

Curriculum Vitae

Alejandro González-Tudela



Personal Data

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Birth: 1985-09-23 (Murcia, Spain)
Nationality: Spanish.

CV summary

I graduated in 2008 in Universidad Autónoma de Madrid (UAM) as the best student in my promotion (second best in Spain). After that, I enrolled as a Master (2008/2009) and PhD student (2009/2013) in the Theoretical Condensed Matter Physics Department at UAM under the supervision of Prof. Carlos Tejedor de Paz. I defended my PhD in January 2013 (*Summa Cum Laude*), which was awarded the PhD Extraordinary Prize. Since March 2013 until August 2018, I worked at the Theory Division of Max Planck Institute of Quantum Optics, led by Prof. I. Cirac, funded by both an A. Von Humboldt and a Marie-Curie Fellowship. In August 2018, I incorporated as permanent researcher to the Institute of Fundamental Physics of CSIC in Madrid.

I have more than 40 peer-reviewed articles, some of them in high-impact journals such as 1 Nature, 2 Nature Photonics (1 as first author), 1 Science Advances (as senior author), 9 Phys. Rev. Letters (8 as first author), 1 Proceedings of National Academy of Sciences or 1 Phys. Rev. X, among others. My h-index is 24 (21) according to Google Scholar (ISIWoK) accumulating a total of 2140 (1431) citations. Beyond the publications, I have co-supervised 2 Master Theses and 1 Phd Thesis, and I am currently co-supervising three PhD students.

My research profile is highly multidisciplinary, since it lies at the interface between quantum optics, nanophotonics and many-body physics. My most important contributions have been in the fields of *quantum plasmonics* (PRL 106, 020501, 2011, > 300 citations), *atom-nanophotonics* (Nat. Phot. 9,320, 2015, >100 citations), *correlation spectroscopy* (NJP 15, 033036,2013) and *waveguide QED* (NJP 18, 043041, 2016), among others. The impact of these works have been recognized by the community, which allowed me to disseminate my work in more than 10 invited, 20 contributed talks in international conferences, and 20 invited seminars. I have also been awarded the Early Career Award of New Journal of Physics (2017) and the RSEF-BBVA foundation (2018).

Working experience

2018-08/today	Permanent Researcher (" <i>Científico Titular</i> ") in Instituto de Física Fundamental-CSIC.
2017-02/2018-07	Senior Postdoctoral Researcher in Max Planck Institute for Quantum Optics. Munich (Germany)
2015-02/2017-01	Marie Curie Fellow researcher in Max Planck Institute for Quantum Optics. Munich (Germany)
2014-02/2015-01	Humboldt Fellow researcher in Max Planck Institute for Quantum Optics. Munich (Germany)
2013-03/2014-01	Assistant Post-doctoral Researcher in Max Planck Institute for Quantum Optics. Munich (Germany)
2009-08/ 2013-02	PhD Fellowship. Univ. Autónoma Madrid. Madrid (Spain).
2008-07/ 2008-09	Junior researcher fellowship. Instituto Madrileño de Estudios Avanzados (IMDEA). Univ. Autónoma Madrid. Madrid (Spain)
2007-07/ 2007-09	Junior researcher fellowship. Instituto Madrileño de Estudios Avanzados (IMDEA). Univ. Autónoma Madrid. Madrid (Spain)
2008-07/ 2008-09	Junior researcher fellowship. Instituto Madrileño de Estudios Avanzados (IMDEA). Univ. Autónoma Madrid. Madrid (Spain)
2003/ 2006	Student internship in Physics Department. Univ. Murcia. Murcia (Spain)

Education

- 2009-09/2013-01 PhD: “Dynamics of open quantum systems: excitons, cavities and surface plasmons. Advisor: C. Tejedor. Grade: “*cum laude with unanimity of the jury*” (highest distinction) in Materia Condensada y Nanotecnología. Univ. Autónoma Madrid. Madrid (Spain)
- 2008-09/2009-07 Master in Materia Condensada y Nanotecnología. Univ. Autónoma Madrid. Madrid (Spain). Master Thesis: “*Two-photon lasing in cavity QED*” (10/10). Advisor: C. Tejedor.
- 2003-09/ 2008-06 Degree in Physics. (3.8/4, “*Top Grade*” in Univ. Autónoma de Madrid).

Prizes & Awards

- 2018 Young researcher prize in Theoretical Physics given by Royal Spanish Physics Society and BBVA foundation.
- 2017 New Journal of Physics Early Career Award.
- 2015 IEF Marie Curie Fellowship with *NanoQuIS* project.
- 2014 Postdoctoral Alexander Von Humboldt Fellowship.
- 2013 PhD extraordinary prize of University Autónoma de Madrid
- 2008 LaCaixa fellowship for Master studies.
- 2008 National Extraordinary Prize for a degree in Physics in the year 2008 promotion (Top 2 students in the country).
- 2008 University Extraordinary Prize for a degree in Physics in the year 2008 promotion.
- 2003 1st Regional Extraordinary Prize of Secondary School year 2003 promotion (awarded with one year scholarship).
- 2003 1st Regional Prize in Physics Olympics and Diploma in National competition.

