

# Robinson CORTES-HUERTO

**Date of birth :**

21<sup>st</sup> January 1980 (34 years old)

**Nationality :**

Colombian

**Marital status :**

Married (no children)

**Languages :**

Spanish, English (fluent), French (B1-B2)

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## Education

**PhD in Physics**, Queen's University Belfast, Belfast, UK. 8<sup>th</sup> July 2010

**Supervisor :** Prof. Pietro Ballone.

- *Charge localisation and spontaneous spin polarisation in nanometric systems.*
- *Development of a density functional theory code for studying low electron density systems.*

**MSc. in Physics**<sup>1</sup> (**GPA : 4.7/5.0, Best postgraduate students scholarship**) ,  
Universidad Nacional de Colombia, Bogotá, Colombia. February 2007.

**Licentiate in Physics**<sup>2</sup> (**Meritorious Mention**), Universidad Nacional de Colombia,  
Bogotá, Colombia. November 2004.

## Work Experience

**2014 - : Max Planck Society research fellow**, Max Planck Institute for Polymer Research, Mainz - Germany.

**Supervisor :** Dr R. Potestio and Prof. K. Kremer.

- *Applications of the Hamiltonian adaptive resolution simulation (H-AdResS) scheme.*

**2012 - 2013 : Post-doctoral research associate**, Institut des Nanosciences de Paris (INSP), Université Pierre et Marie Curie (UPMC) and Centre National de la Recherche Scientifique (CNRS), and Commissariat á l'énergie atomique et aux énergies alternatives (CEA), Saclay - France.

**Supervisor :** Dr J. Goniakowski and Prof. C. Noguera.

- *Phase diagram of metallic nanoparticles in solution.*
- *Development/implementation of a many-body approach to simulate implicit environment/metallic nanoparticle systems.*

**2010 - 2011 : Post-doctoral research associate**, Centre Interdisciplinaire des Nanosciences de Marseille (CINAM-CNRS), Marseille - France.

**Supervisor :** Dr A. Saúl.

- *Structural and mechanical properties of stretched nanowires.*
- *Implementation of a molecular dynamics code to study metallic nanosystems.*

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1. MSc. is a 2 year postgraduate academic degree that consists of 12 compulsory courses plus a thesis

2. Licentiate is a 5 year university degree that consists of 32 compulsory courses plus a final project

## Teaching Experience

### **United Kingdom :**

February 2007 - June 2009 : Queen's University Belfast. Mathematics and Physics demonstrator. Duties included giving tutorials and marking undergraduate first-year homeworks (360 hours).

### **Colombia :**

July 2005 - November 2006 : Universidad Nacional de Colombia. Laboratory demonstrator. Duties included helping and assessing students during practical work (180 hours).

## Main Research Interests

I have experience with computer simulation of materials using semi-empirical and ab-initio methods, and in designing and writing computer codes (FORTRAN 90), including plane-wave DFT and molecular dynamics codes. In particular, I am interested in :

- development and implementation of semi-empirical models aimed at simulating the formation of atomic-sized contacts in metal nanowires and environment effects on morphology and shape of metal nanoparticles and supported clusters.
- electronic and optical properties of nanoelectronic devices such as nanometric wires and surfaces of low-electron density conductors.
- Pseudopotentials and plane waves (CPMD) to investigate electronic properties and reactivity of room-temperature ionic liquids (RTILs), in addition to classical simulations (DLPOLY) to study thermodynamic properties of RTILs.

## Publications

9 scientific publications in peer-reviewed journals and 1 book chapter.

## Referees

### **Prof. Pietro Ballone**

Complex and Adaptive Systems Laboratory  
University College Dublin

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### **Prof. Claudine Noguera**

Institut des Nanosciences de Paris  
Université Pierre et Marie Curie

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### **Dr Jacek Goniakowski**

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Université Pierre et Marie Curie

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### **Dr Andrés Saúl**

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