

Curriculum Vitae

Enrique Rico Ortega

I have been actively performing physics research for the last 15 years. I finished my physics degree at the Universidad Autónoma de Madrid (Spain) with final year collaboration in the group of Prof. F. Sols in theoretical condensed matter physics, on entanglement in Bose-Einstein condensates.

With the work on my PhD thesis "Entanglement in (1+1)-dimensional systems", under the supervision of Prof. J.I. Latorre, I became an expert in the theoretical aspects of quantum information and strongly correlated quantum systems.

During my post-doc research career, I have been working in the field of theoretical quantum physics in a broad scope of topics ranging from quantum link models and the preparation of exotic topological states in open systems to implementations of lattice gauge theories using ultra-cold atoms. I have made key contributions to a large number of projects and the ideas from my research with my collaborators have opened new directions to several timely topics in quantum physics in condensed matter, atomic-molecular-quantum optics physics, and beyond. To give an example, in my recent work on quantum simulation of lattice gauge theories, with my collaborators, we have put forward a very exciting new approach to fundamental problems of high-energy physics. A characteristic of my work is that I always try to bring research subjects and ideas acquired and developed at one place to the next one. For instance, my previous work on valence bond states initiated some successful project in the group of Prof. Dr. H.J. Briegel when moving to Innsbruck. When going to Ulm and later to Strasbourg, my expertise on quantum optical implementations of lattice gauge theories was an important contribution to the work in these groups.

I have also experience in teaching. I have given several courses in Innsbruck and Strasbourg and have guided a number of graduate and doctoral students in their work.

Recently, I have moved to Bilbao in the group of Prof. Dr. E. Solano with the highly competitive and prestigious Ikerbasque research fellow position.

To summarize, during my research career, I have very successfully demonstrated my international standing in theoretical quantum physics, my abilities to carry out original, independent research at the cutting edge of science, and to design and conduct major research projects.

Personal details

Nationality: Spanish

Researcher unique identifier(s):

[Scopus Author ID: 56209503700](https://orcid.org/0000-0003-4414-6821)

[ResearcherID: H-7173-2015](https://orcid.org/0000-0003-4414-6821)

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Education

2014 HDR – Habilitation to supervise research. Strasbourg University, France

2005 PhD in Physics. Universidad de Barcelona, Spain. Advisor: Prof. Dr. J.I. Latorre

2001 Physics degree. Universidad Autonoma de Madrid, Spain

Current position

2015 – Now Ikerbasque Research Fellow
University of the Basque Country UPV/EHU, Bilbao, Spain

Professional experience

2014 – 2014 Postdoctoral Researcher
Laboratory of Quantum Physics, ISIS, Universite de Strasbourg, France
2013 – 2013 Wissenschaftliche Mitarbeiter
Institute for Quantum Information processing, Ulm University, Germany
2010 – 2012 Junior Scientist
Institute for Theoretical Physics, Innsbruck University, Austria
2008 – 2010 Assistant Researcher
Physics Faculty, University of Vienna, Austria
2005 – 2008 Assistant Researcher
Institute of Quantum Optics and Quantum Information, Innsbruck University,
Austria

Scientific visits

1. Deutschen Elektronen-Synchrotron (DESY) Hamburg, Germany. Scholarship at the HERA-B project for the study and analysis of the decay vertex of a J/ψ in a pair lepton-antilepton. Work involved in the CP violation research and B-meson physics. (2002). Two-month.
2. Dept. App. Math. and Th. Physics (DAMTP) Cambridge, UK. Three-month visit in the group of Quantum Information of Prof. Dr. A. Ekert. (2003). Three-month.
3. Groupe de Ph. Solid Paris VI, Univ. Pierre et Marie Curie, France. Collaboration with Prof. Dr. J. Vidal in the study of quantum correlations on condensed matter models. (2004). One-month.
4. Dept. App. Math. and Th. Physics (DAMTP) Cambridge, UK. Three-month visit in the group of Quantum Information of Prof. Dr. A. Ekert. (2004). Three-month.
5. Center for Quantum Technologies (C.Q.T) National University of Singapore (N.U.S.), Singapore. Collaboration to study symmetries and duality transformations in topological order systems and non-abelian gauge models. (2009). One-month.

