett. **111**, 230404 (2013)
25. *Nonequilibrium and Nonperturbative dynamics of ultrastrong coupling in open lines*, B. Peropadre, D. Zueco, D. Porras, J. J. García-Ripoll, Phys. Rev. Lett. **111**, 243602 (2013).
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28. *Simulating Dirac fermions with Abelian and non-Abelian gauge fields in optical lattices*, E. Alba, X. Fernandez-Gonzalvo, J. Mur-Petit, J. J. Garcia-Ripoll, Jiannis K. Pachos, Annals of Physics **328**, 64-82 (2013)
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30. *Microwave photonics with Josephson junction arrays*, David Zueco, Juan José Mazo, Enrique Solano, Juan José García-Ripoll, Phys. Rev. B **86**, 024503 (2012).
31. *Quantum tomography in position and momentum space*, J. Casanova, C. E. Lopez, J. J. Garcia-Ripoll, C. F. Roos, E. Solano, Eur. Phys. J. D. **66**, 222 (2012)
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43. *The Fermi problem with artificial atoms in circuit QED*, C. Sabín, M. del Rey, J. J. García-Ripoll, and J. León Phys. Rev. Lett. **107**, 150402 (2011)
44. *Detecting ground state qubit self-excitations in circuit QED: slow quantum anti-Zeno effect*, C. Sabín, J. León, J. J. García-Ripoll, Phys. Rev. B **84**, 024516 (2011)
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64. *Quantum simulation of Anderson and Kondo lattices with superconducting qubits* J. J. García-Ripoll, E. Solano, M. A. Martín-Delgado, Phys. Rev. B **77**, 024522 (2008)
65. *Quantum Ratchets for Quantum Communication with Optical Superlattices* O. Romero-Isart, J. J. García-Ripoll, Phys. Rev. A **76**, 052304 (2007)
66. *Fragmentation and destruction of the superfluid due to frustration of cold atoms in optical lattices* J. J. García-Ripoll, J. Pachos, New J. Phys. **9** 139 (2007)

67. *Efficient algorithm for multi-qudit twirling for ensemble quantum computation* G. Toth, J. J. García-Ripoll, Phys. Rev. A **75**, 042311 (2007)
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69. *Time evolution of Matrix Product States* J. J. García-Ripoll, New Journal of Physics, **8** 305 (2006)
70. *Ground state cooling of atoms in optical lattices* M. Popp, J. J. García-Ripoll, K. G. H. Vollbrecht, J. I. Cirac, Phys. Rev. A **74**, 013622 (2006)
71. *Cooling toolbox for atoms in optical lattices* M. Popp, J. J. García-Ripoll, K. G. H. Vollbrecht, J. I. Cirac, New J. Phys. **8**, 164 (2006)
72. *Coherent control of trapped ions using off-resonant lasers* J. J. García-Ripoll, P. Zoller, J. I. Cirac, Phys. Rev. A **71**, 062309 (2005)
73. *Matrix Product Density Operators: Simulation of finite- $T$  and dissipative systems* F. Verstraete, J. J. García-Ripoll, J. I. Cirac, Phys. Rev. Lett. **93**, 207204 (2004).
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75. *Variational ansatz for the superfluid Mott-insulator transition in optical lattices* J. J. García-Ripoll, C. Kollath, U. Schollwöck, P. Zoller, J. von Delft & J. I. Cirac, Optics Express **12**, 42 (2004).
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2. *Quantum information processing with cold atoms and trapped ions* J. J. García-Ripoll, P. Zoller & J. I. Cirac, J. Phys. B **38** S567-S578 (2005)
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## ESTANCIAS

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2013-08-25 / 30	University of Chalmers (SE)
2011-02-13 / 24	University of Leeds (UK)
2010-04-18 / 05-16	Max-Planck Institute of Quantum Optics, Garching by Munich (DE)
2010-03-25 / 03-26	Universidad de Barcelona (ES)
2007-04-21 / 05-25	Kavli Institute for Theoretical Physics, Santa Barbara (USA)
2007-02-25 / 03-02	Universidad Autónoma de Barcelona (ES)
2007-01-22 / 02-02	DAMTP, University of Cambridge (UK)
2000-05-01 / 05-13	Universidad de Lisboa (PT)
1999-11	Optical Sciences Center, Australian National University Canberra (AU)
1998-10	Theoretical Physics Institute, Univ. of Innsbruck (AT)

