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Luciano Combi

Academic Formation

2011-2016 **Ms.S. in Physics**, *Department of physics*, Faculty of Exact Sciences, *Universidad Nacional de La Plata* (UNLP).

Average mark: 9.60/10

Degree thesis: between General Relativity and Teleparallel Gravity. Mark: 10/10. Supervisor: Gustavo E. Romero.

2017-Present **Ph.D. in Physics**, *Department of physics*, Faculty of Exact Sciences, UNLP.

Supervisor: Gustavo E. Romero.

Current position

2017-Present **Doctoral Fellow**, *CONICET*.

Supervisor: Gustavo E. Romero.

Research field: gravitation, General Relativity, cosmology, black holes, local physics and cosmology, astrophysics, foundations of physics, scientific philosophy.

Place: Instituto Argentino de Radioastronomía, Bs.As., Argentina

Ph.D. Courses

2017 **Elements of Quantum Field Theory I**.

Department of Physics, Faculty of Exact Sciences, UNLP

Professor: Horacio Falomir

Duration: 1 semester

Fellowships

2017 **Ph.D. Research Fellow**, *CONICET*, (National Research Council).

Supervisor: Gustavo E. Romero.

Place: Instituto Argentino de Radioastronomía, Bs.As., Argentina.

Teaching and mentoring experience

Course assistant

2015 **Undergraduate Teaching Assistant** of Calculus II, Department of Mathematics, Faculty of Exact Sciences, UNLP. **Period**: 1th semester

2015 - 2017 **Undergraduate Teaching Assistant**, Department of Physics, Faculty of Exact Sciences, UNLP. Courses given: Linear Algebra, General Physics I, General Physics II

2015 - 2017 **Undergraduate Teaching Assistant** Faculty of Engineering, UNLP. **Course**: Physics I (Laboratory duties)

2017- 2019 **Graduate Teaching Assistant** Department of Physics, Faculty of Exact Sciences, UNLP. Courses given: Gravitation, General Physics III, Methods in Mathematical Physics. Mechanics I

Advisory

2019-2020 **Thesis advisor** for the master degree (*Licenciatura*) in Astronomy, Valentina Sosa Fiscella. **Topic**: High-precision timing of pulsar J0437-4715 from IAR

Workshops and Schools

2016 *Journeys in theoretical physics*, (ICTP-Perimeter Institute). **Place:** Sao Paulo, Brasil. **Duration:** 1 week (40 hs). **Funding:** ICTP-SAIFR

2016 $f(R)$ *theories of gravity*, (FCGALP, UNLP). **Place:** La Plata, Argentina. **Duration:** 1 week (40 hs).

2018 *LAPIS: Cosmology in the era of large surveys*, (FCGALP, UNLP). **Place:** La Plata, Argentina. **Duration:** 1 week (40 hs).**Funding:** UNLP

2018 *International Pulsar Timing Array, student week*, (NRAO). **Place:** New Mexico, USA. **Duration:** 1 week (40 hs). **Funding:** NANOGrav

2018 *First Biennial Midwest Summer School in Philosophy of Physics*, (University of Chicago). **Place:** Chicago, USA. **Duration:** 1 week (40 hs). **Funding:** Templeton Foundation

2018 *The Sound of Space-Time: The dawn of Gravitational Wave Science*, (ICTP-SAIFR). **Place:** Sao Paulo, Brasil.**Duration:** 3 weeks (120 hs). **Funding:** ICTP-SAIFR

2019 *North American Einstein Toolkit Workshop*, (RIT). **Place:** Rochester, USA. **Duration:** 3 days. **Funding:** CCRG-RIT

Research stays abroad

2018 *West Virginia University*, **Place:** Morgantown, West Virginia, USA. **Duration** 1 month, **Funding:** NANOGrav Collaboration, **Project:** Timing of milisecond pulsar J0437-4715, with Michael Lam and Maura Mclauhglin

2019 *Rochester Institute of Technology*, **Place:** Rochester, NY, USA, **Duration** 6 months, **Funding:** Center for Computational Relativity and Gravitation, RIT, **Project:** MHD simulations of spinning binary black hole systems, with Manuela Campanelli.

2020 *Perimeter Institute*, **Place:** Waterloo, Canada, **Duration** 4 months, **Funding:** Visiting Fellowhsip, PI, **Project:** Modelling radio emission in transient phenomena, with Daniel Siegel.

