

# CURRICULUM VITAE

ROMERO-ISART, ORIOL



## PERSONAL DETAILS

Place and Date of Birth: Terrassa, Barcelona (Catalonia), 16 May 1981  
Work address: [Institute for Quantum Optics and Quantum Information](#) of the Austrian Academy of Sciences.  
Technikerstraße 21a  
A-6020 Innsbruck (Austria)  
Telephone: + 43 (0) 512 507 4730  
E-mail: [oriol.romero-isart@uibk.ac.at](mailto:oriol.romero-isart@uibk.ac.at)  
Website: [Research Group on Quantum Nanophysics, Optics, and Information](#)  
ORCID [0000-0003-4006-3391](#)  
Researcher-ID: [A-2684-2009](#)

## PROFESSIONAL EXPERIENCE

Since 10/2018 University Professor (Tenure) in Theoretical Quantum Physics at the [University of Innsbruck](#), Innsbruck (Austria).  
Since 10/2018 Group Leader (Senior Research Associate) at the [Institute for Quantum Optics and Quantum Information \(IQOQI\)](#) of the Austrian Academy of Sciences, Innsbruck (Austria).  
10/2013 - 10/2018 University Professor (Tenure Track) in Theoretical Quantum Physics at the [University of Innsbruck](#) and Junior Director at the [Institute for Quantum Optics and Quantum Information \(IQOQI\)](#) of the Austrian Academy of Sciences, Innsbruck (Austria).  
1/2011 - 10/2013 Associate researcher at the [Theory group](#) of Prof. J. Ignacio Cirac. Max-Planck-Institute of Quantum Optics, Garching (Germany).  
1/2009 - 12/2010 [Alexander von Humboldt](#) postdoctoral fellow at the [Theory group](#) of Prof. J. Ignacio Cirac. Max-Planck-Institute of Quantum Optics, Garching (Germany).

## EDUCATION

9/2004 - 9/2008 Ph. D. in Physics (Excellent *Cum Laude* and Extraordinary Prize).  
Thesis: *Quantum Information with Strongly Correlated Systems: from Engineering to Detection*.  
Supervised by Prof. Anna Sanpera, Universitat Autònoma de Barcelona, Bellaterra (Catalonia).  
9/1999 - 6/2004 Llicenciat (Graduate) in Physics, Universitat Autònoma de Barcelona, Bellaterra (Catalonia).

## FELLOWSHIPS AND AWARDS

- 2015 [QIPC Young Investigator Award](#).
- 2013 [ERC Starting Grant](#) of the [European Research Council](#) (ERC-2013-StG).
- 2013 [Emmy Noether Research Program](#) of the [German Research Foundation \(DFG\)](#) (DECLINED).
- 2012 National prize “Investigador Novel en Física Teórica” from the [Royal Physical Society of Spain](#) and the [BBVA foundation](#).
- 2011 Ph. D. extraordinary prize from the [Universitat Autònoma de Barcelona](#).
- 2009 [Humboldt Research Fellowship for Postdoctoral Researchers](#) from the [Alexander von Humboldt Foundation](#) (24 months).
- 2006 Ph. D. fellowship from the Spanish Government (FPU Ref: AP2005-0595).

## RESEARCH VISITS

- 51. [Universitat Autònoma de Barcelona](#) (Catalonia), 27 March 2019.
- 50. [University of Duisburg-Essen](#) (Germany), 10 to 11 January 2019.
- 49. [ETH, Zürich](#) (Switzerland), 20 to 21 November 2018.
- 48. [Institute of Science and Technology Austria](#), Vienna (Austria), 22 August 2018.
- 47. [TU Wien Atominstitut](#), Vienna (Austria), 11 April 2018.
- 46. [California Institute of Technology](#), Pasadena CA (USA), 22 to 23 February 2018.
- 45. [TU Wien Atominstitut](#), Vienna (Austria), 22 January 2018.
- 44. [Chalmers University of Technology](#), Göteborg (Sweden), 23 to 24 November 2017.
- 43. [Universidad de la Habana](#), La Habana (Cuba), 30 October to 3 November 2017.
- 42. [ETH, Zürich](#) (Switzerland), 21 to 22 September 2017.
- 41. [TU Wien Atominstitut](#), Vienna (Austria), 25 to 26 April 2017.
- 40. [Perimeter Institute for Theoretical Physics](#), Waterloo (Canada), 12 to 25 February 2017.
- 39. [Universidad Autónoma de Madrid](#), Madrid (Spain), 2 to 3 February 2017.
- 38. [University of Basel](#), Basel (Switzerland), 14 to 15 November 2016.
- 37. [Walther-Meissner-Institute](#), Garching (Germany), 9 to 10 June 2016.
- 36. [TU Delft](#), Delft (Netherlands), 23 to 24 November 2015.
- 35. [Max-Planck-Institute of Quantum Optics](#), Garching (Germany), 15 June 2015.
- 34. [TU Wien Atominstitut](#), Vienna (Austria), 1 to 3 June 2015.
- 33. [Max-Planck-Institute of Quantum Optics](#), Garching (Germany), 23 March 2015.
- 32. [Macquarie University](#), Sydney (Australia), 8 to 23 January 2015.
- 31. [Max-Planck-Institute of Quantum Optics](#), Garching (Germany), 22 to 24 September 2014.
- 30. [University of Vienna](#), Vienna (Austria), 20 August 2014.

29. Institute for Quantum Optics and Quantum Information, Vienna (Austria), 16 to 17 June 2014.
28. Max-Planck-Institute of Quantum Optics, Garching (Germany), 14 to 15 April 2014.
27. Max-Planck-Institute of Quantum Optics, Garching (Germany), 12 to 14 February 2014.
26. Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 6 to 7 February 2014.
25. Max-Planck-Institute of Quantum Optics, Garching (Germany), 16 to 20 December 2013.
24. University of Vienna, Vienna (Austria), 4 to 6 June 2013.
23. Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 15 to 26 October 2012.
22. University College of London, London (UK), 3 to 4 July 2012.
21. California Institute of Technology, Pasadena CA (USA), 16 February to 4 March 2012.
20. Stanford University, Stanford CA (USA), 2 to 16 February 2012.
19. University of Vienna, Vienna (Austria), 14 to 16 December 2011.
18. Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 18 to 19 November 2011.
17. University of Vienna, Vienna (Austria), 13 to 15 July 2011.
16. Institut de Ciències Fotòniques, Castelldefels (Catalonia), 23 to 24 May 2011.
15. Harvard University, Cambridge MA (USA) 1 to 11 February 2011.
14. Albert-Ludwigs University of Freiburg, Freiburg (Germany), 25 to 26 January 2011.
13. Institut de Ciències Fotòniques, Castelldefels (Catalonia), 19 to 21 January 2011.
12. Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 17 to 18 January 2011.
11. University of Vienna, Vienna (Austria), 23 to 25 November 2010.
10. University of Austin at Texas, Austin TX (USA), 18 to 22 October 2010.
9. University of Vienna, Vienna (Austria), 12 to 14 July 2010.
8. Institute for Quantum Optics and Quantum Information, Innsbruck (Austria), 10 to 12 May 2010.
7. University of Vienna, Vienna (Austria), 8 to 10 February 2010.
6. Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 31 August to 4 September 2009.
5. Institut de Ciències Fotòniques, Castelldefels (Catalonia), 13 to 17 July 2009.
4. Harvard University, Cambridge MA (USA), 24 September to 21 December 2007.
3. Universidad Complutense de Madrid, Madrid (Spain), 23 to 27 July 2007
2. Max-Planck-Institute of Quantum Optics, Garching (Germany), 1 to 8 August 2005.
1. University of Leeds, Leeds (UK), 1 July to 15 September 2003.