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## SEMINARIOS INVITADOS

2015-12-15	<i>Spin-boson model: from microwave photonics to quantum magnetism</i> University of Leeds, Leeds (UK).
2015-06-11	<i>Spin-boson model: from microwave photonics to quantum magnetism</i> Johannes-Gutenberg-Universität, Mainz (DE).
2013-08-28	<i>Ultrastrong coupling in propagating microwave photons</i> , University of Chalmers, Gothenborg (SE).
2013-08-21	<i>Trapped ion quantum-gate technologies</i> , University of Hannover, Hannover (DE).
2013-05-14	<i>Información y computació cuánticas</i> , Universidad de Granada (ES).
2012-06-12	<i>Temperature-independent quantum logic for molecular spectroscopy</i> , PTB, Braunschweig (DE).
2011-10-19	<i>Seeing topological order in ultracold atoms</i> , University of Leeds, Leeds (UK).
2011-02-23	<i>Superconducting quantum circuits</i> , University of Leeds, Leeds (UK).
2011-02-02	<i>Superconducting quantum circuits</i> , Universidad Autónoma de Madrid.
2010-05-31	<i>Quantum Information processing with superconducting circuits</i> , Universidad de Zaragoza.
2010-03-23	<i>Strong and ultrastrong interactions in circuit-QED</i> , Universidad de Barcelona.
2009-04-30	<i>Strong correlations in optical lattices</i> , ICMM-CSIC, Madrid.
2008-06-13	<i>Strong correlations in optical lattices</i> , Univ. de las Islas Baleares, Mallorca.
2007-11-28	<i>Quantum simulation with superconducting qubits</i> , Ludwig-Maximilian University, Munich (DE).
2007-10-26	<i>Pairing of bosonic atoms induced by optical lattices</i> , ICFO, Castelldefells



2007-05-19	<i>Ultracold atoms: Quantum Simulation and Computation</i> , IFF-CSIC, Madrid
2007-05-07	<i>Matrix Product States</i> , IFF-CSIC, Madrid.
2007-05-01	<i>Melting of an entangled Mott-insulator</i> , Universidad Autónoma de Barcelona.
2006-02-17	<i>Numerical algorithms for the simulation of cold atoms in optical lattices</i> , University of Stuttgart (DE)
2005-09-07	<i>Cold atoms: from Quantum Information to Condensed Matter Physics</i> Universidad Autónoma de Barcelona (ES)
2005-02-08	<i>Matrix Product States with Applications</i> University of Stuttgart (DE)
2004-04-01	<i>Cold atoms: from Quantum Information to Condensed Matter Physics</i> LPTMS, Orsay (FR)
2004-10-13	<i>Coherent control of Trapped Ions using off-resonant light</i> Institute for Theoretical Physics, University of Innsbruck (AT)
2003-10-20	<i>Speed limits for Quantum Computing with Trapped Ions</i> E. T. H. Zürich (SW)
2003-01-22	<i>Quantum Control and Quantum Computing</i> Institute for Theoretical Physics, University of Innsbruck (AT)

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## ORGANIZACIÓN DE CONGRESOS

1. *Quantum Science: Implementations*, Benasque (ES), 2016-06-29 / 07-10.
2. *Quantum Science: Implementations*, Benasque (ES), 2014-06-29 / 07-19.
3. *Información Cuántica en España*, Madrid (ES) 2013.
4. *18th Central European Workshop on Quantum Optics*, Madrid (ES) 2011-05-30 / 06-03.
5. *Theory of Quantum Computation, Communication and Cryptography*, Madrid (ES) 2011-05-24 / 26.
6. *Benasque Workshop on Quantum Simulation*, Centro de Ciencias de Benasque (ES), 2011-02-28 / 03-05.
7. *Workshop Circuit QED for Quantum Information*, UPV/EHU, Bilbao (ES), 2009-08-5/7
8. *Quantum Information and Solid-State Systems*, Bilbao (ES), 2009-08-5/7

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## COMUNICACIONES EN CONGRESOS