Scientific meetings

Invited presentation

2017 *PuMA proyect: Pulsar Monitoring in Argentina* (in Spanish)
Encuentro de Estudiantes de Astronomía, Buenos Aires, Argentina. September 2017

2018 *First Pulsar Observations in South America*
Binational meeting SOCHIAS-AAA, La Serena, Chile. Octubre 16

Contribution presentation

2015 *Inconsistency within the Everett interpretation of Quantum Mechanics*
First Latinamerican congress of Scientific Philosophy (In honor to Mario Bunge), Buenos Aires, Argentina. October 2015

2019 *Gravitational wave science and pulsars in Argentina*
Grav19, Cordoba, Argentina. April 12

Posters

2015 *Force between cylindric magnets: Theory and experiment* (in Spanish)
Luciano Combi, Lucas Pili, Pablo Pisani, Fernando Monticelli
100ª Anual Meeting of the Asociación Argentina de Física (AFA), September 2015

2017 *Intensive monitoring of pulsars in the south hemisphere* (in Spanish)
Luciano Combi, Jorge Combi, Federico García, Guillermo Gancio, Carlos Lousto
Anual Meeting of the Asocación Argentina de Astronomía (AAA), September 2017

2018 *Orbits in inhomogenous expanding space-times*
Luciano Combi, Eduardo Gutiérrez
LAPIS: Cosmology in the era of large surveys, April, 2018

2018 *The IAR observatory and the PuMA project*
Luciano Combi, Guillermo Gancio, Carlos Lousto
IPTA international meeting, Albuquerque, USA

Outreach

2018 *Friday talks in the Planetarium*: Gravitational waves and pulsars
Planetarium, La Plata, Argentina

2018 **Outreach** department member of Argentine Institute of Radioastronomy
In charge of social media management and guide for primary school and high-school visits to the Institute

Languages

Native **Spanish**
English
French

Programming

Mathematica (advanced), Python, C

Memberships

PuMA (*Pulsar Monitoring in Argentina* collaboration. **Status:** Full member. **Place:** Argentine Institute of Radioastronomy (IAR), La Plata, Argentina

Awards

2017 **Joaquín V. Gonzales award** for distinguished graduate of the National University of La Plata. Given by the City Government of La Plata, Capital of Buenos Aires.

Other activities

Reviewer in scientific journals and institutions:

Astrophysics and Space Science (Springer)

Gravitation and Cosmology (Springer)

Estonian Research Council (ETIS)

Publications

Chapter in books

1 **Is space-time material?**.
Luciano Combi
Materialism today, Syntheses-Springer, 2019 (Forthcoming)

Refereed papers in international journals

1 **Inconsistency within the Everett interpretation of Quantum Mechanics**.
Luciano Combi, Gustavo E. Romero.
Methateoria (ISSN 1853-2322) **7**, 47-53, 2017

2 **Gravitational energy and radiation of a charged black hole**.
Luciano Combi, Gustavo E. Romero.
Classical and Quantum Gravity, **34**, 195008, 2017

3 **Is Teleparallel Gravity really equivalent to General Relativity?**.
Luciano Combi, Gustavo E. Romero.
Annalen der Physik, 1700175, 2018

4 **A note on geodesics in inhomogeneous expanding spacetimes**.
D. Perez, G.E. Romero, Luciano Combi, E.M. Gutiérrez.
Classical and Quantum Gravity, **36**, 055002, 2019

5 **Electromagnetic fields and charges in expanding universes**.
Luciano Combi, Gustavo E. Romero
Physical Review D, **99**, 064017, 2019

6 **Upgraded antennas for pulsar observations in the Argentine Institute of Radio astronomy**.
G. Gancio, C.O. Lousto, Luciano Combi, S. del Palacio, F. G. Lopez Armengol, J. A. Combi, F. García, P.Kornecki, A. L. Müller, E. Gutierrez, and F. Hauscarriaga
Astronomy and Astrophysics,633 (2020) A84

7 **Rigid systems and the cosmic expansion**.
Luciano Combi
General Relativity and Gravitation, 2020 (Submitted)

Observational experience

Telegrams

1 **Follow up of the radio flare from the magnetar XTE J1810-197 at 1.4 GHz**.
Del Palacio, S.; Garcia, F.; Combi, L.; Lopez Armengol, F.; Gancio, G.; Muller, A. L.; Kornecki, P., on behalf of the PuMA Collaboration
The Astronomer's Telegram, **12323**, 2018

2 **Radio observations following the recent glitch of Vela Pulsar (PSR B0833-45)**.

F. G. Lopez Armengol, C. O. Lousto, S. del Palacio , F. Garcia, L. Combi, J. A. Combi , G. Gancio , A. L. Mueller, P. Kornecki, on behalf of the PuMA Collaboration
The Astronomer's Telegram, **12482**, 2019