Research visits

2020-01-22 / 2020-01-24	Donostia International Physics Center. Group Leader: G. Giedke. San Sebastian (ES).
2019-10-27 / 2019-10-30	Max Planck Institute of Quantum Optics. Group Leader: J. I. Cirac. Garching bei München (GE).
2019-04-28 / 2018-05-1	Max Planck Institute of Quantum Optics. Group Leader: J. I. Cirac. Garching bei München (GE).
2018-11-13 / 2018-11-17	University of Palermo. Group Leader: F. Cicarello. Palermo (IT).
2018-10-15 / 2018-11-16	Max Planck Institute of Quantum Optics. Group Leader: J. I. Cirac. Garching bei München (GE).
2018-05-14 / 2018-05-15	Institute of Quantum Optics (IQOQI). Group Leader: G. Kirchmair. Innsbruck. (AUS).
2018-04-15 / 2018-04-22	Institute of Atomic and Molecular Physics. Harvard University. Group Leader: M. Lukin. Harvard. (US).
2018-03-05 / 2014-03-08	Institute of Quantum Optics (IQOQI). Group Leader: Oriol Romero-Isart. Innsbruck. (AUS).
2017-04-20 / 2017-06-29	California Institute of Technology. Group Leader: H. J. Kimble. Pasadena. (US).
2016-04-18 / 2016-06-24	California Institute of Technology. Group Leader: H. J. Kimble. Pasadena. (US).
2016-01-07 / 2016-01-11	Universidad Autónoma de Madrid (UAM). Group Leader: C. Tejedor. Madrid. (ES).
2015-06-24 / 2015-06-26	Niels Bohr Institute of Physics. Group Leader: E. Polzik and P. Lodahl. Copenhagen. (DK).
2015-05-11 / 2015-05-18	Institute of Atomic and Molecular Physics. Harvard University. Group Leader: M. Lukin. Harvard. (US).
2015-04-29 / 2014-04-30	Institute of Quantum Optics (IQOQI). Group Leader: Oriol Romero-Isart. Innsbruck. (AUS).
2015-02-18 / 2015-02-20	Universidad Autónoma de Madrid (UAM). Group Leader: C. Tejedor. Madrid. (ES).
2015-02-12 / 2015-02-14	University of Freiburg (IQOQI). Group Leader: A. Buchleitner. (Ge).

2014-05-12 / 2014-05-14	Institute of Quantum Optics (IQOQI). Group Leader: Oriol Romero-Isart. Innsbruck. (AUS).
2014-03-15/2014-03-18	Imperial College. Group Leader: A. I. Fernández-Domínguez. London (UK).
2013-11-19 / 2013-11-23	Universidad Autónoma de Madrid (UAM). Group Leader: C. Tejedor. Madrid. (ES).
2013-07-21 / 2013-07-28	Institute of Photonic Sciences (ICFO). Group Leader: Darrick Chang. Barcelona. (ES).
2012-08-8/2012-08-10	Institute for Theoretical Physics Ulm (ITP). Group Leader: Martin Plenio. Ulm. (GE).
2012-02-16/2012-02-23	Technical University of Munich(TUM). Group Leader: Michael Hartmanns. Garching by Munich(GE).
2011-09/2011-12	Max Planck Institute of Quantum Optics. Group Leader: J. I. Cirac. Garching by Munich(GE).
2010-05/2010-7	Institute of Quantum Electronics (ETH Zürich). Group Leader: A. Imamoglu. Group. Zürich(CH).
2009-04	Universidad Autónoma de Barcelona. Group Leader: G. Morigi. Barcelona(ES)

Invited seminars & Colloquia

2020-01-24	<i>Quantum optics and simulation with topological photons.</i> DIPC. San Sebastian (ES).
2018-11-06	<i>Analog Quantum Chemistry Simulation with ultra-cold atoms.</i> IFIMAC. Madrid (ES).
2018-11-30	<i>Analog Quantum Chemistry Simulation with ultra-cold atoms.</i> Zaragoza University. Zaragoza (ES).
2018-04-20	<i>Quantum Optics in structured photonic environments.</i> Harvard University. Cambridge (US).
2018-03-05	<i>Quantum Optics in structured photonic environments.</i> Institute of Quantum Optics and Quantum Information (IQOQI). Innsbruck (AUS).
2018-02-12	<i>Quantum Optics in structured photonic environments.</i> Max Planck Institute of Quantum Optics (ERC Synergy Grant UQUAM video seminar). Garching (DE).