Teaching and supervision of graduate students

1. Jan. 2004 - Jun. 2005. Dept. E.C.M. at Univ. Barcelona, Spain. Supervision of the courses in Mathematical methods in Physics and in Fundamental Physics.
2. Oct. 2005 - Feb. 2008. Dept. Th. Physics at Univ. Innsbruck, Austria. Lecture in Quantum Information in Condensed matter systems, Quantum Information for Computer Scientist. Supervision of the courses in Classical Electrodynamics and Mathematical methods in Physics.
3. Sept. 2014 – Dec. 2014. Lab. Quantum Phys., Strasbourg, France. Lecture in Condensed matter and Many-Body systems.
4. Oct. 2015 – Jun. 2016. Bachelor's thesis supervision [A. Irastorza "Quantum



- Computation with Superconductors"]
5. Oct. 2016 – Jun. 2017. Bachelor's thesis supervision [R. Asensio Perea "Quantum Simulation of spin models with Circuit QED"]
 6. Oct. 2016 – Jun 2017. Master's thesis supervision [M. Peidro "Quantum Simulation of Topological models with Superconducting Circuits"]
 7. Oct. 2017 – Jun. 2018. Master's thesis supervision [R. Asensio Perea "Quantum Simulation of Topological Quantum Matter"]

Memberships of scientific societies

2015 – Now Member, "Spanish Royal Society of Physics"

Scientific management

1. Research project: Teoria de la Informacion Cuantica: entrelazamiento, algoritmos, criptografia y decoherencia. (2004-2007) Ministerio de Ciencia y Tecnologia.
2. Research project: SCALA (Scalable quantum computing with light and atoms). (2005-2010) OEAW.
3. Research project: NAME-QUAM (Nanodesigning of Atomic and MolEcular QUAntum Matter). (2010-2011) OEAW.
4. Research project: StratUp Ikerbasque (2015-2019) 14000€. Ikerbasque Foundation.
5. Research project: EHUA15/17 (Algoritmos cuanticos con metodos analogico-digitales). (2015-2017) 3104€. UPV/EHU.
6. Chair local organizer, "International Workshop on Ultra-Strong Light-Matter Interactions: theory and applications to quantum information", 19-21 September 2016, Bilbao, Spain. (UPV/EHU grant: 4000€, Basque government grant: 3000€, IQC Canada grant:5500€) [<http://www.qutisgroup.com/workshop-on-ultra-strong-light-matter-interactions/>]
7. Outreach: Pint of Science 2016-2019, Bilbao, Spain. [<https://pintofscience.es/events/bilbo>]
8. Chair local organizer, "International Workshop on Quantum Simulation & Computation: Advantage, Scalability, and Verification", 12-16 February 2018, Bilbao, Spain. (UPV/EHU grant: 3000€, Basque government grant: 4000€, IQC Canada grant:6300€) [<http://qsc2018.hbar.es/>]
9. Local organizer, "Cold Atom Workshop 2018" November 16-17, 2018, Bilbao, Spain. [<https://www.ehu.eus/en/web/cawbilbao/>]
10. Chair local organizer, "International Workshop on Quantum Simulation: Gauge Fields, Holography, and Topology", 10-12 July 2019, Bilbao, Spain. [<https://sites.google.com/view/quant-sim-ght>]

The results of my research have appeared in a number of high-profile publications, including Nature Physics, Physical Review X, Physical Review Letters or Annals of Physics with several publications with more than 100 citations and with an average of more than 100 citations per publication. In some of these works, I was first author or the only author. The ideas, proposals, and works have been disseminated in a series of talks at international conferences and visits of research groups (more than 70 talks, seminars and presentations).

Citations indices: Number of Articles 35, Citations 4347, h-index 19, and i10-index 25.