#### INVITED TALKS AT CONFERENCES AND WORKSHOPS

42. *Quantum Acoustomechanics with a Micromagnet*, Optomagnonics at Cambridge, University of Cambridge (UK), 9 to 10 September 2019.

41. *Quantum Acoustomechanics with a Micromagnet*, Conference on Nanophotonics: Foundations & Applications, Monte Verità (Switzerland), 2 to 5 September 2019.
40. *Quantum Acoustomechanics with a Micromagnet*, WE-Heraeus-Seminar on Levitated Optomechanics, Bad Honnef (Austria), 30 July to 1 August 2019.
39. *Heating in Nanophotonic Traps for Cold Atoms*, 7th International Topic Meeting on Nanophotonics and Metamaterials (NANOMETA), Seefeld (Austria), 3 to 6 January 2019.
38. *Hot or Cold Nanospheres? Maybe none of the above*, Quantum Engineering of Levitated Systems, Bidasoa (Spain), 16 to 22 September 2018.
37. *Levitated Nanoparticles in the Quantum Regime: Challenges and Opportunities*, Tutorial talk at the French Research Network on Quantum Optomechanics and Nanomechanics (GdR MecaQ), Université Paris Diderot, Paris (France), 12 to 13 September 2018.
36. *Ultra-Weak Force Sensing*, Discussion leader talk on Gordon Research Conference on Mechanical Systems in the Quantum Regime, Ventura CA (USA), 26 February to 1 March 2018.
35. *Quantum spin stabilized magnetic levitation*, Frontiers on Quantum Nanophotonics, Monte Verità (Switzerland), 21 to 23 August 2017.
34. *Levitated nanomagnets in the quantum regime*, Quantum Nanophotonics, Bidasoa (Spain), 27 February to 3 March 2017.
33. *Towards Quantum Interference of a Superconducting Microsphere*, Quantum Engineering of Levitated Systems, Bidasoa (Spain), 25 to 28 September 2016.
32. *Towards quantum interference of spheres of  $10^{13}$  AMUs in an earth-based on-chip scheme*, DICE 2016 : Spacetime - Matter - Quantum Mechanics, Castello Pasquini/Castiglione (Italy), 14 to 16 September 2016.
31. *Towards Quantum Interference of a Superconducting Microsphere*, FOMO - Frontiers of Matter-Wave Optics, Arcachon (France), 11 to 14 September 2016.
30. *Magnetic Levitation in Quantum Nanomechanics: New Opportunities*, Quantum Interfaces with Nano-Opto electro-mechanical devices: Applications and Fundamental Physics, Ettore Majorana Foundation and Centre for Scientific Culture, Erice (Italy), 1 to 2 August 2016.
29. *All-magnetic scheme for quantum interference of a superconducting microsphere*, Workshop Quantum control of levitated optomechanics, Pontremoli (Italy), 19 to 20 May 2016.
28. *Macroscopic quantum superpositions of levitated superconducting microspheres*, OSA Incubator meeting on Levitated Optomechanics, Washington DC (USA), 3 to 4 December 2015.
27. *Levitated nanospheres in the quantum regime*, Plenary talk at QIPC Conference, University of Leeds (UK), 14 to 18 September 2015.
26. *Towards macroscopic quantum superpositions of levitated superconducting spheres*, Probing the Mystery: Theory & Experiment in Quantum Gravity, Galiano Island (Canada), 17 to 20 August 2015.
25. *Strong Single-Photon Coupling Regime in Cavity Quantum Nanomechanics*, NIM Conference on Resonator QED, Munich (Germany), 4 to 5 August 2015.
24. *Near-Field Levitated Quantum Optomechanics with Nanodiamonds*, Frontiers of Quantum and Mesoscopic Thermodynamics, Prague (Czech Republic), 29 to 30 July 2015.
23. *Near-Field Levitated Quantum Optomechanics with Nanodiamonds*, Workshop on New trends in complex quantum systems dynamics, Cartagena (Spain), 27 to 29 May 2015.

