

Carlos Heredia Pimienta

University of Barcelona

PERSONAL DETAILS

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Born: 28.07.1993

EDUCATION

Ph.D. in Physics Oct/20 - Today

University of Barcelona (UB), Barcelona, Spain

- Category: Mathematical Physics
- Ph.D.'s thesis: Nonlocal Lagrangian formalism
- Supervisor: Prof. 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. Josep M. Pons

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

University of Barcelona (UB), Barcelona, Spain

WORK EXPERIENCE

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

Barcelona, Spain

Teaching: Subjects related to mathematics, physics and numerical methods.

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

Infinite derivatives vs integral operators. The Moeller-Zwiebach paradox

Carlos Heredia and Josep Llosa [[arXiv: 2302.00684 \(hep-th\)](#)]

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

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

S23: Practical sessions of principles of Laboratory Practice - #363980

Electronic Engineering and Telecommunications, University of Barcelona

S23: Practical sessions of Computational Physics - #360594

Physics, University of Barcelona

S23: Problems of Multivariable Calculus - #360570

Physics, University of Barcelona

F22: Problems of Calculus 1 - #366693

Biomedical engineering, University of Barcelona

F22: Problems of Calculus 1 - #360569

Physics, University of Barcelona

F22: Problems of Fundamentals of Mechanics - #360563

Physics, University of Barcelona

SUMMER/WINTER SCHOOLS

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

HSE Study Center Voronovo, Moscow

Mar/20

XIII Tonale Winter School in Cosmology ([Link](#)) Dec/19
University of Heidelberg, Passo del Tonale, Italy

TAE 2019 - COST Training School in High Energy Physics ([Link](#)) Sep/19
Centro de Ciencias de Benasque Pedro Pascual, Huesca, Spain

DISSEMINATION

The beauty of symmetries
Severo Ochoa Coffee Talk, CIMNE, Polytechnic University of Catalonia

COURSES

Complete Python Bootcamp: From Zero to Hero in Python ([Link](#)) Oct/20
Udemy, Spain

Complete Guide to Tensorflow for Deep Learning with Python ([Link](#)) Oct/20
Udemy, Spain

Machine Learning A-Z: Hands-On Python & R In Data Science ([Link](#)) Oct/20
Udemy, Spain

The Complete SQL Bootcamp 2020: Go from Zero to Hero ([Link](#)) Oct/20
Udemy, Spain

Data Science and Machine Learning Bootcamp with R ([Link](#)) May/20
Udemy, Spain

LANGUAGES

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

PROGRAMMING SKILLS

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

FUNDINGS

European Cooperation in Science and Technology (COST) *Cost - Funding* 2019