1. *Microwave Quantum Photonics*, charla invitada, Información Cuántica en España, ICE-3, 2016-04-13 – 15, Mallorca (ES).
2. *Spin models and boson sampling*, APS March Meeting, 2016-03-14 – 18, Baltimore (US)
3. *Quantum simulation with microwave quantum photonics*, charla invitada, PQE 2016, 2016-1-3 – 8, Snowbird / Utah (US).
4. *Topological phases in the Haldane model with interactions*, poster, BEC 2015 Conference: Frontiers in Quantum Gases, 2015-09-5 – 11 Sant Feliu (ES).
5. *Superconducting circuit microwave photonics*, charla invitada, Light-matter interactions in low dimensions, ITAMP workshop 2015-06-28, Cambridge (US).
6. *DMRG studies of Quantum Optics*, charla invitada, Workshop and Symposium on DMRG Technique for Strongly Correlated Systems in Physics and Chemistry, 2015-06-22 – 27, Natal (Brasil).

7. *Winding number in interacting Haldane model*, charla invitada, 17th Symposium on Topological Quantum Information, 2015-04-16 – 17, Garching (Munich) (DE).
8. *Light-matter decoupling and A2 term detection in superconducting circuits*, APS March Meeting, 2015-3-03 – 07, in San Antonio, Texas (US).
9. *Quantum simulations of strongly correlated spin-boson models*, Quantum Simulations, 2015-02-22 – 27, Benasque (ES).
10. *Simulating atoms and photons with circuits*, 2nd International Workshop on Quantum Coherence and Decoherence (IWQCD2), 2014-08-25 – 29, Medellín (CO).
11. *Light-matter interactions in superconducting circuits*, invited, Advanced Many-body and Statistical Methods in Mesoscopic Systems II, 2014-09-01 – 09, Brasov (RO).
12. *Dynamics of superconducting qubits in open transmission lines*, talk, APS March Meeting, 2014-03-03 – 07, Denver (USA).
13. *Lieb-Robinson bounds for trapped ions*, charla invitada, 1st Workshop on Quantum Simulations with Trapped Ions (IQsim13), 2013-12-16 – 19, Brighton (UK).
14. *Scattering of Photons and Limits of Ultrastrong Light-matter Coupling in Open Transmission Lines*, invited talk, PIERS 2013 Stockholm (SE)
15. *Multipulse Quantum Interferometry: algorithms for frequency comb stabilization and characterization*, QIPC, Florence 2013-06-30 – 07-05 (IT).
16. *Quantum Computation with Circuit QED Systems*, invited talk, CLEO, 2013-08-08, San Jose, (USA).
17. *Quantum simulation and detection of topological order*, invited talk, 2013-04-11, New Trends in Complex Quantum System Dynamics, Cartagena (ES).
18. *Quantum simulation with atoms and circuits*, J. J. García-Ripoll, invited talk, Workshop on Quantum Simulations II, 2012-10-22–25, Bilbao (ES).
19. *Propagating microwave photons in superconducting circuits*, J. J. García-Ripoll, invited talk, Quantum Technologies III, 2012-09-9–15, Warsaw (PL).
20. *Topología en átomos ultrafríos*, invited talk, J. J. García-Ripoll, Nolineal 2012, Zaragoza (ES).
21. *Shaping an Itinerant Quantum Field into a Multimode Squeezed Vacuum by Dissipation*, talk, J. J. Garcia-Ripoll & D. Porrás, APS March Meeting 2012-02-27 – 03-02, Boston (USA).
22. *Temperature independent quantum logic for molecular spectroscopy*, invited talk, J. J. Garcia-Ripoll, Iota-COST workshop on cold molecular ions, 2011–09–23/25, Sandjberg (DK).
23. *Strain and Dirac equations in optical lattices*, póster, J. J. Garcia-Ripoll, Bose-Einstein Condensation 2011, 2011–11–23/25, Sant Fleiu de Guixols (ES).
24. *Quantum Simulation and Quantum Logic Spectroscopy with Trapped ions*, invited talk, J. J. Garcia-Ripoll, QIon 2011–04–26/29, Madrid (ES).
25. *Quantum Simulation and Computation with Trapped ions*, invited talk, J. J. Garcia-Ripoll, IOTA Kick-off Meeting, 2011–03–23/25, Heidelberg (DE).
26. *Sidebands and squeezing in open transmission lines*, poster, SOLID Workshop, Munich (DE), 2010–10–07/08
27. *Quantum Simulation*, invited talk, Trobades Científiques de la Mediterranea, Menorca (ES), 2010-09-29 - 2010-10-02
28. *Strong and Ultrastrong coupling in circuit-QED*, invited talk, Solid, Bilbao (ES), 2010-02-8/12
29. *From  $\mu$ -wave photodetection to switchable interactions in circuit QED*, International Conference on Quantum Optics. February 21-26, 2010, Obergurgl, Tirol, Austria.