22. *Superconducting Vortex Lattice for Ultracold Atoms*, Workshop ICE-1: Información Cuántica en España, Zaragoza (Spain), 25 to 27 June 2014.
21. *Quantum Magnetomechanics with Levitating Superconducting Microspheres*, Gordon Research Seminar on Mechanical Systems in the Quantum Regime, Ventura CA (USA), 8 to 9 March 2014.
20. *Superconducting Vortex Lattice for Ultracold Atoms*, International Conference on Quantum Optics, Obergurgl (Austria), 27 to 28 February 2014.
19. *Quantum Magnetomechanics with Levitating Superconducting Microspheres*, Frontiers of Opto- and Electro-mechanics workshop, Fai della Paganella (Italy), 28 to 29 January 2014.
18. *Quantum Magnetomechanics with Levitating Superconducting Microspheres*, Workshop on Cavity Optomechanics - from the micro to the macro scale, Innsbruck (Austria), 4 to 6 November 2013.
17. *Superconducting Vortex Lattice for Ultracold Atoms*, 22nd SFB-FoQuS Meeting, Innsbruck (Austria), 24 to 25 October 2013.
16. *Superconducting Vortex Lattice for Ultracold Atoms*, Quantum Physics: from fundamental questions to applications, ICFO-MPQ Joint Workshp, Fundació Catalunya La Pedrera, Barcelona (Catalonia), 22 to 24 May 2013.
15. *Tests of Fundamental Theories*, OSA's Cavity Optomechanics Incubator Meeting, Washington DC (USA), 1 to 2 October 2012.
14. *Large Quantum Superpositions of Nanospheres*, Workshop on Theory of Quantum Gases and Quantum Coherence, Lyon (France), 5 to 8 June 2012.
13. *Levitating Quantum Mechanical Oscillators: from Optomechanics to Magnetomechanics*, Workshop Optomechanics on the Hudson, New York NY (USA), 2 to 4 April 2012.
12. *Quantum superposition of massive objects and collapse models*, Workshop Optomechanics on the Hudson, New York NY (USA), 2 to 4 April 2012.
11. *Quantum superpositions with levitating mechanical resonators*, Gordon Research Conference on Mechanical Systems in the Quantum Regime, Galveston TX (USA), 4 to 9 March 2012.
10. *Testing quantum mechanics with massive objects*, CAS-MPG 2nd Exploratory Round Table Conference on Quantum Information Science, Shanghai (China), 2 to 4 November 2011.
9. *Large quantum superpositions and interference of massive nanometer-sized objects*, ESF PESC Strategic Workshop: Signatures of Quantumness in Complex Systems, Nottingham (UK), 29 June to 3 July 2011.
8. *Large quantum superpositions and interference of massive nano-objects*, Conference on Entanglement, Quantum Information and the Quantum-to-classical Transition (Accademia Nazionale dei Lincei), Rome (Italy), 5 to 7 May 2011.
7. *Optically Levitating Nanodielectrics in the Quantum Regime*, 21st edition of GLSVLS (Ecole Polytechnique Federale de Lausanne - EPFL), Lausanne (Switzerland), 2 to 4 May 2011.
6. *Optomechanical Matter-Wave Interferometer for Microspheres*, Workshop on Optomechanics and Macroscopic Cooling at ITAMP (Harvard University), Cambridge MA (USA), 7 to 9 February 2011.
5. *Optomechanics: challenging quantum mechanics at the nanoscale*, ICFO-MPQ Joint Workshop: New trends in Quantum Information and Quantum Optics, St. Benet (Catalonia), 14 to 17 December 2010.
4. *Levitating nano-dielectrics in the quantum regime: theory and protocols*, QCCC Miniworkshop on optomechanics (Max-Planck Institut für Quantenoptik), Garching (Germany), 22 July 2010.
3. *Optically Levitating Nanodielectrics in the Quantum Regime*, XXXIV International Conference of Theoretical Physics: Correlations and Coherence at Different Scales, Ustron (Poland), 3 to 5 September 2010.

2. *Quantum Optics with Nano-dielectrics*, XIII International Conference on Quantum Optics and Quantum Information, Kyiv (Ukraine), 28 May to 1 June 2010.
1. *Quantum Dynamics in Optical Lattices: from State Transfer to Quantum Ratchet*, Mini-Workshop on Disorder in Quantum Gases (European Laboratory of Non-Linear Spectroscopy LENS), Florence (Italy), 14 to 15 May 2007.

## SEMINARS AND COLLOQUIA

31. *Levitating Nanoparticle in Vacuum: A Quantum Treasure Trove*, Physics Colloquium at the Universitat Autònoma de Barcelona (Catalonia), 27 March 2019.
30. *Towards Quantum Levitodynamics*, University of Duisburg-Essen (Germany), 11 January 2019.
29. *Levitated Nanomagnets in the Quantum Regime: Theory and Applications*, California Institute of Technology, Pasadena CA (USA), 23 February 2018.
28. *From Levitated Nanomagnets to Quantum Magnonics*, Linné Colloquium at Chalmers University of Technology, Göteborg (Sweden), 23 November 2017.
27. *Levitated Nanomagnets: Magnons, Rotons, and Phonons*, ETH Zürich (Switzerland), 22 September 2017.
26. *Magnetic Levitation in Quantum Nanomechanics: New Opportunities*, University of Basel (Switzerland), 14 November 2016.
25. *Magnetic Levitation in Quantum Nanomechanics: New Opportunities*, ICFO (Catalonia), 6 July 2016.
24. *Levitated Magnets in the Quantum Regime: New Opportunities*, Walther-Meissner-Institute (Germany), 10 June 2016.
23. *Levitated Nanospheres in the Quantum Regime*, Department of Nanoscience, TU Delft (Netherlands), 23 November 2015.
22. *Levitated Nanospheres in the Quantum Regime*, Theoriekolloquium, Universität Mainz (Germany), 23 July 2015.
21. *Superconducting Vortex Lattices for Ultracold Atoms*, Macquarie University, Sydney (Australia), 20 January 2015.
20. *Exploring the Limits of Quantum Physics with Levitating Spheres*, Antrittsvorlesung (Inaugural Lecture) at the University of Innsbruck, Innsbruck (Austria), 9 December 2014.
19. *Superconducting Vortex Lattices for Ultracold Atoms*, Institute for Quantum Optics and Quantum Information, Vienna (Austria), 16 June 2014.
18. *Superconducting Vortex Lattices for Ultracold Atoms*, TU Wien Atominstitut, Vienna (Austria), 23 January 2014.
17. *How to place a microsphere in two places at once: Exploring the limits of quantum mechanics*, Colloquium at the Institute of Theoretical Physics, University of Innsbruck, Innsbruck (Austria), 15 January 2014.
16. *How to place a microsphere in two places at once: Exploring the limits of quantum mechanics*, Colloquium at the Opening ceremony of the academic year 2013-2014 of the Master in Photonics and Master Europhotonics at the Faculty of Physics in the Universitat de Barcelona, Barcelona (Catalonia), 30 October 2013.
15. *Superconducting Vortex Lattices for Ultracold Atoms*, Colloquium at the Institute of Experimental Physics, University of Innsbruck, Innsbruck (Austria), 6 March 2013.
14. *Testing quantum mechanics with massive objects*, Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 19 October 2012.

13. *Bringing levitating microspheres into the quantum regime: from optomechanics to magnetomechanics*, Department of Physics, University College London, London (UK), 4 July 2012.
12. *Quantum Superposition of Massive Objects*, Department of Physics, Stanford University, Stanford CA (USA), 3 February 2012.
11. *Com posar un mirall en dos llocs alhora: explorant els límits de la mecànica quàntica*, Inaugural Colloquium of the 2011-2012 academic course in Physics at the Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 26 October 2011.
10. *Macroscopic Quantum Superpositions of Nanometer Sized Objects*, Max-Planck-Institute of Quantum Optics Kolloquium, Garching (Germany) 31 May 2011.
9. *Macroscopic Quantum Superpositions of Nanometer Sized Objects*, Institut de Ciències Fotòniques, Castelldefels (Catalonia), 23 May 2011.
8. *Optically levitating dielectrics in the quantum regime*, Albert-Ludwigs University of Freiburg, Institute of Physics, Freiburg (Germany), 25 January 2011.
7. *Optomechanics: challenging quantum mechanics at the mesoscale*, Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 17 January 2011.
6. *Optically levitating dielectrics in the quantum regime*, University of Austin at Texas, Center for Nonlinear Dynamics, Austin TX (USA), 18 October 2010.
5. *Optically levitating nanodielectrics in the quantum regime*, Ludwig-Maximilian Universität, Munich Atom Chip Group, Munich (Germany), 29 September 2010.
4. *Levitated Nano-dielectrics in the Quantum Regime*, Universitat Autònoma de Barcelona, Bellaterra (Catalonia), 17 June 2010.
3. *Quantum nano-dielectrics: theory and protocols*, Institute for Quantum Optics and Quantum Information, Innsbruck (Austria), 10 May 2010.
2. *Quantum Superposition of Optically Levitating Nano-Spheres*, University of Vienna, Vienna (Austria), 8 February 2010.
1. *Prediction of protein-protein interactions using distant conservation of sequence patterns and structure relationships*, Universitat Pompeu Fabra, Barcelona (Catalonia), 8 March 2004.