- 2018-03-05 *Quantum Optics in structured photonic environments.* Institute of Quantum Optics and Quantum Information (IQOQI). Innsbruck (AUS).
- 2016-04-23 *Atom waveguide QED for efficient multiphoton sources.* Institute of Quantum Matter and Information. Pasadena (US).
- 2016-01-10 *Atom waveguide QED for efficient multiphoton sources.* Universidad Autónoma de Madrid. Madrid (SP).
- 2015-06-25 *Atom coupled to 1d and 2d waveguides: a new platform for quantum information & simulation.* Niels Bohr Institute. Copenhagen (DK).
- 2015-05-13 *Atom-Nanophotonics: a new platform for quantum information & simulation.* Harvard University. Cambridge (US).
- 2015-02-13 *Atom-Nanophotonics: a new platform for quantum information & simulation.* University of Freiburg. Freiburg (GE).
- 2014-06-24 *Nanophotonics for quantum information & simulation.* Walter Schottky Institute (WSI). Garching bei München (GE).
- 2014-05-13 *Nanophotonics for quantum simulation.* Institute of Quantum Optics and Quantum Information (IQOQI). Innsbruck (AUS).
- 2013-12-15 *Two-photon spectra of condensates and multimode lasers.* Institute of Nanoscience (CNR-Nano). Lecce (IT).
- 2013-07-23 *Bringing cQED dynamics in a new light through frequency-resolved photon correlations.* Instituto de Ciencias Fóticas (ICFO) . Casteldefells. Barcelona (ES).
- 2013-04-24 *Unravelling quantum dynamics with time and frequency resolved correlations.* Max Planck Institute of Quantum Optics. Garching by Munich (GE).
- 2012-12-18 *Quantum Plasmonics: strong-coupling, entanglement and perspectives.* Institute of Nanoscience (CNR-Nano). Lecce (IT).
- 2012-08-07 *From semiconductor cavity QED to quantum plasmonics.* Institute for Theoretical Physics (ITP). Ulm (GE).
- 2012-05-04 *Theory of color photon counting.* Instituto de Física Fundamental (CSIC). Madrid(ES).
- 2011-09-21 *Quantum Plasmonics.* Max Planck Institute of Quantum Optics. Garching by Munich(GE).

Contribution to conferences

Invited Talks

1. *Quantum Optics and Simulation with topological photons.* 2nd Workshop on Waveguide QED. Mazara del Vallo (IT). June 2020. (postponed 2021)
2. *Cold atoms in twisted bilayer potentials.* School “Emergent phenomena in Moiré systems”. Institute of Photonic Sciences (ICFO). Casteldefells (ES). July 2020.
3. *Analogue quantum chemistry simulation with ultra-cold atoms.* Conference on Quantum Simulation and Quantum Devices. Beijing (CH). November 2019.
4. *Analogue quantum chemistry simulation with ultra-cold atoms.* Workshop Quo Vadis Quantum Simulators?. Shanghai (CH). November 2019.
5. *Analogue quantum chemistry simulation with ultra-cold atoms.* Conference of Complex Quantum Systems out-of-Equilibrium. San Pedro del Pinatar (ES). August 2019.
6. *Analogue quantum chemistry simulation with ultra-cold atoms.* Kick-off meeting of Munich Quantum Science and Technology Center (MQSTC). Munich (GE). July 2019.
7. *Unconventional quantum optics in structured photonic environments.* Central European Workshop in Quantum Optics (CEWQO2019). Paderborn (GE). June 2019.
8. *Quantum Optics and Simulation with topological photons.* Conferencia de Información Cuántica en España (ICE-5). Barcelona (ES). May 2019.
9. *Quantum optics in structured photonic environments.* Quantum Nanophotonics Workshop. Benasque (ES). March 2019.
10. *Quantum optics in structured photonic environments.* QUENOCOBA Workshop. Garching bei München (DE). January 2019.
11. *Quantum Optics in structured photonic environments.* Current trends in open and non-equilibrium quantum optical systems. Erlangen (DE). July. 2018.
12. *Quantum Optics in low dimensions fundamentals and applications.* 1st Workshop on Waveguide QED. Sicily (IT). June. 2018.
13. *Atom-nanophotonics: a new platform for quantum information and simulation.* GEFES meeting. Valencia (ES). Jan. 2018
14. *Quantum Optics in low dimensions fundamentals and applications.* Workshop Light-Matter Interactions in Low Dimensions. Casteldefells (ES). May 2017.

15. *Quantum Optics in low dimensions fundamentals and applications*. Quantum Nanophotonics Workshop. Benasque (ES). March 2017.
16. *Nanophotonics for quantum simulation and information*. MPQ Colloquium. Garching bei München (GE). Jan. 2015.
17. *Nanophotonics for quantum simulation and information*. 32th International Conference of Physics of Semiconductors. (ICPS32). Austin, Texas (US). Aug 2014.
18. *Towards Quantum Plasmonics: Plasmon mediated qubit entanglement*. 18th Central Workshop in Quantum Optics (CEWQO18). Madrid (ES). May 2011.