30. *Microwave Photon Detection in circuit-QED* J. J. García-Ripoll. Poster, QIPC 2009 International Conference on Quantum Information Processing and Communication, Roma (IT), 2009-09-21/25
31. *Pair condensation of bosonic ultracold atoms* J. J. García-Ripoll. Poster, BEC 2009, San Feliu de Guixols (ES), 2009-09-5/11
32. *Microwave Photon Detection in circuit-QED* J. J. García-Ripoll. Poster, International Workshop and School on Solid State Based Quantum Information Processing, Herrsching (DE), 2009-06-01/03
33. *Microwave Photon Detection in circuit-QED* J. J. García-Ripoll. Talk, APS March Meeting, Pittsburgh (USA), Mar 2009
34. *Microwave Photon Detection in circuit-QED* J. J. García-Ripoll. Invited talk, Consolider QOIT Meeting Madrid, Feb 2-3, 2009
35. *Pairing and entanglement of bosonic atoms* J. J. García-Ripoll. Invited talk, ESF Quantum Optics conference, Obergurgl (AT), Feb 24 - March 1, 2008
36. *Ground state cooling of cold atoms in optical lattices* J. J. García-Ripoll. Invited talk, Cooling and thermodynamics of quantum systems Saferd (IL), August 24-31, 2007
37. *Pairing of cold atoms in optical superlattices* J. J. García-Ripoll. Poster, Recent progress in the studies of quantum gases, Paris (FR), June 27-30, 2007
38. *Feshbach ramping for cold atoms in optical lattices: an MPS study* J. J. García-Ripoll. Poster, ICAP 2006, Innsbruck (AT), July 16-21, 2006
39. *Cold atoms for quantum information and simulation* J. J. García-Ripoll. Invited talk, Quantum Information Workshop, MaCS 06 Conference Pecs (HU), July 12-15, 2006
40. *Feshbach ramping for cold atoms in optical lattices: an MPS study* J. J. García-Ripoll. Poster, CATCOM 2006, Dresden (DE), March 27 - 31, 2006
41. *Frustrated models with cold atoms in optical lattices* J. J. García-Ripoll. Talk, DPG Tagungen, Frankfurt (DE), March 13 - 17, 2006
42. *Coherent control of trapped ions using off-resonant lasers* J. J. García-Ripoll, P. Zoller, J. I. Cirac. Invited talk, Minerva Workshop on Quantum Atom Optics, Eilat (IL), October 30 - November 3, 2005
43. *Frustration and cold atoms in Optical Lattices* J. J. García-Ripoll, J. Pachos. Poster, ESF Cold Atoms Conference San Feliu (ES), Sept. 11-15, 2005.
44. *Coherent control of trapped ions using off-resonant lasers* J. J. García-Ripoll, P. Zoller, J. I. Cirac. Talk, DPG Tagungen, Berlin (DE), March 4-8, 2005
45. *Coherent control of trapped ions using off-resonant lasers* J. J. García-Ripoll, P. Zoller, J. I. Cirac. Invited talk, Obergurgl Quantum Optics Conference, Obergurgl (AT), February 27-March 3, 2005
46. *Spin Hamiltonian simulation in optical lattices* J. J. García-Ripoll, M. A. Martín-Delgado, J. I. Cirac. Talk, International Laser Physics Workshop (LPHYS'04) I.C.T.P. Trieste (IT), July 12-16, 2004
47. *Coherent control of trapped ions* J. J. García-Ripoll, J. I. Cirac. Talk, Ringberg Workshop, Schloß Ringberg, Tegernsee (DE), July 5-7, 2003
48. *Speed optimized 2-qubit gates with laser coherent control techniques* J. J. García-Ripoll, J. I. Cirac, P. Zoller. Invited talk, International Conference on Quantum Optics (ICQO) 2004, Minsk (Belorussia), May 28- June 11, 2004
49. *Speed optimized 2-qubit gates with laser coherent control techniques* J. J. García-Ripoll, J. I. Cirac, P. Zoller. Talk, QUEST Conference La Thuile (IT), March 6-12, 2004.

