

# 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. Dr. 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. Dr. 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 Year – 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 Year – University of Wolverhampton**

*Solid State Physics*: Lectures & Tutorials

*Electromagnetism II*: Tutorials

*Thermodynamics & Statistical Mechanics*: Tutorials

*Quantum Physics*: Tutorials