#### INVITED LECTURER IN INTERNATIONAL SCHOOLS AND SPECIAL COURSES

6. *4 lectures, 60 min each: Quantum Optomechanics*. Winter College on Optics: Quantum Photonics and Information. ICTP Trieste (Italy), 19 February 2020.
5. *3 lectures, 90 min each: Levitated Nanospheres in the Quantum Regime*. Advanced School on Foundations and Applications of Nanomechanics. ICTP Trieste (Italy), 18 to 20 September 2017.
4. *2 lectures, 120 min each: Levitated optomechanics*. ICFO schools on the frontiers of light: Master School on Quantum Nano- and Opto-mechanics, ICFO (Catalonia), 4 to 8 July 2016.
3. *3 lectures, 90 min each: Levitated Nanospheres in the Quantum Regime*. Summer School: Quantum Optomechanics and Nanomechanics. École de Physique des Houches (France), 9 to 16 August 2015.
2. *2 lectures, 45 min each: Large Quantum Superpositions and Interference of Nanomechanical Oscillators*. WE-Heraeus Physics School on Exploring the limits of the quantum superposition principle. Physikzentrum Bad Honnef (Germany), 12 to 17 May 2013.

1. *3 lectures, 60 min each: Quantum Mechanics at the Limit*. ITAMP/B2 Winter Graduate School on Atomic, Molecular and Optical Physics: Quantum Control of Mesoscopic Systems. B2 Institute, Tucson AZ (USA), 4 to 11 January 2013.

## ACCEPTED TALKS IN CONFERENCES AND WORKSHOPS AND OTHER TALKS

27. *Levitated nanomagnets in the quantum regime*, MaQSens - 1st Year Review Meeting and Scientific Workshop, ESI, University of Vienna (Austria), 9-10 April 2018.
26. *Levitated Magnets: From Quantum Physics at Large Scales to Inertial Sensing*, OEAW Klassensitzung, Vienna (Austria), 19 January 2018.
25. *From Levitated Nanomagnets to Quantum Magnonics*, ITP Seminar, Innsbruck (Austria), 27 November 2017.
24. *Isolated Quantum Nanosystems*, 8th Joint ICFO-ETH Meeting, Feldberg-Altglashütten (Germany), 22-24 October 2017.
23. *Quantum Superposition of Massive Objects*, Tiroler Hochschultag, University of Innsbruck (Austria), 19 October 2017.
22. *Harnessing Quantum Systems with Superconductivity and Magnetism*, MIP Seminar, University of Innsbruck (Austria), 11 October 2017.
21. *Quantum Spin Stabilized Magnetic Levitation*, 7th Joint ICFO-ETH Meeting, Capellades (Catalonia), 26-28 March 2017.
20. *Cómo poner un espejo en dos sitios a la vez: explorando los límites de la física cuántica*, Popular talk organized by Benasque ConCiencia, Benasque (Spain), 26 July 2016.
19. *Levitated nanomagnets in the quantum regime*, Quantum Information in Spain ICE-3, Mallorca (Spain), 13-15 April 2016.
18. *New opportunities with magnetic levitation*, 5th Joint ICFO-ETH Meeting, Garraf (Catalonia), 11-12 April 2016.
17. *Ultrashort pulses for far-field nanoscopy*, International Conference on Quantum Optics, Obergurgl (Austria), 21-27 February 2016.
16. *Towards quantum interference of superconducting microspheres: will gravity allow it?*, Gravity in the Lab, Benasque (Spain), 7 July 2015.
15. *Towards quantum interference of superconducting microspheres: will gravity allow it?*, ITN cQOM workshop “Levitation in (quantum) physics”, Vienna (Austria), 15 May 2015.
14. *Basics on Levitation*, ITN cQOM workshop “Levitation in (quantum) physics”, Vienna (Austria), 14 May 2015.
13. *Quantum nanophysics, optics, and information*, SAB meeting at IQOQI, Innsbruck (Austria), 9 July 2014.
12. *Superconducting Vortex Lattices for Ultracold Atoms*, SVL meeting at the Max-Planck-Institute of Quantum Optics, Garching (Germany), 7 January 2014.
11. *Superconducting Vortex Lattices for Ultracold Atoms*, XXXIV Reunión Bienal de la Real Sociedad Española de Física, Valencia (Spain), 16 to 17 July 2013.
10. *From quantum optics to quantum magnetism*, MPQ theory group workshop at Friedrichshafen (Germany), 12 to 15 September 2012.



9. *Optically Levitating Nanodielectrics in the Quantum Regime*, International Conference on Quantum Information and Quantum Computation, Stockholm (Sweden), 4 to 6 October 2010.
8. *Quantum Macroscopic Superposition of Levitating Nanodielectrics*, Fifth International Workshop DICE2010 :Space-Time-Matter - current issues in quantum mechanics and beyond, Castello Pasquini/Castiglioncello (Italy), 13 to 17 September 2010.
7. *Cavity Quantum Optomechanics with Optically Levitating Nanodielectrics*, Workshop on Nano-Opto-Electro-Mechanical Systems Approaching the Quantum Regime, Trieste (Italy), 6 to 10 September 2010.
6. *Quantum Optics with Nano-dielectrics*, 17th Central European Workshop on Quantum Optics, St. Andrews (Scotland), 6 to 11 June 2010.
5. *Quantum Superposition of Optically Levitating Nanospheres*, MPQ theory group workshop at Galtür (Austria), 31 January to 3 February 2010.
4. *Quantum State Transfer & Magnetic Order in Spin-1 Chains*, 1st GIQ-ICFO Winter Meeting at Lles de Cerdanya (Catalonia), 11 to 13 February 2007.
3. *Quantum State Transfer & Magnetic Order in Spin-1 Chains*, 5th Informal Quantum Information Gathering IQING5, Innsbruck (Austria), 11 to 15 April 2007.
2. *Study of Strongly Correlated Many-Body Systems with Entanglement Transport*, XXXVIII Symposium on Mathematical Physics: “Quantum Entanglement & Geometry”, Torun (Poland), 4 to 7 June 2006.
1. *Purity Estimation with Separable Measurements*, Max-Planck-Institut für Physik komplexer Systeme, Dresden (Germany), 29 August to 23 September 2005.