Contributed Talks

1. *Analog quantum chemistry simulation*. Quantum Simulation and Computation Conference (QSC19). Madrid (ES). October 2019
2. *Analog quantum chemistry simulation*. Bienal RSEF. Zaragoza (ES). July 2019
3. *Emergent quantum dynamics and interactions in nanophotonic structures*. International Conference in Superlattices, Nanostructures, and Nanodevices. Madrid (ES). July 2018
4. *Atom waveguide QED for multiphoton sources*. Workshop Quantum simulation and Many-Body Physics with Light. Crete (GR). June 2016
5. *Atom waveguide QED for multiphoton sources*. Nanolight conference. Benasque. March 2016
6. *Atom waveguide QED for multiphoton sources*. MPQ-Kavli Institute Workshop. Delft (NE). Oct. 2015
7. *Atom Nanophotonics: a new platform for quantum information and simulation*. Quantum Information Processing and Communications (QIPC). Leeds (UK). Sep. 2015.
8. *Atom Nanophotonics: a new platform for quantum information and simulation*. Workshop in Quantum Optics (CEWQO21). *Varsaw (ES)*. July 2015.
9. *Unravelling complex quantum dynamics through time and frequency resolved photon correlations*. Workshop in Quantum Optics (CEWQO21). Varsaw (PO). July 2015.
10. *Atom Nanophotonics: a new platform for quantum information and simulation*. Workshop New Trends in Complex Quantum Systems. (CQS). Cartagena (ES). May 2015.
11. *Cold Atom Nanophotonics: a new platform for quantum information and simulation*. Workshop of Quantum Plasmonics. Benasque (ES). March 2015.
12. *Bringing QED dynamics in a new light through frequency-resolved photon correlations*. 13th Optics of Excitons in Confined Systems (OECS13). Rome (IT). September 2013.

13. *Unravelling quantum dynamics with time and frequency resolved correlations.* Workshop New Trends in Complex Quantum Systems. (CQS). Cartagena (ES). April 2013
14. *Theory of frequency-filtered and time-resolved N-photon correlations.* Quantum information in Spain Workshop. (ICE0). Madrid (ES). September 2012
15. *Theory of Strong-Coupling between quantum emitters and propagating surface plasmons.* POLATOM School 2012. Cambridge (UK). September 2012.
16. *Quantum Plasmonics: Strong-coupling and entanglement.* 12th Physics of Light-Matter Coupling in Nanostructures (PLCMN12). Hang-Zhou (CH). June 2012
17. *Towards Quantum Plasmonics: Plasmon mediated qubit entanglement.* 12th Optics of Excitons in Confined Systems (OECS12). Paris (FR). September 2011.
18. *Quantum Plasmonics: Plasmon mediated qubit entanglement.* 19th Electronic properties of 2 dimensional systems (EP2DS19). Tallahassee (US). July 2011.
19. *Towards Quantum Plasmonics: Plasmon mediated qubit entanglement.* 11th Physics of Light-Matter Coupling in Nanostructures (PLMCN11). Berlin (GE). April 2011
20. *Quantum dot coupling to metal-semiconductor interface plasmons.* 11th Physics of Light-Matter Coupling in Nanostructures (PLMCN11). Berlin (GE). April 2011
21. *Quantum dot coupling to metal-semiconductor interface plasmons.* 30th International Conference of Physics of Semiconductors. (ICPS30). Seoul (KR).

Posters

1. *Mesoscopic entanglement induced by spontaneous emission in one-dimensional solid-state systems* 13th Optics of Excitons in Confined Systems (OECS13). Rome (IT). September 2013
2. *Quantum plasmonics: strong-coupling between quantum emitters and surface plasmon polaritons.* 13th Optics of Excitons in Confined Systems (OECS13). Rome (IT). September 2013
3. *Dissipative driven entanglement of quantum dots mediated by one dimensional wave-guide modes.* 31th International Conference of Physics of Semiconductors. (ICPS31). Zürich (SW). July 2012
4. *Generation of a two-photon state from a quantum dot in a microcavity.* 31th International Conference of Physics of Semiconductors. (ICPS31). Zürich (SW). July 2012
5. *Theory of frequency-filtered and time-resolved N-photon correlations.* 31th International Conference of Physics of Semiconductors. (ICPS31). Zürich (SW). July 2012
6. *Theory of frequency-filtered and time-resolved N-photon correlations.* 12th Physics of Light-Matter Coupling in Nanostructures (PLCMN12). Hang-Zhou (CH). June 2012
7. *Theory of Strong-Coupling between quantum emitters and propagating surface plasmons.* Nanolight Workshop 2012. Benasque (ES). March 2012.