50. *Variational ansatz for the Superfluid/Mott-insulator phase transition in optical lattices* J. J. García-Ripoll, C. Kollath, U. Schollwöck, P. Zoller, J. von Delft, and J. I. Cirac. Poster, BEC 2003, San Feliu de Gixols (ES), September 13–18, 2003.
51. *Variational ansatz for the Superfluid/Mott-insulator phase transition in optical lattices* J. J. García-Ripoll, C. Kollath, U. Schollwöck, P. Zoller, J. von Delft & J. I. Cirac. Poster, Theory of Quantum Gases and Quantum Coherence Leviso Terme (IT), June 11–14, 2003
52. *Speed limits of quantum computing with ion traps* J. J. García-Ripoll, J. I. Cirac. Talk, Ringberg Workshop, Schloß Ringberg, Tegernsee (Germany), May 5–9, 2003
53. *Quantum computation with cold atoms in an optical lattice* J. J. García-Ripoll, J. I. Cirac. Talk, D. P. G. Tagungen 2003, Hannover (Germany), March 24–28, 2003
54. *Quantum computing with unknown parameters* J. J. García-Ripoll, J. I. Cirac. Talk, Bose–Einstein Condensation and Quantum Information, Caloundra (Australia), Feb. 16–20, 2003
55. *ECL: Embeddable Common–Lisp* J. J. García-Ripoll. Invited talk, International Lisp Conference 2002, San Francisco (U. S. A.), Nov. 27–30, 2002
56. *Spin dynamics for bosons in an optical lattice* J. J. García-Ripoll, J. I. Cirac. Poster, 7th. International Workshop on atom optics and interferometry. Lunteren (The Netherlands), Sept. 28– Oct 2, 2002
57. *Spin dynamics for bosons in an optical lattice* J. J. García-Ripoll, J. I. Cirac. Poster, Recent developments in the physics of cold atomic gases. Trento (IT), July 15–18, 2002
58. *Vórtices en CBE: doblado y otros fenómenos no lineales* J. J. García-Ripoll, V. M. Pérez-García. Talk, Nolineal 2002, Cuenca (ES), June 5–8, 2002
59. *Results about rotating BEC* J. J. García-Ripoll. Poster, Euresco BEC 2001, San Feliú des Guixols (ES), 2001
60. *Vortices in BEC: bending and hysteresis* J. J. García-Ripoll, V. M. Pérez-García. Poster, Theory of Quantum Gases and Quantum Coherence, Salerno (IT), 2001

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## PROYECTOS

2016 / 2018	<i>Tecnologías cuánticas con qubits y campos</i> Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia, FIS2015-70856-P Juan José García-Ripoll CSIC, 84.200 euros.
2013 / 2015	<i>Tecnologías de la información cuántica con átomos, moléculas y circuitos</i> Plan Nacional de Investigación Fundamental no Orientada, FIS2012-33022 Juan José García-Ripoll CSIC, 102.960 euros.
2012 / 2015	<i>PROMISCE: Propagating Microwaves in Strongly Coupled Environments</i> FET-Open STREP project Juan José García-Ripoll (Coord.) CSIC, UPV-EHU, Chalmers, TU Munich / WMI.
2011 / 2014	<i>IOTA: Ion Traps for Tomorrow's Applications</i> Ref: COST MP1001, COST Networks M. Knoop (Chair), Juan José García-Ripoll (Spanish Committee Member) 15 EU Countries.
2010 / 2015	<i>POLATOM</i> ESF Research Networking Programme G. M. Kavoulakis (Coordinator), Juan José García-Ripoll (PI at CSIC) 12 EU Countries.