## ACCEPTED POSTERS IN CONFERENCES AND WORKSHOPS

11. *Quantum Superposition of Optically Levitating Nano-dielectrics*, CREST 2010 International Symposium on Physics of Quantum Technology, Tokyo (Japan), 6 to 9 April 2010.
10. *Quantum Superposition of Optically Levitating Nanospheres*, Gordon Research Conference on Mechanical Systems in the Quantum Regime, Galveston TX (USA), 21 to 26 March 2010.
9. *Quantum Superposition of Optically Levitating Nanospheres*, International Conference on Quantum Optics, Obergurgl (Austria), 21 to 26 February 2010.
8. *Towards quantum superposition of living organisms*, Network Meeting of the Alexander von Humboldt Foundation, Heidelberg (Germany), 24 to 26 November 2009.
7. *Towards quantum superposition of living organisms*, Conference on Bose-Einstein Condensate, Sant Feliu de Guixols (Catalonia), 5 to 11 September 2009.
6. *Quantum Optomechanics with Nanospheres and Microrods: from Cooling to Schrödinger’s cat*, WE-Heraeus-Seminar on Quantum Optics of Nano- and Micromechanical Systems, Bad Honnef (Germany), 19 to 22 July 2009.
5. *How to “see” a cat state in the collapse & revival experiments?*, Coherence, Squeezing and Entanglement for Precision Measurements with Quantum Gases, Trento (Italy), 3 to 5 April 2008.
4. *Quantum Communication with Optical Superlattices*, SCALA 3rd Annual Meeting, Mainz (Germany), 23 to 25 January 2008.
3. *Quantum State-Transfer and Magnetic Order in Spin-1 Chains*, Workshop on Quantum Information and Many-Body Quantum Systems (Scuola Normale Superiore), Pisa (Italy), 25 to 31 March 2007.

2. *Entanglement in 1D disordered systems*, International Conference on Quantum Information (Max-Planck-Institut für Physik komplexer Systeme), Dresden (Germany), 26 to 30 September 2005.
1. *Estimation of the purity and the orientation of a mixed qubit state via collective measurements*, 3rd Asia-Pacific Workshop in Quantum Information Science, Singapore (Singapore), 2 to 15 January 2005.

## ATTENDANCE TO CONFERENCES AND WORKSHOPS

17. Micromechanics Conference, Obergurgl (Austria), 10 to 14 February 2020.
16. Workshop on Quantum Science: Implementations, Benasque (Spain), 1 July to 12 July 2018.
15. Workshop on Quantum Science: Implementations, Benasque (Spain), 10 July to 29 July 2016.
14. Frontiers of Quantum Optics 2015, ICFO (Catalonia), 22 to 23 October 2015.
13. Workshop on Quantum Information, Benasque (Spain), 29 June to 10 July 2015.
12. Quantum Physics of Nature (QUPON 2015), Vienna (Austria), 18 to 21 May 2015.
11. Gordon Research Conference on Quantum Science, Stonehill College, Easton MA (USA), 27 July to 1 August 2014.
10. Workshop on Quantum Science: Implementations, Benasque (Spain), 30 June to 19 July 2014.
9. Kavli-MPQ Workshop, Garching (Germany), 12 to 13 June 2014.
8. Gordon Research Conference on Mechanical Systems in the Quantum Regime, Ventura CA (USA), 9 to 14 March 2014.
7. Workshop on Quantum Information, Benasque (Spain), 23 June to 12 July 2013.
6. Workshop on Quantum Information, Benasque (Spain), 13 to 22 June 2011.
5. Annual Meeting of the Alexander von Humboldt Foundation, Berlin (Germany), 21 to 22 June 2010.
4. Workshop on Quantum Information, Benasque (Spain), 7 to 27 June 2009.
3. Workshop on Quantum Information, Benasque (Spain), 10 to 29 June 2007.
2. ICREA workshop on Disorder in Cold Atoms, Bellaterra (Catalonia), 24 to 26 January 2007.
1. Summer School on Scalable Quantum Information Processing and Computation, Benasque (Spain), 11 to 16 June 2006.

## SUPERVISION OF PHD THESES

- |                   |  |
|-------------------|--|
| 02/2019 - present | Supervision PhD thesis SÍLVIA CASULLERAS GUÀRDIA.<br>University of Innsbruck and IQOQI, Innsbruck, Austria.  |
| 10/2017 - present | Supervision PhD thesis MARC RODÀ LLORDÉS.<br>University of Innsbruck and IQOQI, Innsbruck, Austria.  |
| 10/2016 - present | Supervision PhD thesis KATJA KUSTURA.<br>University of Innsbruck and IQOQI, Innsbruck, Austria.  |
| 12/2015 - present | Supervision PhD thesis PATRICK MAURER.<br><i>Controlling Spatiotemporal Features of Electromagnetic Fields for Quantum Optics.</i><br>University of Innsbruck and IQOQI, Innsbruck, Austria. |

- 06/2015 - 09/2020 Supervision PhD thesis DANIEL HÜMMER.  
*Phononic Excitations in Near-Field Quantum Optics and Levitodynamics.*  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 01/2014 - 10/2018 Supervision PhD thesis COSIMO C. RUSCONI.  
*Levitated Nanomagnets in the Quantum regime.*  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 11/2013 - 09/2016 Supervision PhD student HERNÁN PINO.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 09/2009 - 09/2013 Co-supervision with Prof. J. I. Cirac PhD thesis ANIKA C. PFLANZER.  
Max-Planck Institute for Quantum Optics, Garching, Germany.

## SUPERVISION OF MASTER THESES

- 11/2019 - present Supervision Master thesis VALENTINA ZENI.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2019 - present Supervision Master thesis DANIELE GIANNANDREA.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2018 - 11/2019 Supervision Master thesis RENÉ LAMPERT.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2017 - 02/2019 Supervision Master thesis VANESSA WACHTER.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2017 - 12/2018 Supervision Master thesis SÍLVIA CASULLERAS GUÀRDIA.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2016 - 01/2018 Supervision Master thesis GERALD FUX.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2016 - 10/2017 Supervision Master thesis ANDREU RIERA.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2016 - 10/2017 Supervision Master thesis SERGI JULIÀ.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 09/2015 - 01/2017 Supervision Master thesis VERA PÖCHHACKER.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 09/2014 - 01/2016 Supervision Master thesis ANNA ULRICHSHOFER.  
University of Innsbruck and IQOQI, Innsbruck, Austria.
- 10/2014 - 10/2015 Supervision Master thesis PATRICK MAURER.  
University of Innsbruck and IQOQI, Innsbruck, Austria.

