

José Manuel Barrientos Ortiz

Curriculum Vitae

PERSONAL DETAILS

Birth March 8, 1989. La Serena, Chile
Address Zitná 25, 115 67 Praha 1, Czech Republic
Phone +420 773 173 542
Mail barrientos@math.cas.cz

CURRENT POSITION

Postdoctoral Researcher 2021
Institute of Mathematics of the Czech Academy of Sciences, Prague, Czech Republic hosted by Professor Marcello Ortaggio

EDUCATION

Doctor of Physical Sciences 2016-2020
Universidad de Concepción, Facultad de Ciencias Físicas y Matemáticas, Departamento de Física
Thesis: *Torsional Horndeski's theory and gravitational waves*
Advisor: Dr. Fernando Izaurieta

Master of Sciences in Physics 2012-2015
Universidad de Concepción, Facultad de Ciencias Físicas y Matemáticas, Departamento de Física
Thesis: *$f(R, T)$ Gravity, Palatini Variation and Surface Singularities*
Advisor: Dr. Guillermo F. Rubilar

Professional Title: Astronomer 2007-2012
Universidad de Concepción, Facultad de Ciencias Físicas y Matemáticas, Departamento de Astronomía

Bachelor in Astronomy 2007-2010
Universidad de Concepción, Facultad de Ciencias Físicas y Matemáticas, Departamento de Astronomía

WORK EXPERIENCE

Teacher Assistant 2018
Universidad de Concepción
Assistant of Quantum Field Theory Lectures, dictated by Dr. Julio Oliva

Physics Teacher 2015
Universidad Católica del Norte
Teaching: **Physics I**, *Engineering in Prevention of Risk and Aquaculture* · **Physics I**, *Industrial Engineering* · **Physics II**, *Industrial Engineering* · **Laboratory Physics II**, *Industrial Engineering*

Physics Teacher 2014
Preuniversitario Universidad Católica

Teacher Assistant 2012
Universidad de Concepción
Assistant of General Relativity Lectures, dictated by Dr. Guillermo Rubilar

RESEARCH AND SCIENTIFIC ACTIVITIES

- Talk** 2020
Cycle of talks in Physics, Universidad de La Serena, La Serena, Chile
- Seminar** 2020
Gravity and Cosmology Group Udec, Universidad de Concepción, Concepción, Chile
- Short Talk** 2020
School of Gravity and General Relativity, Centro de Estudios Científicos (CECs), Valdivia, Chile
- Poster** 2016
“Palatini $f(R, T)$ gravity and Surface curvature singularities of polytropic spheres” at “XX Simposio Chileno de Física”, Universidad Tecnológica Metropolitana, Santiago, Chile
- Poster** 2011
“Hertzsprung-Russell Diagram” at “XIV Congreso Internacional de Astronomía Aficionada”, Antofagasta, Chile
- Poster** 2010
“Tidal Tails in our Galaxy” at “The Milky Way from the South in the South”, Universidad Andrés Bello, Santiago, Chile

GRANTS AND PROJECT PARTICIPATION

- Fellowship** 2021-2023
Czech Academy of Sciences
Programme to support prospective human resources—post Ph.D. candidates, project (L100192101)
- Project Participation** 2022
FONDECYT
National Fund for Scientific and Technological Development, FONDECYT project (1210500)
- Project Participation** 2016-2018
FONDECYT
National Fund for Scientific and Technological Development, FONDECYT project (1150719)
- Project Participation** 2010
FONDECYT
National Fund for Scientific and Technological Development, FONDECYT project (1100540)
- Fellowship** 2016-2019
ANID
National Research and Development Agency, ANID PhD National grant (21160784)
- Fellowship** 2013
ANID
National Research and Development Agency, ANID Masters National grant (221320369)

RESEARCH STAYS

Internship

2018-2019

Institute of Mathematics, Czech Academy of Sciences, Prague

Research Internship supervised by Dr. Marcello Ortaggio. Research stay supported by National Research and Development Agency ANID

LIST OF PUBLICATIONS

- [1] **Gravitational instantons with conformally coupled scalar fields**, Journal of High Energy Physics **05**, 110 (2022)
- [2] **Wave Operators, Torsion, and Weitzenböck Identities**, General Relativity and Gravitation **54**, 3 (2022)
- [3] **Luminal propagation of gravitational waves in scalar-tensor theories: The case for torsion**, Physical Review D **100**, 124039 (2019)
- [4] **Nonminimal couplings, gravitational waves, and torsion in Horndeski's theory**, Physical Review D **96**, 084023 (2017)
- [5] **Four-dimensional black holes with scalar hair in nonlinear electrodynamics**, European Physical Journal C **76**, 677 (2016)
- [6] **Surface curvature singularities of polytropic spheres in Palatini $f(R, T)$ gravity**, Physical Review D **93**, 024021 (2016)
- [7] **Comment on “ $f(R, T)$ gravity”**, Physical Review D **90**, 028501 (2014)
- Preprint* **(A)dS Taub-NUT and exact black bounces with scalar hair**, arXiv:2202.06706 [**gr-qc**] (2022)

SKILLS

- | | |
|------------------|---|
| <i>Languages</i> | Spanish (mother tongue) English (fluent) |
| <i>Software</i> | MAPLE, L ^A T _E X, MATHEMATICA, Wxmaxima, REDUCE |