

Dr Juan Camilo LÓPEZ CARREÑO

Curriculum Vitae as of December 2019

Personal information

First name: Juan Camilo
Family name: López Carreño
Nationality: Colombian
Date of birth: July 29, 1991

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Scientific education

Ph. D. in Physics, *Cum Laude* (2015–2019)

Universidad Autónoma de Madrid, Madrid, Spain
Thesis title: Exciting with Quantum Light
Thesis advisors: Prof. Fabrice Laussy and Dr. Elena Del Valle

M. Sc. in Physics (2014–2015)

Universidad Autónoma de Madrid, Madrid, Spain
Thesis title: Classical and Quantum Excitations of Polaritons
Thesis advisors: Prof. Fabrice Laussy and Dr. Elena Del Valle
GPA: 9.21/10.00

B. Sc. in Physics (2009–2014)

Universidad Nacional de Colombia, Bogotá, Colombia
Thesis title: Study of the preparation and dynamical evolution of a three-photon state in a semiconductor microcavity
Thesis advisors: Dr. Herbert Vinck Posada
GPA: 4.5/5.0 (Best physics undergraduate thesis award)

Academic positions and Scholarships

Teaching Associate in Physics (2018–current)

University of Wolverhampton, Wolverhampton, United Kingdom
Tenure-track permanent position

Doctoral Scholarship (2016-2018)

Universidad Autónoma de Madrid, Madrid, Spain

Contrato predoctoral para la Formación de Personal Investigador 2016 (FPI-UAM)

Master Scholarship (2014-2015)

Universidad Autónoma de Madrid, Madrid, Spain

Ayudas para estudios de Máster UAM-2014

Languages

Spanish:	Native
English:	Fluent (109/120 TOEFL iBT, Band 8 IELTS)
German:	Very high (C1 level)
Italian:	Intermediate (B1 level)
French:	Basic (A1 level)

List of Publications

Number of citations (since 2014): 221

h-index: 8

2019

- Quasichiral interactions between Quantum Emitters at the Nanoscale
C. A. Downing, **J. C. López Carreño**, F. P. Laussy, E del Valle & A. I. Fernández-Domínguez
Phys. Rev. Lett. **122**, 057401 (2019)
- Impact of detuning and dephasing on a laser-corrected subnatural-linewidth single-photon source
J. C. López Carreño, E. Zubizarreta Casalengua, F. P. Laussy & E. del Valle
J. Phys. B: Atom. Mol. Opt. **52**, 035504 (2019)

2018

- Frequency-resolved Monte Carlo
J. C. López Carreño, E del Valle & F. P. Laussy
Sci. Rep. **8**, 6975 (2018)
- First observation of the quantized exciton-polariton field and effect of interactions on a single polariton
Á. Cuevas, **J. C. López Carreño**, B. Silva, M. de Giorgi, D. G. Suárez Forero, C. Sánchez Muñoz, A. Fieramosca, F. Cardado, L. Marrucci, V. Tasco, G. Biasiol, E. del Valle, L. Dominici, D. Ballarini, G. Gigli, P. Mataloni, F. P. Laussy, F. Sciarrino & D. Sanvitto.
Sci. Adv. **4**, eaao6814 (2018)
- Joint subnatural-linewidth and single-photon emission from resonance fluorescence
J. C. López Carreño, E. Zubizarreta Casalengua, F. P. Laussy & E. del Valle
Quantum Science and Technology **3**, 045001 (2018)

2017

- Photon Correlations from the Mollow Triplet
J. C. López Carreño, E. del Valle & F. P. Laussy
Laser Photon. Rev. 170090 (2017)

- Structure of the harmonic oscillator in the space of N -particles Glauber correlators
E. Zubizarreta Casalengua, **J. C. López Carreño**, E. del Valle & F. P. Laussy
J. Math. Phys. **58**, 062109 (2017)

2016

- Excitation with Quantum Light. I. Exciting a harmonic oscillator
J. C. López Carreño & F. P. Laussy
Phys. Rev. A **94**, 063825 (2016)
Featured in Physics
- Excitation with Quantum Light. II. Exciting a two-level system
J. C. López Carreño, C. Sánchez Muñoz, E. del Valle & F. P. Laussy
Phys. Rev. A **94**, 063826 (2016)
Featured in Physics