Publications

1. G. Vidal, J.I. Latorre, E. Rico, A. Kitaev (2003). Entanglement in quantum critical phenomena. *Physical Review Letters*, 90, 227902. [Times Cited: 2052; Impact Factor of the Jour.: 7.622].
2. J.I. Latorre, E. Rico, G. Vidal (2004). Ground state entanglement in quantum spin chains. *Quantum Information and Computation*, 4, 48-92. [Times Cited: 593; Impact Factor of the Jour.: 2.980].
3. J.K. Pachos, E. Rico (2004). Effective three-body interactions in triangular optical lattices. *Physical Review A*, 70, 053620. [Times Cited: 65; Impact Factor of the Jour.: 2.866].
4. J.I. Latorre, C.A. Lütken, E. Rico, G. Vidal (2005). Fine-grained entanglement loss along renormalization-group flows. *Physical Review A*, 71, 034301. [Times Cited: 110; Impact Factor of the Jour.: 2.866].
5. J.I. Latorre, R. Orus, E. Rico, J. Vidal (2005). Entanglement entropy in the Lipkin-Meshkov-Glick model. *Physical Review A*, 71, 064101. [Times Cited: 147; Impact Factor of the Jour.: 2.866].
6. F. Verstraete, J.I. Cirac, J.I. Latorre, E. Rico, M.M. Wolf (2005). Renormalization group transformations on quantum states. *Physical Review Letters*, 94, 140601. [Times Cited: 177; Impact Factor of the Jour.: 7.622].
7. E. Rico (2005). Quantum correlations in (1+1)-dimensional systems. PhD thesis (Barcelona University) [Times Cited: 6].
8. Kay, D.K.K. Lee, J.K. Pachos, M.B. Plenio, M.E. Reuter, E. Rico (2005). Quantum information and triangular optical lattices. *Optics and Spectroscopy*, 99, 339-356. [Times Cited: 12; Impact Factor of the Jour.: 0.571].
9. E. Rico (2006). Scale perturbation in valence bond ground states. arXiv:cond-mat/0601254. [Times Cited: 6].
10. E. Rico, H.J. Briegel (2008). 2D multipartite valence bond states in quantum antiferromagnets. *Annals of Physics*, 323, 2115-2131. [Times Cited: 14; Impact Factor of the Jour.: 3.275].
11. E. Rico, R. Hübener, S. Montangero, N. Moran, B. Pirvu, J. Vala, H.J. Briegel (2009). Valence bond states: Link models. *Annals of Physics*, 324, 1875-1896. [Times Cited: 3; Impact Factor of the Jour.: 3.275].
12. O. Gittsovich, R. Hübener, E. Rico, H.J. Briegel (2010). Local renormalization method for random systems. *New Journal of Physics*, 12, 025020. [Times Cited: 2; Impact Factor of the Jour.: 3.849].
13. S. Diehl, E. Rico, M.A. Baranov, P. Zoller (2011). Topology by dissipation



- in atomic quantum wires. *Nat. Phys.* 7, 971-977. [Times Cited: 231; Impact Factor of the Jour.: 18.799].
14. C.E. Bardyn, M.A. Baranov, E. Rico, A. Imamoglu, P. Zoller, S. Diehl (2012). Majorana modes in driven-dissipative atomic superfluids with zero Chern number. *Physical Review Letters*, 109, 130402. [Times Cited: 61; Impact Factor of the Jour.: 7.622].
 15. D. Banerjee, M. Dalmonte, M. Müller, E. Rico, P. Stebler, U.-J. Wiese, P. Zoller (2012). Atomic quantum simulation of dynamical gauge fields coupled to fermionic matter. *Physical Review Letters*, 109, 175302. [Times Cited: 143; Impact Factor of the Jour.: 7.622].
 16. D. Banerjee, M. Bögli, M. Dalmonte, E. Rico, P. Stebler, U.-J. Wiese, P. Zoller (2013). Atomic Quantum Simulation of U(N) and SU(N) Non-Abelian Lattice Gauge Theories. *Physical Review Letters*, 110, 125303. [Times Cited: 161; Impact Factor of the Jour.: 7.622].
 17. C.-E. Bardyn, M.A. Baranov, C.V. Kraus, E. Rico, A. Imamoglu, P. Zoller, S. Diehl (2013). Topology by dissipation. *New Journal of Physics*, 15, 085001. [Times Cited: 125; Impact Factor of the Jour.: 3.849].
 18. D. Marcos, P. Rabl, E. Rico, P. Zoller (2013). Superconducting circuits for quantum simulation of dynamical gauge fields. *Physical Review Letters*, 111, 110504. [Times Cited: 69; Impact Factor of the Jour.: 7.622].
 19. E. Rico, T. Pichler, M. Dalmonte, P. Zoller, S. Montangero (2014). Tensor networks for lattice gauge theories and atomic quantum simulation. *Physical Review Letters*, 112, 201601. [Times Cited: 78; Impact Factor of the Jour.: 7.622].
 20. P. Silvi, E. Rico, T. Calarco, S. Montangero (2014). Lattice gauge tensor networks. *New Journal of Physics*, 16, 103015. [Times Cited: 47; Impact Factor of the Jour.: 3.849].
 21. D. Marcos, P. Widmer, E. Rico, M. Hafezi, P. Rabl, U.-J. Wiese, P. Zoller (2014). Two-dimensional Lattice Gauge Theories with Superconducting Quantum Circuits. *Annals of Physics*, 351, 634-654. [Times Cited: 36; Impact Factor of the Jour.: 3.275].
 22. T. Pichler, M. Dalmonte, E. Rico, P. Zoller, S. Montangero (2016). Real-time Dynamics in U(1) Lattice Gauge Theories with Tensor Networks. *Physical Review X*, 6, 011023. [Times Cited: 59; Impact Factor of the Jour.: 8.385].
 23. A. Mezzacapo, E. Rico, C. Sabín, I. L. Egusquiza, L. Lamata, E. Solano (2015). Non-Abelian Lattice Gauge Theories in Superconducting Circuits. *Physical Review Letters*, 115, 240502. [Times Cited: 28; Impact Factor of the Jour.: 7.622].
 24. D. Z. Rossatto, S. Felicetti, H. Eneriz, E. Rico, M. Sanz, E. Solano (2016). Entangling polaritons via dynamical Casimir effect in circuit quantum electrodynamics. *Physical Review B*, 93, 094514. [Times Cited: 30; Impact Factor of the Jour.: 3.736].
 25. G. K. Brennen, G. Pupillo, E. Rico, T. M. Stace, D. Vodola (2016). Loops and strings in a superconducting lattice gauge simulator. *Physical Review Letters*, 117, 240504. [Times Cited: 7; Impact Factor of the Jour.: 7.622].
 26. S. Felicetti, E. Rico, C. Sabin, T. Ockenfels, J. Koch, M. Leder, C. Grossert, M. Weitz, E. Solano (2017). Quantum Rabi model in the Brillouin zone with ultra-cold atoms. *Physical Review A*, 95, 013827.