2010 / 2012	<i>MOLOPTLAT - Molecule formation and quantum correlation in optical lattices</i> FP7 PEOPLE Programme (FP7-PEOPLE-2009-IEF-251913) J. Mur-Petit (M. Curie Postdoc), J. J. García-Ripoll (Supervisor) CSIC
2010 / 2013	<i>QUITEMAD - Quantum Information Technologies in Madrid</i> , Plan PRICIT, Comunidad Autónoma de Madrid, M. A. Martín-Delgado (Coord.) UCM, UC3M, UPM, CSIC
2009 / 2011	<i>Información cuántica y sistemas fuertemente correlacionados</i> Ref. FIS2009-10061, Proyectos de Investigación Fundamental, MICINN M. A. Martín-Delgado (PI) Univ. Complutense, CSIC
2008 / 2009	<i>Información cuántica: implementaciones físicas</i> Ref. 200850I044, Proyectos Intramurales, CSIC J. J. García-Ripoll (PI) CSIC
2006 / 2009	<i>Métodos analíticos y numéricos exactos en Materia Condensada</i> Ref. FIS2006-04885, Ministerio de Educación y Cultura Germán Sierra (PI) CSIC, Univ. Complutense, Univ. Autónoma
2007 / 2008	<i>Información y Computación Cuánticas</i> Ref. CAM-UCM/910758, Comunidad Autónoma de Madrid M. A. Martín-Delgado (PI) Univ. Complutense
2004 / 2008	<i>CONQUEST</i> Ref. MRTN-CT-2003-505089, EU FP6 Marie Curie Research Training Net. V. Bucek (PI) Various E.U. Countries
1999 / 2001	<i>Estudios analíticos y computacionales de ecuaciones no lineales en condensación de Bose-Einstein.</i> Ref. HP1999-0019, Acciones Integradas Hispano-Portuguesas V. M. Pérez-García (PI) Univ. de Castilla-La Mancha, Univ. de Lisboa

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## DIFUSIÓN

### CHARLAS Y OTRAS ACTIVIDADES

1. *Computadores cuánticos: la ruta hacia la escalabilidad*, charla popular, Semana de la Ciencia de Madrid 2015.
2. *Investigaciones cuánticas*, charla popular, Semana de la Ciencia de Madrid 2014.
3. *El lugar más frío del universo*, charla popular, Semana de la Ciencia de Madrid 2013.
4. *Materiales cuánticos artificiales*, charla popular, Semana de la Ciencia de Madrid 2012.
5. *Contando electrones: circuitos cuánticos para computación cuántica*, charla popular, Semana de la Ciencia de Madrid 2011.
6. *Pub-quiz científico*, Semana de la Ciencia de Madrid 2011-2014.

## ENSAYOS

1. *Tecnología cuántica* . J. J. García-Ripoll, Acta Científica y Tecnológica 25, 2015.
  2. *Tecnología de la Información* . J. J. García-Ripoll, B. Paredes & J. I. Cirac Física y Sociedad, 16, 2005.
  3. *Átomos a muy baja temperatura: de condensación de Bose-Einstein a sistemas altamente correlacionados*. J. J. García-Ripoll, B. Paredes & J. I. Cirac Revista Española de Física, 2002.
  4. *El computador y la Física* (Permanent section) J. J. García-Ripoll & V. M. Pérez-García Revista Española de Física, years 2000-2001.
- 

## DOCENCIA Y SUPERVISIÓN

### TESIS

- |             |   |
|-------------|---|
| 2014 – hoy  | PhD Thesis:<br><i>Tecnologías de la información cuántica con átomos, moléculas y circuitos</i><br>Diego González Olivares, Univ. Autónoma de Madrid (ES)                    |
| 2010 – 2014 | PhD Thesis:<br><i>Measuring entanglement and topology in optical lattices</i> Emilio Alba Linero,<br>Univ. Complutense (ES), sobresaliente cum-laude.                       |
| 2009 – 2013 | PhD Thesis:<br><i>Control of ultrastrongly coupled systems in circuit quantum electrodynamics</i><br>Borja Peropadre López, Univ. Complutense (ES), sobresaliente cum-laude |
| 2012        | Master Thesis:<br><i>Creación y caracterización de estados entrelazados en redes ópticas</i><br>Emilio Alba Linero, Univ. Complutense (ES), sobresaliente.                  |
| 2009        | Master Thesis:<br><i>Creación y caracterización de estados entrelazados en redes ópticas</i><br>Emilio Alba Linero, Univ. Complutense (ES), sobresaliente.                  |
| 2008        | Master Thesis:<br><i>Modelos de Kitaev en sistemas unidimensionales y qubits de carga</i><br>Borja Peropadre López, Univ. Complutense (ES), sobresaliente.                  |
| 2004        | Diploma Thesis<br><i>Cold atoms in optical lattices</i><br>Simon Nigg, T. U. Munich (DE)<br>Co-supervisor: J. I. Cirac  |