8. *Dephasing of strong-coupling in the non-linear regime*. 30th International Conference of Physics of Semiconductors. (ICPS30). Seoul (KR). July 2011.
9. *Two-photon lasing from a quantum dot in a high Q microcavity*. 11th Optics of Excitons in Confined Systems (OECS11). Madrid (ES). September 2009.

Schools

1. *Quantum Science: Implementations*. Centro de Ciencias de Benasque Pedro Pascual. Casteldefells. Barcelona (ES). July 2014.
2. *Frontiers of Quantum Physics and Quantum Information*. Instituto de Ciencias Fonicas (ICFO) . Casteldefells. Barcelona (ES) . July 2013.

Complete list of publications

Peer-reviewed papers

1. *Theory of Waveguide QED with moving emitters*. E. Sánchez-Burillo, **AGT**, C. González-Ballester. [Phys. Rev. A \(RC\) **102**, 013726 \(2020\)](#)
2. *Limits of photon-mediated interactions in one-dimensional photonic environments*. E. Sánchez-Burillo, D. Porras, **AGT**. [Phys. Rev. A **102**, 013709 \(2020\)](#)
3. *Qubit-photon corner states in all dimensions*. A. Feiguin, J. J. García-Ripoll, **AGT**. [Phys. Rev. Research **2**, 023082 \(2020\)](#).
4. *Chiral quantum optics in photonic sawtooth lattices*. E. Sánchez-Burillo, C. Wan, D. Zueco, **AGT**. [Phys. Rev. Research **2**, 023003 \(2020\)](#).
5. *Multimode Fock states with large photon numbers: effective descriptions and applications in metrology*, M. Perarnau-Llobet, **AGT** and J. I. Cirac. [Quantum Science and Technology **5**, 025003 \(2020\)](#)
6. *Symmetries and conservation laws in quantum trajectories: dissipative freezing*. C. Sánchez Muñoz, Berislav Buča, Joseph Tindall, **AGT**, Dieter Jaksch, and Diego Porras. [Phys. Rev. A **100**, 042113 \(2019\)](#)
7. *Cold atoms in twisted-bilayer optical potentials*. **AGT** and J. I. Cirac. [Phys. Rev. A **100**, 053604 \(2019\)](#) (Editor's Suggestions)
8. *Analog quantum chemistry simulation with ultra-cold atoms*. J. Argüello-Luengo, **AGT**, T. Shi, P. Zoller, J. I. Cirac. [Nature **574**, 215-218 \(2019\)](#)
9. *Unconventional quantum optics in topological waveguide QED*. M. Bello, G. Platero, J. I. Cirac, and **AGT**, [Science Advances **eaaw0297** \(2019\)](#)

10. *Engineering and harnessing giant atoms in high-dimensional baths: a proposal for implementation with cold atoms*, AGT, C. Sánchez Muñoz and J. I. Cirac. [Phys. Rev. Lett. **122**, 203603 \(2019\)](#)
11. *Quantum metrology with one-dimensional superradiant states*, V. Paulisch, M. Perarnau-Llobet, AGT and J. I. Cirac. [Phys. Rev. A **99**, 043807 \(2019\)](#)
12. *Anisotropic quantum emitter interactions in two-dimensional photonic crystal baths*. AGT, F. Galve. [ACS Photonics **6** \(1\), 221-229 \(2019\)](#).
13. *Non-Markovian Quantum Optics with Three-Dimensional State-Dependent Optical Lattices*. AGT, J. I. Cirac. [Quantum **2**, 97 \(2018\)](#).
14. *Effective many-body Hamiltonians of qubit-photon bound states*. T. Shi, Y. H. Wu, AGT, J. I. Cirac. [New Journal of Physics **20**, 105005 \(2018\)](#)
15. *Colloquium: Quantum matter built from nanoscopic lattices of atoms and photons*. D.E. Chang, J. Douglas, AGT, C.-L. Hung and H.J. Kimble. [Rev. Mod. Phys. **90** \(3\), 031002 \(2018\)](#)
16. *Generation of single and two-mode multiphoton states in waveguide QED*, V. Paulisch, H. J. Kimble, J. I. Cirac, and AGT. [Phys. Rev. A **97** \(5\), 053831 \(2018\)](#)
17. *Purely long-range coherent interactions in Two-Dimensional Structured baths*, AGT and J. I. Cirac. [Phys. Rev. A **97** \(4\), 043831 \(2018\)](#)
18. *Filtering Multiphoton Emission in State-of-the-art Cavity QED*. C. Sanchez Muñoz, F. P. Laussy, E. del Valle, C. Tejedor, AGT. [Optica **5** \(1\), 14-26 \(2018\)](#)
19. *Markovian and Non-Markovian Dynamics of Quantum Emitters in Two-Dimensional Structured Reservoirs*, AGT and J. I. Cirac, [Phys. Rev. A **96**, 043811 \(2017\)](#)
20. *Quantum Emitters in Two-Dimensional Structured Reservoirs in the Non-Perturbative regime*, AGT and J. I. Cirac, [Phys. Rev. Lett. **119** \(14\), 143602 \(2017\)](#)
21. *Heralded multiphoton states with coherent spin interactions in waveguide QED*. V. Paulisch, AGT, H.J. Kimble, J.I. Cirac. [New Journal of Physics **19** \(4\), 043004 \(2017\)](#)
22. *Efficient multiphoton generation in waveguide QED*. AGT, V. Paulisch, H. J. Kimble, J. I. Cirac. [Phys. Rev. Lett. **118** \(21\), 213601 \(2017\)](#)
23. *The colored Hanbury Brown-Twiss effect*. B. Silva, C. Sánchez-Muñoz, D. Ballarini, AGT, M. de Giorgi, L. Pfeiffer, E. del Valle, D. Sanvitto, F. P. Laussy. [Scientific Reports **6**, 37980 \(2016\)](#)
19. *Nonreciprocal few-photon routing schemes based on chiral waveguide-emitter couplings*. C Gonzalez-Ballester, E Moreno, FJ Garcia-Vidal, AGT. [Phys. Rev. A **94** \(6\), 063817 \(2016\)](#)