[Times Cited:15; Impact Factor of the Jour.: 2.866].

27. P. Silvi, E. Rico, M. Dalmonte, F. Tschirsich, S. Montangero (2017). Finite-density phase diagram of a (1+1)-d non-abelian lattice gauge theory with tensor networks. *Quantum* 1, 9. [Times Cited:19].
28. L. García-Álvarez, S. Felicetti, E. Rico, E. Solano, C. Sabín (2017). Entanglement of superconducting qubits via acceleration radiation. *Scientific Reports* 7, 657. [Times Cited:11].
29. D. Bercioux, O. Dutta, E. Rico (2017). Solitons in one-dimensional lattices with a flat band. *Ann. Phys. (Berlin)* 1600262. [Times Cited:1].
30. A. S. Dehkharghani, E. Rico, N.T. Zinner, A. Negretti (2017). Lattice Gauge Quantum Simulation via State-Dependent Hopping. *Physical Review A*, 96, 043611 (2017). [Times Cited:3; Impact Factor of the Jour.: 2.866].
31. A. Parra-Rodriguez, E. Rico, E. Solano, I.L. Egusquiza (2018). Quantum Networks in Divergence-free Circuit QED. *Quantum Science and Technology* 3 (2), 024012 [Times Cited:3]
32. S. Felicetti, D. Z. Rossatto, E. Rico, E. Solano, P. Forn-Díaz (2018). Two-photon quantum Rabi model with superconducting circuits. *Phys. Rev. A* 97, 013851 [Times Cited:14; Impact Factor of the Jour.: 2.866]
33. E. Rico, M. Dalmonte, P. Zoller, D. Banerjee, M. Bogli, P. Stebler, U.-J. Wiese (2018). SO(3) "Nuclear Physics" with ultracold Gases. *Annals of physics* 393, 466-483 [Times Cited:3; Impact Factor of the Jour.: 3.275]
34. P. Forn-Díaz, L. Lamata, E. Rico, J. Kono, E. Solano (2018). arXiv:1804.09275 [Times Cited:18]
35. H. Alaeian, C.W.S. Chang, M.V. Moggaddam, C.M. Wilson, E. Solano, E. Rico (2018). Lattice gauge fields via modulation in circuit QED: The bosonic Creutz ladder. arXiv: 1805.12410 [Times Cited:1]