2015

- Exciting polaritons with Quantum Light
J. C. López Carreño, C. Sánchez Muñoz, D. Sanvitto, E. del Valle & F. P. Laussy
Phys. Rev. Lett. **115**, 196402 (2015)
Selected as “Editor’s Suggestion”

2014

- Ultrafast Control and Rabi Oscillations of Polaritons
L. Dominici, D. Colas, S. Donati, J. P. Restrepo Cuartas, M. de Giorgi, D. Ballarini, G. Guirales,
J. C. López Carreño, A. Bramati, G. Gigli, E. del Valle, F. P. Laussy & D. Sanvitto
Phys. Rev. Lett. **114**, 226401 (2014)
- Preparation of a three-photon state in a nonlinear cavity-quantum dot system
J. C. López Carreño & H. Vinck Posada
Phys. Scr. **T160**, 014027 (2014)

Conferences and other academic events

2019

- *Watching photons (Contributed talk)*
TERAMETANANO-4: Terahertz Emission, Metamaterials and Nanophotonics
Lecce, Italy
- *Quantum spectroscopy applied to polaritons (Invited seminar)*
University of Southampton
Southampton, UK

2018

- *Research stay (3 months)*
Group of Prof. Fabrice Laussy at the University of Wolverhampton
Wolverhampton, United Kingdom
- *Research stay (3 months)*
Group of Dr. Daniele Sanvitto at the CNR-NANOTEC
Lecce, Italy

2017

- *Criterion for Single Photon Sources (Contributed talk)*
AOP 2017 – III International conference on Applications in Optics and Photonics
Faro, Portugal
- *Entangling a photon with a Polariton: interaction at the single particle level (Contributed talk)*
International Workshop on Physics of Exciton-Polaritons in Artificial Lattices
Daejeon, Korea
- *Colorful Photons (Departamental seminar)*
Universidad Autónoma de Madrid
Madrid, Spain

2016

- *Exciting with Quantum Light (Invited talk)*
International Workshop on Functional and Nanostructured Materials (FNM16)
Tbilisi, Georgia
- *Exciting Polaritons with Quantum Light (Contributed talk)*
17th International Conference on Physics of Light-Matter Coupling in Nanostructures (PLMCN17)
Nara, Japan
- *Polaritons & Quantum Sources (Departamental seminar)*
Universidad Autónoma de Madrid
Madrid, Spain
- *Nanotechnology meets Quantum Information (Summer school)*
Donostia International Physics Center
San Sebastián, Spain

2015

- *Mollow Spectroscopy (Poster)*
Third International Conference on Quantum Technologies
Moscow, Russia
- *Exciting Polaritons (Departamental seminar)*
Universidad Autónoma de Madrid
Madrid, Spain
- *“Polaflow” midterm Meeting (Contributed talk)*
Universidad Autónoma de Madrid
Madrid, Spain

Before 2014

- *Entanglement due to a beam-splitter of two single photon sources (Contributed talk)*
1st Workshop on Metamaterial and Photonic Crystals (2013)
Armenia, Colombia
- *Preparation of a three-photon state in a semiconductor cavity (Poster)*
20th Central European Workshop on Quantum Optics (2013)
Stockholm, Sweden
Awarded the IOP Prize for the Best Poster of the Conference

- *Theoretical Physics (Summer School, 2012)*
Utrecht University
Utrecht, The Netherlands
- *Applications of Quantum Mechanics II (Summer school, 2012)*
Universidad Nacional Autónoma de México & Universidad de Guadalajara
Cuernavaca, México
- *Study of the temporal evolution of a Star-like quantum state of light through the Wigner function (Poster)*
Research in Optical Science Congress (2012)
Berlin, Germany

Teaching experience

2019/20:

B. Sc. Physics – 1st Year – University of Wolverhampton

Electromagnetism I: Tutorials

Quantum Mechanics: Lectures

B. Sc. Physics – 2nd Years – University of Wolverhampton

Solid State Physics: Lectures & Tutorials

Electromagnetism II: Tutorials

2018/19

B. Sc. Physics – 1st Year – University of Wolverhampton

Electromagnetism I: Lectures & Tutorials

Quantum Mechanics: Tutorials

Optics: Tutorials

B. Sc. Physics – 2nd Years – University of Wolverhampton

Solid State Physics: Lectures & Tutorials

Electromagnetism II: Tutorials

Thermodynamics & Statistical Mechanics: Tutorials

Quantum Physics: Tutorials