

# Carlos Heredia Pimienta

University of Barcelona

## PERSONAL DETAILS

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*Born:* 28.07.1993

## EDUCATION

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**Ph.D. in Mathematical Physics** Oct/20 - Today

*University of Barcelona (UB), Barcelona, Spain*

- Ph.D.'s thesis: Non-local Lagrangian formalism
- Supervisor: Prof. Dr. Josep Llosa

**Master in Astrophysics, Particle Physics and Cosmology** Sep/16 - Jun/17

*University of Barcelona (UB), Barcelona, Spain*

- Master's thesis: Hamilton-Jacobi formalism for non-involutive systems
- Supervisor: Prof. Dr. Josep M. Pons

**Bachelor's Degree in Physics** Sep/11 - Jan/16

*University of Barcelona (UB), Barcelona, Spain*

## WORK EXPERIENCE

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**Assistant professor at University of Barcelona** (*Department: FQA*) Aug/22 - Today

*Barcelona, Spain*

Teaching: Calculus 1 and Fundamentals of Mechanics.

**Research Collaborator at University of Barcelona** (*Group: ICCUB*) Jan/18 - Oct/20

*Barcelona, Spain*

Collaboration with Prof. Josep Llosa in a project based on the study of non-local theories.

**Business Intelligence Consultant at Ernst & Young** (*EY*) Sep/17 - Oct/20

*Barcelona, Spain*

Specialised in Machine Learning, Big Data and Data Analytics for the Hospitality industry.

**Research Collaborator at A. University of Barcelona** (*Group: IFAE*) Jan/16 - Oct/16

*Barcelona, Spain*

Collaboration with Prof. Oriol Pujolàs and Dr. Matteo Baggioli in a project based on the study of the conductive properties of graphene through holographic methods for condensed matter.

## PUBLICATIONS

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### Nonlocal Lagrangian fields: Noether's theorem and Hamiltonian formalism

Carlos Heredia and Josep Llosa [*Phys. Rev. D* 105 126002]

### Infinite-derivative linearized gravity in convolutional form

Carlos Heredia, Ivan Kolář, Josep Llosa, Francisco José Maldonado Torralba, and Anupam Mazumdar [*Class. Quantum Grav.* 39 085001]

### Non-local Lagrangian Mechanics: Noether's theorem and Hamiltonian formalism

Carlos Heredia and Josep Llosa, [*J. Phys. A: Math. Theor.* 54 425202]

### Energy-momentum tensor for the electromagnetic field in a dispersive medium

Carlos Heredia and Josep Llosa, [*J. Phys. Commun.* 5 055003]

## POSTERS & TALKS

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### Noether's theorem for non-local theories

Van Swinderen Institute (Anupam Mazumdar's group), University of Groningen

### Noether's theorem for non-local Lagrangian mechanics

Cosmology Journal Club, University of Barcelona

### Energy-momentum tensor for the electromagnetic field in a dispersive medium

HSE Study Center Voronovo, Moscow

## TEACHING

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### F22: Problems of Calculus 1 - #360569

Physics and Biomedical engineering, University of Barcelona

### F22: Problems of Fundamentals of Mechanics - #360563

Physics, University of Barcelona

## SUMMER/WINTER SCHOOLS

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### Moscow International School of Physics 2020 ([Link](#))

HSE Study Center Voronovo, Moscow

Mar/20

### XIII Tonale Winter School in Cosmology ([Link](#))

University of Heidelberg, Passo del Tonale, Italy

Dec/19

### TAE 2019 - COST Training School in High Energy Physics ([Link](#))

Centro de Ciencias de Benasque Pedro Pascual, Huesca, Spain

Sep/19

## COURSES

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### Complete Python Bootcamp: From Zero to Hero in Python ([Link](#))

Udemy, Spain

Oct/20

<b>Complete Guide to Tensorflow for Deep Learning with Python</b> ( <a href="#">Link</a> ) <i>Udemy, Spain</i>	Oct/20
<b>Machine Learning A-Z: Hands-On Python &amp; R In Data Science</b> ( <a href="#">Link</a> ) <i>Udemy, Spain</i>	Oct/20
<b>The Complete SQL Bootcamp 2020: Go from Zero to Hero</b> ( <a href="#">Link</a> ) <i>Udemy, Spain</i>	Oct/20
<b>Data Science and Machine Learning Bootcamp with R</b> ( <a href="#">Link</a> ) <i>Udemy, Spain</i>	May/20

## LANGUAGES

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Spanish (*mother tongue*), Catalan (*mother tongue*), English (C1)

## PROGRAMMING SKILLS

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- Fortran 95 // Mathematica 10 // ABAP // R // SQL // Python

## FUNDINGS

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European Cooperation in Science and Technology (COST) [Cost - Funding](#) 2019