20. *Deterministic Down-Converter and Continuous Photon-Pair Source within the Bad-Cavity Limit.* Y Chang*, **AGT** *, CS Muñoz*, C Navarrete-Benlloch*, T Shi*. [Phys. Rev. Lett. **117** \(20\), 203602 \(2016\)](#)
21. *Quantum Spin Dynamics with Pairwise-Tunable, Long-Range Interactions.* C.-L. Hung*, **AGT** *, J. I. Cirac, H. K. Kimble. [PNAS **113** \(34\) E4946-E4955 \(2016\)](#)
22. *QED description of Raman scattering from molecules in plasmonic cavities.* M. K. Schmidt, R. Esteban, **AGT**, G. Giedke, J. Aizpurua. [ACS Nano, 2016, **10** \(6\), pp 6291-6298](#)
23. *Bound states in boson impurity models.* T. Shi, Y. Wu, **AGT** and J. I. Cirac. [Phys. Rev. X **6**, 021027 \(2016\)](#)
24. *Universal quantum computation in waveguide QED using decoherence-free subspaces.* V. Paulisch, H. J. Kimble and **AGT**. [New Journal of Physics **18**, 043041 \(2016\).](#)
25. *Chiral route for spontaneous formation of entanglement.* C. Gonzalez-Ballester, **AGT**, F. J. García-Vidal and E. Moreno. [Phys. Rev. B **92**, 155304 \(2015\).](#)
26. *Deterministic generation of arbitrary photonic states assisted by dissipation.* **AGT**, V. Paulisch, D. E. Chang, H. J. Kimble and J. I. Cirac.. [Phys. Rev. Lett. **115**, 163603 \(2015\).](#)
27. *Subwavelength vacuum lattices and atom-atom interactions in photonic crystals.* **AGT**, C.-L. Hung, D. E. Chang, J. I. Cirac, H. J. Kimble. [Nat. Phot. **9**, 320-325 \(2015\).](#)
28. *Optimization of photon correlations through frequency filtering.* **AGT**, E. del Valle, and F. P. Laussy. [Phys. Rev. A. **91**, 043807 \(2015\)](#)
29. *Emitters of N-photon bundles.* C. Sanchez-Muñoz. E. del Valle, **AGT**, S. Lichtmannecker, K. Müller, M. Kaniber, C. Tejedor, J.J. Finley and F. P. Laussy. [Nat. Phot **8**, 550-555 \(2014\)](#)
30. *Reversible dynamics of single quantum emitters near metal-dielectric surfaces.* **AGT**, P. A. Huidobro, L. Martín-Moreno, C. Tejedor, F. J. García-Vidal. [Phys. Rev. B **89**, 041402 \(R\) \(2014\).](#)
31. *Bichromatic dressing of a quantum dot detected by a remote second quantum dot.* M Maragkou, C Sánchez-Muñoz, S Lazić, E Chernysheva, HP van der Meulen, **AGT**, C Tejedor, LJ Martínez, I Prieto, PA Postigo, JM Calleja. [Phys. Rev. B **88**, 075309\(2013\).](#)
32. *Theory of Strong-Coupling between quantum emitters and propagating surface Plasmon Polaritons.* **AGT**, P. A. Huidobro, L. Martín-Moreno, C. Tejedor, F. J. García-Vidal. [Phys. Rev. Lett. **110**, 126081 \(2013\).](#)
33. *Two-photon spectra of quantum emitters.* **AGT**, F. P. Laussy, C. Tejedor, M. J. Hartmann, E. del Valle. [New Journal of Physics **15**, 033036 \(2013\).](#)