## OTHER RESPONSIBILITIES

- Present Reviewer for Science, Physical Review Letters, Physical Review (X, A, B, Applied, Research), Nature Physics, New Journal of Physics, Europhysics Letters, and others.
- Present Organizer of the [IQOQI Colloquia](#).
- 2018 Evaluation Committee of the Ramón y Cajal Programme 2017 of the Spanish Government.

Summer 2018	Organization of a summer internship at IQOQI Innsbruck for one international undergraduate student (Marta Florido Linàs).
7/2018	Co-organizer with Darrick Chang, Liang Jiang, and Juan José Garcia-Ripoll of a three weeks international Workshop on <i>Quantum Science: Implementations</i> in Benasque, Spain.
Summer 2017	Organization of a summer internship at IQOQI Innsbruck for two international undergraduate student (Daniel Goncalves and Víctor José Martínez Lahuerta).
Summer 2016	Organization of a summer internship at IQOQI Innsbruck for an international undergraduate student (Andreu Riera).
7/2016	Co-organizer with Darrick Chang, Liang Jiang, and Juan José Garcia-Ripoll of a three weeks international Workshop on <i>Quantum Science: Implementations</i> in Benasque, Spain.
Summer 2015	Organization of a summer internship at IQOQI Innsbruck for two international undergraduate students (Sergi Julià and Marc Rodà).
7/2014	Co-organizer with Darrick Chang, Liang Jiang, and Juan José Garcia-Ripoll of a three weeks international Workshop on <a href="#">Quantum Science: Implementations</a> in Benasque, Spain.
5/2011	Co-organizer with Maarten van den Nest of the 2011 MPQ-Theory group workshop at Seefeld, Austria.

## TEACHING

3/2014 - Present	<p>Teaching as University Professor at the Institute of Theoretical Physics in the University of Innsbruck, Austria.</p> <ul style="list-style-type: none"> <li>• Theoretische Physik 3 (Elektrodynamik) (60h / Theory / Bachelor): WS 16-17, WS 17-18</li> <li>• Quantum Physics II (60h / Theory / Master): SS 16, SS 17</li> <li>• Quantum Physics II (30h / Problems / Master): SS 16</li> <li>• Grundkonzepte Quantenphysik (20h / Theory / Master): WS 18-19, WS 19-20</li> <li>• Theoretical Quantum Optics (45h / Theory / Master): SS 14, SS 15, SS 18, SS 19</li> <li>• Theoretical Quantum Optics (15h / Problems / Master) SS 14, SS 15</li> <li>• Advanced Quantum Physics (45h / Theory / Master): WS 18-19, WS 19-20</li> <li>• Advanced Quantum Physics (15h / Problems / Master) WS 18-19</li> <li>• Quantum Nano-Optics Theory (45h / Theory / Master): WS 14-15, WS 15-16</li> <li>• Quantum Nano-Optics Theory (15h / Problems / Master) WS 14-15, WS 15-16</li> <li>• (co-)Supervision of 8 Bachelor theses: Christoph R. Kaubrügger SS 15, Mathias Wolf (with J. Prat-Camps) SS16, Lukas Knosp (with C. C. Rusconi) SS16, Daniele Giannandrea (with B. Prasanna Venkatesh) SS17, Francesco Preti (with K. Sinha) SS17, Aaron Hofer (with D. Hümmer) SS18, Johannes Riedel (with P. Maurer) SS19, Fabian Leitner (with A. E. Rubio López) SS19</li> </ul>
03/2010 - 07/2010	Co-supervision with Prof. J. I. Cirac of the Bachelor thesis of Lucas Clemente. Ludwig-Maximilians-Universität München and Max-Planck Institute for Quantum Optics, Garching, Germany.
9/2004 - 9/2008	Teaching as Ph. D. student at the Department of Physics of the Universitat Autònoma de Barcelona, Bellaterra, Catalonia.

- Course 2007-2008: Physics for Engineers (30h Problems Lectures) .
- Course 2006-2007: Experiments in Thermodynamics (39h) .
- Course 2005-2006: Quantum Physics (45h Problems Lectures), Physics for Engineers (14h Problems Lectures).
- Course 2004-2005: Quantum Physics (45h Problems Lectures), Computational methods for physics (34h Problems Lectures), Experiments in Thermodynamics (45h).

## FUNDED PROJECTS

- 2020 - 2023 IQLev - Inertial Sensing Based on Quantum-Enhanced Levitations Systems. [FET Open](#) of the ERC Horizon 2020. co-PI together with 5 collaborators. My group was funded with 437K€ (Total Funding 2.6M€).
- 2016 - 2019 [MaQSenS](#) - Magneto-mechanical Platforms for Macroscopic Quantum Experiments and Quantum Enabled Sensing Technologies. [FET Open](#) of the ERC Horizon 2020 (H2020-FETOPEN-1-2016-2017 Project 736943). co-PI together with 5 national and international collaborators. My group was funded with 286K€ (Total Funding 3M€).
- 2013 - 2018 [QSuperMag](#) - Harnessing Quantum Systems with Superconductivity and Magnetism. [ERC Starting Grant](#) within [FP7-IDEAS-ERC](#) (ERC-2013-StG Project 335489). Total Funding 1.29M€.

## POPULAR SCIENCE PUBLICATIONS

3. Eine Diode für Magnetfelder.  
P. Maurer, O. Romero-Isart, G. Kirchmair, and J. Prat-Camps.  
[Physik in unserer Zeit](#) **50**, 114 (2019).
2. El átomo cuántico cumple 100 años.  
O. Romero-Isart.  
[El País](#) (2013).
1. Quantenmechanik am Limit: Superpositionen massiver Objekte.  
O. Romero-Isart, and A. C. Pflanzer.  
[Max-Planck-Gesellschaft, Jahrbuch](#) (2012).

## LIST OF PUBLICATIONS

50. Probing Surface-Bound Atoms with Quantum Nanophotonics.  
D. Hümmer, O. Romero-Isart, A. Rauschenbeutel, and P. Schneeweiss.  
[arXiv:2006.12855](#).
49. Remote Sub-Wavelength Addressing of Quantum Emitters with Chirped Pulses.  
S. Casulleras, C. Gonzalez-Ballester, P. Maurer, J. J. Garcia-Ripoll, O. Romero-Isart.  
[arXiv:2005.07506](#).
48. Acoustic and Optical Properties of a Fast Spinning Dielectric Nanoparticle.  
D. Hümmer, R. Lampert, K. Kustura, P. Maurer, C. Gonzalez-Ballester, O. Romero-Isart.  
[PHYSICAL REVIEW B](#) **101**, 205416 (2020).