### DOCENCIA Y CURSOS ESPECIALIZADOS

- |               |  |
|---------------|--|
| 2014 / hoy    | <i>Quantum Simulation</i><br>Docencia compartida en curso de máster, 12 h / 2 E.C.T.S por año<br>Facultad de Físicas, Univ. Complutense de Madrid (ES)                 |
| 2016-02-01/28 | <i>Microwave Quantum Photonics</i><br>Curso de máster y doctorado, 2,5 E.C.T.S<br>University of Innsbruck / IQOQI (AT)   |
| 2007 / 2013   | <i>Información y Computación Cuántica</i><br>Docencia compartida en curso de máster, 12 h / 2 E.C.T.S por año<br>Facultad de Físicas, Univ. Complutense de Madrid (ES) |
| 2011-07-19    | <i>Computación cuántica</i><br>Curso de verano Fronteras de la Computación<br>Centro de Ciencias de Benasque (ES)  |



2011–07–11/15	<i>Un paseo por las fronteras de la ciencia</i> Curso de verano Universidad de Málaga, Organizado por Emilio Alba Conejo y J.J.G.R Archidona (ES).
2009–04	<i>Quantum Information and Computation</i> Curso de máster, 18 h Univ. Autónoma de Barcelona (ES)
2008–07	<i>Computación e Información Cuánticas</i> Curso de El Escorial, Tendencias Actuales de la Matemática Interdisciplinar El Escorial (ES)
2000 / 2001	<i>Métodos Numéricos II</i> Responsable de la asignatura, 60 h E.T.S.I. Industriales, Univ. de Castilla–La Mancha, Ciudad Real (ES)
1998 / 1999	<i>Métodos Numéricos II</i> Docencia compartida, 30 h E.T.S.I. Industriales, Univ. de Castilla–La Mancha, Ciudad Real (ES)

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## COMISIONES Y EVALUACIONES

1. Evaluador de proyectos para las siguientes organizaciones: ANEP (España), DFG (Germany), FWF (Austria), CONICYT/FONDECYT (Chile), NSF (USA), SNF (Suiza).
2. Comité evaluador de proyectos del Plan Nacional en 2011 y 2016.
3. Representante del CSIC para el desarrollo de las tecnologías cuánticas en el marco del Flagship de tecnologías cuánticas.
4. Comité asesor páginas y contenidos web en CSIC.
5. Referee de diversas revistas científicas; entre otras: Physical Review X, Physical Review Letters, New Journal of Physics, Physical Review A, Physica B, Optics Express, Europhysics Letters, Proceedings of the Royal Society A, Quantum Information and Communication.
6. Presidente del Grupo de Información Cuántica de la Sociedad Española de Física.
7. Organizador y miembro del comité científico de diferentes congresos nacionales e internacionales (ver anteriormente).

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## OTROS MÉRITOS

1. Conocimientos y experiencia con diversos sistemas operativos (Unix, OS/2, MS-DOS), programación en lenguajes imperativos (C/C++, Pascal, Fortran) y funcionales (Standard ML, Scheme), así como nociones de programación multitarea y distribuida.
2. Desarrollador de una implementación del lenguaje de programación ANSI Common Lisp, denominada ECL, y que contiene tanto un compilador como un intérprete y librerías asociadas (<http://ecls.sf.net>)

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## REFERENCIAS

- **Prof. J. I. Cirac**

Max-Planck-Institut für Quantenoptik  
Theory Division  
Hans-Kopfermann-Str. 1  
Garching, Germany

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Fax: (+ 49 89) 3 29 05 - 336  
e-Mail: ignacio.cirac at mpq.mpg.de

■ **Prof. M. A. Martín-Delgado**

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Madrid, España

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Madrid, 9 de agosto de 2016

A handwritten signature in blue ink, consisting of a stylized 'M' and 'A' followed by a long horizontal stroke.