34. *Mesoscopic induced entanglement by spontaneous emission in solid-state quantum optics.* AGT and D. Porras. [Phys. Rev. Lett. **110**, 080502 \(2013\)](#)
35. *Theory of frequency-filtered and time-resolved N-photon correlations.* E. del Valle, AGT, F. P. Laussy, C. Tejedor, M. J. Hartmann. [Phys. Rev. Lett. **109**, 183601 \(2012\)](#)
36. *Plasmon-polariton emission from a coherently p-excited quantum dot near a metal interface.* C. Sanchez-Muñoz, AGT, C. Tejedor. [Phys. Rev. B **85**, 125301\(2012\)](#).
37. *Generation of a two-photon state from a quantum dot in a microcavity.* E. del Valle, AGT, E. Cancellieri, F. P. Laussy, C. Tejedor. [New Journal of Physics **13**, 113014 \(2011\)](#).
38. *Dissipation-driven generation of two-qubit entanglement mediated by one-dimensional plasmonic waveguides.* D. Martín-Cano, AGT, E. Moreno, L. Martín-Moreno, C. Tejedor, F. J. García-Vidal . [Phys. Rev. B **84**, 235306\(2011\)](#).
39. *Entanglement of two qubits mediated by one-dimensional plasmonic waveguides,* AGT, D. Martín-Cano, E. Moreno, L. Martín-Moreno, C. Tejedor, F. J. García-Vidal . [Phys. Rev. Lett. **106**, 020501\(2011\)](#).
40. *Dissipative dynamics of a solid-state qubit coupled to surface plasmons: From non-Markov to Markov regimes.* AGT, F. J. Rodríguez, L. Quiroga, C. Tejedor. [Phys. Rev. B. **82**, 115334 \(2010\)](#).
41. *Two-photon lasing by a single quantum dot in a high-Q microcavity.* E. del Valle, S. Zippilli, F. P. Laussy, AGT, G. Morigi, C. Tejedor. [Phys. Rev. B. **81**, 035302 \(2010\)](#).
42. *Effect of pure-dephasing on the Jaynes-Cummings nonlinearities.* AGT, E. del Valle, E. Cancellieri, C. Tejedor, D. Sanvitto F. P. Laussy. [Optics Express **18**, 7002-7009 \(2010\)](#)

Books chapters

1. *Luminescence spectra of quantum dots in Microcavities.* F. P. Laussy, E. del Valle, A. Laucht, AGT, M. Kaniber, J. J. Finley, C. Tejedor. University of Bremen, Germany. Woodhead Publishing Series in Electronic and Optical Materials No. 28 (2012)

Proceedings and reviews

1. *Generation of a two-photon state from a quantum dot in a microcavity under incoherent and coherent continuous excitation.* E. del Valle, AGT, F. P. Laussy, [Proceedings of SPIE **8255**, 825505 \(2012\)](#).

2. *Exploring qubit-qubit entanglement mediated by one-dimensional plasmonic nanowaveguides.* AGT, D. Martín-Cano, E. Moreno, L. Martín-Moreno, F. J. García-Vidal, C. Tejedor . [Phys. Status Solidi C 9, 1303-1308](#). Proceedings of PLMCN11 Conference (2012).
3. *Quantum dot coupled to metal-semiconductor interface plasmons.* AGT, F. J. Rodríguez, L. Quiroga, C. Tejedor. [AIP Conference Proceedings ICPS30 1399, 1015](#) (2011).
4. *Dephasing of strong-coupling in the non-linear regime.* AGT, E. Del Valle, E. Cancellieri, C. Tejedor, D. Sanvitto, F. P. Laussy. [AIP Conference Proceedings ICPS30 1399, 975](#) (2011).
5. *Linear and non-linear coupling of quantum dots in microcavities.* F. P. Laussy, E. del Valle, AGT, E. Cancellieri, D. Sanvitto, C. Tejedor. [18th Int. Symp. "Nanostructures: Physics and Technology" 298](#) (2010).
6. *Anticrossing in the PL spectrum of light-matter coupling under incoherent continuous pumping.* AGT, E. del Valle, C. Tejedor, F. P. Laussy. [Superlattices and Microstructures 47,16-18](#). Proceedings of PLMCN9 (2010)

Projects

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| 2019/2021 | Program: iCOOP 2018. Title: Óptica cuántica en baños no convencionales. PI: AGT and D. Porrás. Host: Instituto de Física Fundamental (CSIC). Financed: Agencia Estatal de Investigación (Spain). Budget: 21.4 k€. |
| 2019/2021 | Program: Europa Dinamización. Title: Óptica cuántica en baños no convencionales. PI: AGT. Host: Instituto de Física Fundamental (CSIC). Financed: Agencia Estatal de Investigación (Spain). Budget: 7 k€. |
| 2019/2021 | Program: Plan Nacional. Title: FroQuS: Frontiers in Quantum Simulation. PI: AGT and D. Porrás. Host: Instituto de Física Fundamental (CSIC). Financed: Agencia Estatal de Investigación (Spain). Budget: 175 k€. |
| 2015/2017 | Program: Marie Curie Intra-European Fellowship. Title: NanoQuIS: Nanophotonics for Quantum Simulation and Information. Host: Max Planck Institute of Quantum Optics PI: AGT. Financed: European Research Council. Budget: 168 k€. |
| 2012/2014 | Program: Plan Nacional. Title: NANOQUO: Nanoestructuras para óptica cuántica. PI: Carlos |

Tejedor. **Host:** UAM. **Financed:** MINECO. **Budget:** 565 k€.