47. Single-Spin Magnetomechanics with Levitated Micromagnets.  
J. Gieseler, A. Kabcenell, E. Rosenfeld, J. D. Schaefer, A. Safira, M. J. A. Schuetz, C. Gonzalez-Ballester, C. C. Rusconi, O. Romero-Isart, M. D. Lukin.  
[PHYSICAL REVIEW LETTERS \*\*124\*\*, 163604 \(2020\)](#).
46. Quantum Acoustomechanics with a Micromagnet.  
C. Gonzalez-Ballester, J. Gieseler, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*124\*\*, 093602 \(2020\)](#).
45. Theory of Quantum Acoustomagnonics and Acoustomechanics with a Micromagnet.  
C. Gonzalez-Ballester, D. Hümmer, J. Gieseler, and O. Romero-Isart.  
[PHYSICAL REVIEW B \*\*101\*\*, 125404 \(2020\)](#).
44. Radiation Reaction of a Dipole in a Quantum Electromagnetic Field.  
A. E. Rubio López and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*123\*\*, 243603 \(2019\)](#).
43. Quantum Motional State Tomography with Non-Quadratic Potentials and Neural Networks.  
T. Weiss and O. Romero-Isart.  
[PHYSICAL REVIEW RESEARCH \*\*1\*\*, 033157 \(2019\)](#).
42. Heating in Nanophotonic Traps for Cold Atoms.  
D. Hümmer, P. Schneeweiss, A. Rauschenbeutel, and O. Romero-Isart.  
[PHYSICAL REVIEW X \*\*9\*\*, 041034 \(2019\)](#).
41. Hybrid Architecture for Engineering Magnonic Quantum Networks.  
C. C. Rusconi, M. J. A. Schuetz, J. Gieseler, M. D. Lukin, and O. Romero-Isart.  
[PHYSICAL REVIEW A \*\*100\*\*, 022343 \(2019\)](#).
40. Theory for Cavity Cooling of Levitated Nanoparticles via Coherent Scattering: Master Equation Approach.  
C. Gonzalez-Ballester, P. Maurer, D. Windey, L. Novotny, R. Reimann, and O. Romero-Isart.  
[PHYSICAL REVIEW A \*\*100\*\*, 013805 \(2019\)](#).
39. Cavity-Based 3D Cooling of a Levitated Nanoparticle via Coherent Scattering.  
D. Windey, C. Gonzalez-Ballester, P. Maurer, L. Novotny, O. Romero-Isart, and R. Reimann.  
[PHYSICAL REVIEW LETTERS \*\*122\*\*, 123601 \(2019\)](#).
38. Quadratic Quantum Hamiltonians: General Canonical Transformation to a Normal Form.  
K. Kustura, C. C. Rusconi, and O. Romero-Isart.  
[PHYSICAL REVIEW A \*\*99\*\*, 022130 \(2019\)](#).
37. Circumventing Magnetic Reciprocity: a Diode for Magnetic Fields.  
J. Prat-Camps, P. Maurer, G. Kirchmair and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*121\*\*, 213903 \(2018\)](#).
36. Internal Quantum Dynamics of a Nanoparticle in a Thermal Electromagnetic Field: a Minimal Model.  
A. E. Rubio López, C. Gonzalez-Ballester, and O. Romero-Isart.  
[PHYSICAL REVIEW B \*\*98\*\*, 155405 \(2018\)](#).
35. On-Chip Quantum Interference of a Superconducting Microsphere.  
H. Pino, J. Prat-Camps, K. Sinha, B. P. Venkatesh, and O. Romero-Isart.  
[QUANTUM SCIENCE AND TECHNOLOGY \*\*3\*\*, 25001 \(2018\)](#).
34. Cooperative Effects in Closely Packed Quantum Emitters with Collective Dephasing.  
B. Prasanna Venkatesh, M. L. Juan, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*120\*\*, 033602 \(2018\)](#).
33. Coherent Inflation for Large Quantum Superpositions of Microspheres.  
O. Romero-Isart.  
[NEW JOURNAL OF PHYSICS \*\*19\*\*, 123029 \(2017\)](#).

32. Quantum Spin Stabilized Magnetic Levitation.  
C. C. Rusconi, V. Pöschhacker, K. Kustura, J. I. Cirac, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*119\*\*, 167202 \(2017\).](#)
31. Linear Stability Analysis of a Levitated Nanomagnet in a Static Magnetic Field: Quantum Spin Stabilized Magnetic Levitation.  
C. C. Rusconi, V. Pöschhacker, J. I. Cirac, and O. Romero-Isart.  
[PHYSICAL REVIEW B \*\*96\*\*, 134419 \(2017\).](#)
30. Ultrasensitive Inertial and Force Sensors with Diamagnetically Levitated Magnets.  
J. Prat-Camps, C. Teo, C. C. Rusconi, W. Wieczorek, and O. Romero-Isart.  
[PHYSICAL REVIEW APPLIED \*\*8\*\*, 034002 \(2017\).](#)
29. Ultrafocussed Electromagnetic Field Pulses with a Hollow Cylindrical Waveguide.  
P. Maurer, J. Prat-Camps, J. I. Cirac, T. W. Hänsch, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*119\*\*, 043904 \(2017\).](#)
28. Ultrashort Pulses for Far-Field Nanoscopy.  
P. Maurer, J. I. Cirac, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*117\*\*, 103602 \(2016\).](#)
27. Near-field Levitated Quantum Optomechanics with Nanodiamonds.  
M. L. Juan, G. Molina-Terriza, T. Volz, and O. Romero-Isart.  
[PHYSICAL REVIEW A \*\*94\*\*, 023841 \(2016\).](#)
26. Magnetic Rigid Rotor in the Quantum Regime: Theoretical Toolbox.  
C. C. Rusconi and O. Romero-Isart.  
[PHYSICAL REVIEW B \*\*93\*\*, 54427 \(2016\).](#)
25. Strong Single-Photon Coupling in Superconducting Quantum Magnetomechanics.  
G. Via, G. Kirchmair, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*114\*\*, 143602 \(2015\).](#)
24. Long-Distance Transfer and Routing of Static Magnetic Fields.  
C. Navau, J. Prat-Camps, O. Romero-Isart, J. I. Cirac, and A. Sanchez.  
[PHYSICAL REVIEW LETTERS \*\*112\*\*, 253901 \(2014\).](#)
23. Superconducting Vortex Lattices for Ultracold Atoms.  
O. Romero-Isart, C. Navau, A. Sanchez, P. Zoller, and J. I. Cirac.  
[PHYSICAL REVIEW LETTERS \*\*111\*\*, 145304 \(2013\).](#)
22. Optomechanics Assisted with a Qubit: From Dissipative State Preparation to Many-Body Physics.  
A. C. Pflanzer, O. Romero-Isart, and J. I. Cirac.  
[PHYSICAL REVIEW A \*\*88\*\*, 033804 \(2013\).](#)
21. Quantum Magnetomechanics with Levitating Superconducting Microspheres.  
O. Romero-Isart, L. Clemente, C. Navau, A. Sanchez, and J. I. Cirac.  
[PHYSICAL REVIEW LETTERS \*\*109\*\*, 147205 \(2012\).](#)
20. Master-Equation Approach to Optomechanics with Arbitrary Dielectrics.  
A. C. Pflanzer, O. Romero-Isart, and J. I. Cirac.  
[PHYSICAL REVIEW A \*\*86\*\*, 013802 \(2012\).](#)
19. Macroscopic Quantum Resonators (MAQRO).  
R. Kaltenbaek, G. Hechenblaikner, N. Kiesel, O. Romero-Isart, K. C. Schwab, U. Johann, and M. Aspelmeyer.  
[EXPERIMENTAL ASTRONOMY \*\*34\*\*, 123 \(2012\).](#)