**Lectures,
seminars,
presentations**

1. "Entanglement in quantum spin chains & Quantum critical phenomena" D.A.M.T.P., Cambridge University, U.K., 14/10/2003.
2. "Entanglement, Quantum Critical Phenomena & Renormalization Group" Universite Pierre et Marie Curie. Paris VI, France, 03/06/2004.
3. "Entanglement, Critical Phenomena & RG Flows" Universite Libre de Bruxelles, Belgium, 26/10/2004.
4. "Scale Transformations on Matrix Product States" D.A.M.T.P., Cambridge University, U.K., 11/11/2004.
5. "Entanglement, Critical Phenomena & RG Flows" Innsbruck University, Austria, 22/12/2004.
6. "Entanglement, Critical Phenomena & Renormalization Transformations" University of Illinois, U.S.A., 12/01/2005.
7. "Quantum Critical Phenomena, RG flows and Matrix Product States" Perimeter Institute, Canada, 19/01/2005.
8. "Entanglement & Critical Phenomena" N.I.S.T., U.S.A, 26/01/2005.
9. "Quantum Critical Phenomena & RG flows" Barcelona University, Spain, 21/02/2005.
10. "Entanglement and RG-transformations" RG-2005, Helsinki University, Finland, 01/09/2005.
11. "Scale perturbation in Matrix Product States" Innsbruck University,



- Austria, 14/12/2005.
12. "Scale perturbation in MPS" Barcelona University, Spain, 21/12/2005.
 13. "Scale perturbation in valence bond states" Ringberg, MPQ-meeting, Germany, 20/04/2006.
 14. "Renormalization in valence bond states" Univ. Autonoma Barcelona, Spain, 29/05/2006.
 15. "Scale perturbation in valence bond ground states" S. Normale Superiore Pisa, Italy, 13/12/2006.
 16. "Valence Bond States and Link Models" Innsbruck University, Austria, 29/06/2007.
 17. "Some notes on antiferromagnetic insulators" Innsbruck University, Austria, 10/10/2007.
 18. "Multipartite VBS and link models" Ringberg, MPQ-meeting, Germany, 10/12/2007.
 19. "2D multipartite VBS in quantum magnets" Schrödinger Institut, Vienna, Austria, 17/01/2008.
 20. "2D VBS in quantum antiferromagnets" I.C.T.P., Trieste, Italy, 07/05/2008.
 21. "2D multipartite valence bond states" Fund. R. Areces, Madrid, Spain, 29/05/2008.
 22. "Valence bond states: Link models" Maynooth University, Dublin, Ireland, 16/09/2009.
 23. "Entropy in many-body quantum systems" Vienna University, Austria, 11/06/2010.
 24. "Valence-bond states: Link models" I.C.T.P., Trieste, Italy, 06/07/2010.
 25. "Classical simulations of quantum systems" S.F.B. meeting, Innsbruck, Austria, 08/07/2010.
 26. "Link models" Stony Brook, New York, USA, 16/11/2010.
 27. "Simulating a Majorana chain with ultra-cold Fermions" Barcelona University, Spain, 20/12/2010.
 28. "Simulating a p-wave superfluid" Benasque Center for Sciences, Spain, 02/03/2011.
 29. "Topology by dissipation in atomic quantum wires" Nordita, Sweden, 04/06/2011.
 30. "Topological Quantum Computation: an overview" S.F.B. school, Innsbruck, Austria, 07/07/2011.
 31. "Topology by dissipation in atomic quantum wires" S.F.B. meeting, Innsbruck, Austria, 07/07/2011.
 32. "Majorana fermions with AMO physics tools" Universidad Complutense de Madrid, Spain, 02/11/2011.
 33. "Quantum simulation of gauge theories" Institute for Theoretical Physics, Bern University, Switzerland, 12/03/2012.
 34. "Atomic quantum simulator for lattice gauge theories" Innsbruck University, Austria, 21/06/2012.
 35. "Digital simulation of Quantum Link models within Ion-Traps" Innsbruck University, Austria, 03/09/2012.
 36. "Atomic quantum simulation of dynamical gauge fields" Workshop ICE0, CSIC, Madrid, Spain, 18/09/2012.
 37. "Confinement phenomena and the cold atom lattice gauge toolbox" Aachen University, Germany, 04/10/2012.