2010/2013 **Program:** Proyectos Comunidad de Madrid. **Title:** Q&C light: Nanodispositivos eficientes de luz clásica y cuántica. **PI:** L. Viña. **Host:** UAM, IMM/CSIC, ISOM/UPM. **Financed:** CAM. **Budget:** 730 k€.

2010/2012 **Program:** Plan Nacional. **Title:** QOSENSA: Quantum optics in semiconductor nanostructures. **PI:** J. M. Calleja. **Host:** UAM. **Financed:** MICINN. **Budget:** 660 k€.

Supervision of students

01-2019/present Co-Supervision with Prof. H. Vinck-Posada of PhD of Erik P. Barón-Navarro. Universidad Nacional de Colombia & Instituto de Física Fundamental (CSIC).

09-2018/present Co-Supervision with Prof. D. Chang of PhD of Javier Argüello Luengo. Instituto de Ciencias Fotónicas (ICFO) & Instituto de Física Fundamental (CSIC)..

09-2018/present Co-Supervision with Prof. J. Bravo-Abad of PhD of Iñaki García-Elcano. Universidad Autónoma de Madrid & Instituto de Física Fundamental (CSIC).

10-2017/10-2019 Co-Supervision with Prof. Cirac and Dr. D. Malz of Master Thesis of Zhi Yuan. Ludwig-Maximiliane Universität München. (Grade: 1.0 (maximum))

09-2014/04-2018 Co-Supervision with Prof. Cirac of PhD of Vanessa Paulisch. Ludwig-Maximiliane Universität München. (Grade: 1.0 (maximum))

09-2013/09-2014 Co-Supervision with Prof. Cirac of Master Thesis of Vanessa Paulisch: *Quantum computation and information assisted by one-dimensional waveguides*. Ludwig-Maximiliane Universität München. Grade: 1.0 (Maximum Distinction)

09-2011/07-2012 Co-Supervision with Prof. Tejedor of Master Thesis of C. Sánchez-Muñoz: *Coherently p-excited quantum dot coupled to surface plasmon polariton*. Universidad Autónoma de Madrid.

Teaching

2017 Mentor of the 2017/2018 International Mentor Program of the International

- Mentoring Foundation for the Advancement of Higher Education (15 h)
- 2016 Mentor of the 2016/2017 International Mentor Program of the International Mentoring Foundation for the Advancement of Higher Education (15 h)
- 2012 *Physics Laboratory* in Chemistry degree.
Shared Teaching: 18 h.
Universidad Autónoma de Madrid
- 2012 *Physics Laboratory* in Chemistry degree.
Shared Teaching: 18 h.
Universidad Autónoma de Madrid
- 2012 *Physics Laboratory* in Chemistry degree.
Shared Teaching: 16 h.
Universidad Autónoma de Madrid
- 2011 *Physics Laboratory* in Chemistry degree.
Shared Teaching: 16 h.
Universidad Autónoma de Madrid
- 2010 *Physics Laboratory* in Chemistry degree.
Shared Teaching: 16 h.
Universidad Autónoma de Madrid

Language Skills

Spanish (Native Speaker)

English (C2, Proficiency)

German (B1, Basic)

French (A1, Basic)

Organization

- 11-2019 Together with C. González-Ballester. 1st IFF-IQOQI Workshop in *La Residencia de estudiantes*. Madrid.

07-2019	Together with G. Giedke, J. I. Cirac, M. Lukin, A. Imamoglu. 3rd NanoQI Summer School at DIPC (San Sebastian).
07-2017	Together with G. Giedke, J. I. Cirac, M. Lukin, A. Imamoglu. 2nd NanoQI Summer School at DIPC (San Sebastian).
07-2016	Together with G. Giedke and J. I. Cirac, NanoQI Summer School at DIPC (San Sebastian).
09-2014	Together with M. Schütz, Organization MPQ-Freiburg University Workshop.

Others

- Usual referee of international journals: Nature journals (Physics, Materials, Communications, ...), APS journals (Letters, A, B,...) Applied Physics Letter, Proceeding of National Academy of Sciences, Physica B, Journal of Optics, Optics Express.
- Committee evaluator of Agencia Estatal de Investigación.

References

- **Prof. C. Tejedor**

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