18. Quantum Memory Assisted Probing of Dynamical Spin Correlations.  
O. Romero-Isart, M. Rizzi, C. A. Muschik, E. S. Polzik, M. Lewenstein, and A. Sanpera.  
[PHYSICAL REVIEW LETTERS \*\*108\*\*, 065302 \(2012\)](#).
17. Quantum Superposition of Massive Objects and Collapse Models.  
O. Romero-Isart.  
[PHYSICAL REVIEW A \*\*84\*\*, 052121 \(2011\)](#).
16. Large Quantum Superpositions and Interference of Massive Nanometer-Sized Objects.  
O. Romero-Isart, A. C. Pflanzer, F. Blaser, R. Kaltenbaek, N. Kiesel, M. Aspelmeyer, and J. I. Cirac.  
[PHYSICAL REVIEW LETTERS \*\*107\*\*, 020405 \(2011\)](#).
15. Probing Magnetic Order in Ultracold Lattice Gases.  
G. De Chiara, O. Romero-Isart, and A. Sanpera.  
[PHYSICAL REVIEW A \*\*83\*\*, 021604\(R\) \(2011\)](#).
14. Optically Levitating Dielectrics in the Quantum Regime: Theory and Protocols.  
O. Romero-Isart, A. C. Pflanzer, M. L. Juan, R. Quidant, N. Kiesel, M. Aspelmeyer, and J. I. Cirac.  
[PHYSICAL REVIEW A \*\*83\*\*, 013803 \(2011\)](#).
13. Towards Quantum Superposition of Living Organisms.  
O. Romero-Isart, M. L. Juan, R. Quidant, and J. I. Cirac.  
[NEW JOURNAL OF PHYSICS \*\*12\*\*, 033015 \(2010\)](#).  
Selected as [best of 2010](#) in New Journal of Physics.
12. Quantum Information Processing with Quantum Zeno Many-Body Dynamics.  
A. Monras and O. Romero-Isart.  
[QUANTUM INFORMATION & COMPUTATION \*\*10\*\*, 201 \(2010\)](#).
11. Quantum Polarization Spectroscopy of Correlations in Fermionic Gases.  
T. Roscilde, M. Rodriguez, K. Eckert, O. Romero-Isart, M. Lewenstein, E. S. Polzik, and A. Sanpera.  
[NEW JOURNAL OF PHYSICS \*\*11\*\*, 055041 \(2009\)](#).
10. Preparation of Decoherence Free Cluster States with Optical Superlattices.  
L. Jiang, A. M. Rey, O. Romero-Isart, J. J. Garcia-Ripoll, A. Sanpera, and M. D. Lukin.  
[PHYSICAL REVIEW A \*\*79\*\*, 022309 \(2009\)](#).
9. Quantum Non-Demolition Detection of Strongly Correlated Systems.  
K. Eckert, O. Romero-Isart, M. Rodriguez, M. Lewenstein, E. S. Polzik, and A. Sanpera.  
[NATURE PHYSICS \*\*4\*\*, 50-54 \(2008\)](#).
8. Quantum Ratchets for Quantum Communication with Optical Superlattices.  
O. Romero-Isart and J. J. Garcia-Ripoll.  
[PHYSICAL REVIEW A \*\*76\*\*, 052304 \(2007\)](#).
7. Transport and Entanglement Generation in the Bose-Hubbard Model.  
O. Romero-Isart, K. Eckert, C. Rodó, and A. Sanpera.  
[JOURNAL OF PHYSICS A: MATHEMATICAL AND THEORETICAL \*\*40\*\*, 8019-8031 \(2007\)](#).
6. Efficient Quantum State Transfer in Spin Chains via Adiabatic Passage.  
K. Eckert, O. Romero-Isart, and A. Sanpera.  
[NEW JOURNAL OF PHYSICS \*\*9\*\*, 155 \(2007\)](#).
5. Quantum State Transfer in Spin-1 Chains.  
O. Romero-Isart, K. Eckert, and A. Sanpera.  
[PHYSICAL REVIEW A \*\*75\*\*, 050303\(R\) \(2007\)](#).
4. Efficiency in Quantum Key Distribution protocols with entangled gaussian states.  
C. Rodó, O. Romero-Isart, K. Eckert, and A. Sanpera.  
[OPEN SYSTEMS & INFORMATION DYNAMICS, \*\*14\*\*: 69-80 \(2007\)](#).



3. Separable Measurement Estimation of Density Matrices and its Fidelity Gap with Collective Protocols.

<sup>1</sup>E. Bagan, M. A. Ballester, R.D. Gill, R. Muñoz-Tapia, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*97\*\*, 130501 \(2006\)](#).

2. Purity Estimation with Separable Measurements.

<sup>1</sup>E. Bagan, M. A. Ballester, R. Muñoz-Tapia, and O. Romero-Isart.  
[PHYSICAL REVIEW LETTERS \*\*95\*\*, 110504 \(2005\)](#).

1. Prediction of protein-protein interactions using distant conservation of sequence patterns and structure relationships.

J. Espadaler, O. Romero-Isart, R. M. Jackson, and B. Oliva.  
[BIOINFORMATICS, \*\*21\*\*, 3360 \(2005\)](#).

SEPTEMBER 16, 2020

---

<sup>1</sup>Alphabetical Order