

Ricardo Puebla Antunes

PhD Student

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Education

- Since October 2013 **PhD Student**, *Quantum Controlled Dynamics Group*, Institute of Theoretical Physics, Ulm University, Germany.
Supervisor: Martin B. Plenio
- 2011 – 2012 **Master of Science in Nuclear Physics**, *Interuniversity*, Spain.
Master thesis: *Quantum Phase Transitions and symmetry-breaking in the Dicke Model* with the qualification of Honor's Registration
- 2010 – 2011 **Exchange student (Erasmus program)**, *Technische Universität München (TUM)*, Munich.
- 2006 – 2011 **Licenciatura in Physics**, *Universidad Complutense de Madrid (UCM)*.
Theoretical physics specialty.

Work Experience

- October 2011 – September 2013 **Student fellow of GFN (Nuclear Physics Group)**, *Atomic, molecular and nuclear physics department*, Universidad Complutense de Madrid.
Research and work areas: Computational physics, radiotherapy simulations, medical imaging and software developer.
- May 2011 – August 2011 **Student fellow of T30a (Theoretical Atomic Physics)**, *Technische Universität München*, TUM.
Research project: *Break-up Threshold in Helium Atoms. High correlated two-atoms states* with J. Madroñero and H. Friedrich
September 2011 - January 2012, research collaboration at distance.
- January 2010 – June 2010 **Teacher**, *Mathematics, Physics and Chemistry for high school and preparation for university entrance exam*, Academia Retiro, Madrid.

Languages

- Spanish **Mother tongue.**
Portuguese **Advanced level.**
English **Advanced level.**
German **Medium-high level.**

Publications

1. **Quantum Phase Transition and Universal Dynamics in the Rabi model**, *M.-J. Hwang, R. Puebla and M. B. Plenio*, Phys. Rev. Lett. **115**, 180404 (2015) *Editor's Suggestion* [arXiv:1503.03090](https://arxiv.org/abs/1503.03090).
[doi:10.1103/PhysRevLett.115.180404](https://doi.org/10.1103/PhysRevLett.115.180404)

2. **Irreversible processes without energy dissipation in an isolated Lipkin-Meshkov-Glick model**,
R. Puebla and A. Relaño,
Phys. Rev. E **92**, 012101 (2015) [arXiv:1404.6146](#)
[doi:10.1103/PhysRevE.92.012101](https://doi.org/10.1103/PhysRevE.92.012101)
3. **Phase space determination of electron beam for intraoperative radiation therapy from measured dose data**,
E. Herranz, J. L. Herraiz, P. Ibáñez, M. Pérez-Liva, R. Puebla, J. Cal-González, P. Guerra, R. Rodríguez, C. Illana and J. M. Udías,
Phys. Med. Biol. **60**, 375 (2015).
[doi:10.1088/0031-9155/60/1/375](https://doi.org/10.1088/0031-9155/60/1/375)
4. **Non-thermal excited-state quantum phase transitions**,
R. Puebla and A. Relaño,
EPL **104**, 50007 (2013). [arXiv:1305.3077](#)
[doi:10.1209/0295-5075/104/50007](https://doi.org/10.1209/0295-5075/104/50007)
5. **Excited-state phase transition leading to symmetry-breaking steady states in the Dicke model**, R. Puebla, A. Relaño, and J. Retamosa,
Phys. Rev. A **87**, 023819 (2013). [arXiv:1209.5320](#)
[doi:10.1103/PhysRevA.87.023819](https://doi.org/10.1103/PhysRevA.87.023819)

Proceedings

1. **Quantum phase transitions and spontaneous symmetry-breaking in Dicke model**,
R. Puebla, A. Relaño, and J. Retamosa,
AIP Conf. Proc. **1541**, 191 (2013).
[doi:10.1063/1.4810842](https://doi.org/10.1063/1.4810842)

Scientific Meetings

- 11-15 **1st RICE School *New Trends in Quantum Information* and ICE-3 Conference**,
April 2016 *IFISC (UIB-CSIC) (Mallorca)*
Talk: In- and out-of-equilibrium physics of the superradiant quantum phase transition in the Rabi model.
- 28-4 **DPG Spring Meeting**, *University of Hannover*
March 2016 **Talk:** Quantum phase transition and universal dynamics in the Rabi model.
- 21-25 **Excite-State Quantum Phase Transitions**, *ECT* (Trento)*
September 2015 **Talk:** On the dynamical consequences of ESQPTs in isolated quantum systems: irreversible closed cycles.
- 14-15 **Correlations Cooperative effects, correlations and many-body physics tailored by strongly confined optical fields**, *ICFO (Barcelona)*
September 2015 **Talk:** Quantum phase transition and universal dynamics in the Rabi model.
- 15-19 **XXXV Biennial Meeting of Spanish Royal Society of Physics (RSEF)**, *Universidad de Oviedo*
July 2015 **Talk:** Quantum phase transition and nonequilibrium universal dynamics in the Rabi model at *Quantum Information Symposium*.

- 25-29 **Workshop on New Trends in Complex Quantum Systems Dynamics**, *Universidad Politécnica de Cartagena*
May 2015 **Poster:** Universal out-of-equilibrium dynamics close to the quantum phase transition in the Rabi model.
- 10-13 **7th Workshop on Shape-Phase Transitions and Critical Point Phenomena in Nuclei**, *Universidad de Sevilla*
March 2014 **Talk:** Non-thermal nature of phase transitions in Dicke and Lipkin-Meshkov-Glick models.
- 15-19 **XXXIV Biennial Meeting of Spanish Royal Society of Physics (RSEF)**, *Universidad de Valencia*
July 2013 **Talk:** Non-thermal excited-state quantum phase transitions in two-level systems at *Complex Systems Symposium*..
- 14-16 **VII Spanish Meeting of Nuclear Physics (EFN12)**, *La Rábida, Huelva*
September 2012 **Poster:** Phase transitions and symmetry-breaking in the Dicke Model.
- 09-13 **International Meeting in Nuclear Physics (Basic concepts in Nuclear Physics: theory, experiments and applications)**, *La Rábida, Huelva*
September 2012 **Poster:** Quantum phase transitions in the Dicke Model.