38. "Quantum simulation of (non-)abelian gauge theories" Ulm University, Germany, 14/11/2012.
39. "Atomic Quantum Simulation of U(N) and SU(N) Non-Abelian Lattice Gauge Theories" ICFO, Barcelona, Spain, 18/12/2012.
40. "Quantum simulation of non-abelian gauge theories" Barcelona University, Spain, 19/12/2012.
41. "Atomic Quantum Simulation of Non-Abelian Lattice Gauge Theories" Complutense University, Madrid, Spain, 20/12/2012.
42. "Quantum simulation of (non-)abelian dynamical gauge theories" Benasque Center for Sciences, Spain, 13/02/2013.
43. "Superconducting circuit toolbox for the quantum simulation of dynamical lattice gauge theories" Vienna, TU-Wien, Austria, 08/05/2013.
44. "Atomic quantum simulation of U(N)/SU(N) non-abelian lattice gauge theories" I.C.T.P., Trieste, Italy, 16/05/2013.
45. "AMO toolbox for quantum simulation of lattice gauge theories" BEC-center, Trento, Italy, 20/05/2013.
46. "Quantum simulation of gauge theories" LPMMC and CNRS Grenoble, France, 14/11/2013.
47. "Classical and quantum simulation of gauge theories" Complutense University, Madrid, Spain, 18/12/2013.
48. "Tensor networks for lattice gauge theories" Coogee conference, Sydney, Australia, 15/01/2014.
49. "Classical simulation of gauge theories" Gent University, Gent, Belgium, 24/01/2014.
50. "Simulation of lattice gauge theories" Bern University, Bern, Switzerland, 03/02/2014.
51. "Atomic quantum simulator of dynamical lattice gauge theories" BEC conference, Levico Terme, Italy, 29/05/2014.
52. "Quantum simulation for lattice gauge theories" International conference Medellin, Colombia, 26/08/2014.
53. "Classical simulation of gauge theories" Innsbruck University, Austria, 22/10/2014.
54. "Simulation of gauge theories" Ecole Normale, Lyon, France, 18/11/2014.
55. "Strongly correlated quantum many-body systems" Strasbourg University, France, 18/12/2014.
56. "Tensor network simulation of lattice gauge theories" Benasque Center for Sciences, Spain, 23/02/2015.
57. "Quantum Technologies for lattice gauge theories" Hamburg University, Germany, 13/04/2015.
58. "Non-abelian lattice gauge theories in superconducting circuits" UPV/EHU, Bilbao, Spain, 01/07/2015.
59. "Simulation of lattice gauge models" DIPC, Donostia, Spain, 03/11/2015.
60. "*Towards an experimental realization of a periodic quantum Rabi model with ultra-cold atoms*" Chicheley, UK, 03/03/2016.
61. "Quantum Technologies for Lattice Gauge Theories" Workshop ICE3, Mallorca, Spain, 13/04/2016.
62. "Quantum Technologies for Lattice Gauge Theories" IFT-UAM-CSIC, Madrid, Spain, 30/05/2016.
63. "Quantum Technologies for Lattice Gauge Theories" Mainz Institute for



Theoretical Physics, Mainz, Germany, 06/02/2017.

64. "Tensor Networks for Lattice Gauge Theories" Galileo Galilei Institute, Florence, Italy, 30/05/2017.
65. "Quantum Technologies for Lattice Gauge Theories" IFF-CSIC, Madrid, Spain, 12/06/2017.
66. "Quantum Technologies for Lattice Gauge Theories" Last Frontiers in Quantum Information Science, Seward, Alaska, USA, 23/06/2017.
67. "Small overview of topics covered at QUTIS" IQC, Waterloo, Canada, 28/06/2017.
68. "Small overview of topics covered at QUTIS" Bonn University, Germany, 12/09/2017.
69. "Quantum Technologies at QUTIS group" Barcelona Supercomputing Center, Spain, 22/09/2017.
70. "Exploring SO(3) nuclear physics with ultra-cold gases" SISSA, Trieste, Italy, 04/10/2017.
71. "Quantum simulation of topological spin models" Zaragoza, Spain, 31/10/2017.
72. "SO(3) Nuclear Physics with ultra-cold Gases" IFT-UAM-CSIC, Madrid, Spain, 28/05/2018.
73. "SO(3) Nuclear Physics with ultra-cold Gases" Complutense University, Madrid, Spain, 29/05/2018.
74. "Two experimental collaborations in Quantum Simulation with ultra-cold atoms" Int. Inst. Phys. (IIP) Natal, Brasil, 06/11/2018.