Renan Isquierdo Boschetti

Curriculum Vitae

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renaniboschetti.github.io

Education

2024–present **Postdoc**, *Department of Astrophysics, University of Zurich (UZH), Zurich, Switzerland.*

2020–2024 **PhD in Physics**, *Centre de Physique des Particules Marseille (CPPM), Aix-Marseille Université, Marseille, France.*

2017–2020 **Master in Physics**, *Department of Mathematical Physics, University of São Paulo (USP), São Paulo, Brazil.*

2013–2017 **Bachelor in Physics**, *University of São Paulo (USP), São Paulo, Brazil.*

Fellowships

2017–2019 **Graduate Fellowship**, *CAPES, University of São Paulo, Brazil.*

Project: Constraining theories of gravity through redshift-space distortions.

Supervisor: Luis Raul Weber Abramo.

Academic Experience

2025 Lecturer in the Astrophysics course at the University of Zurich. Three two-hours lectures on an introduction to Cosmology.

2024–present *Research in relativistic simulations, implementing background curvature into g-evolution simulations (full-relativistic N-body simulations)* Supervisor: Julian Adamek.

2020–2024 *Research in cosmology, studying observational and theoretical aspects of cosmic voids and its cross-correlation with shear of background galaxies.* Supervisor: Eric Jullo and Stephanie Escoffier.

2017–2020 *Research in cosmology, studying optimized methods to estimate the power spectrum from simulations (FKP and multi-tracer) for constraining gravity. Forecasts of near future Surveys. Log-normal simulations. Light-cone construction from halo catalogs.* Supervisor: Luis Raul Weber Abramo.

2020 *Assistant in "Introduction to Relativity"at University of São Paulo*

Supervisor: Luis Raul Weber Abramo.

2016 *Assistant "In introduction to quantum physics"at University of São Paulo*

Supervisor: Maria Cristina dos Santos

2015 *Assistant in "Physics I"(Newtonian mechanics) at University of São Paulo*

Supervisor: Celso L. Lima.

Areas of Interest

Large-scale structure; Voids; Gravitational Lensing; Simulations; Forecasts for near future galaxy surveys; Surveys modelling; Modified gravity; Model selection.

Publications

In prep. *Incorporating curved geometries in cosmological simulations*

J. Adamek and R. Boschetti

The Void-Lensing model: How to cosmologically interpret the weak-lensing signal around 2D voids

R. Boschetti, Rodrigo Voivodic and Eric Jullo

2023 *Towards cosmology with Void Lensing: how to find voids sensitive to weak-lensing and numerically interpret them*

R. Boschetti, Pauline Vielzeuf, Marie-Claude Cousinou, Stephanie Escoffier, Eric Jullo

2020 *Fisher matrix for multiple tracers: all you can lear from large-scale structure without assuming a model*

R. Boschetti, L. Raul Abramo and Luca Amendola

Technical Skills

Programming languages: Python, Mathematica, C

Developed tools (all of them can be found in my website): Neural network; Optimum Centering Void Finder; Power spectrum Estimator;Correlation Estimator;Delta Sigma Estimator;Markov Chain Monte Carlo (MCMC); Fisher Matrix forecast; Light-cone construction from simulations.

Master's Grades

Physical Cosmology I - A

Quantum Mechanics I - C

Introduction to Quantum Field Theory - B

Statistical Mechanics - A

Physical Cosmology II - A

Structure formation - A

Projects in Progress

- Void-Lensing model: How to interpret weak lensing signal by voids (in collaboration with Rodrigo Voivodic)
- Implementation of background curvature into full-relativistic N-body simulations

Languages

- English - Fluent
- French - Fluent
- Portuguese - Native

Participation in Events

Presentation

09/2021 L'école de GIF, Aix-Marseille Université, Marseille, France.

05/2021 Atelier Action Dark-Energy, Marseille, France.

12/2022 DESI collaboration meeting Winter 2022, Cancun, Mexico.

04/2023 Future Cosmology 2023, IESC, Cargèse, Corse.

Poster

04/2018 VI La Plata International School of Astronomy and geophysics: Cosmology in the era of large surveys, Universidad Nacional de La Plata, La Plata, Argentina.

Participation

08/2019 III Joint ICTP-Trieste/ICTP-SAIFR School on Observational Cosmology, IFT-UNESP, São Paulo, Brazil.

06/2022 ICTP Summer School on Cosmology, Trieste, Italy.

04/2022 Euclid Consortium Meeting 2022, Oslo, Norway.

12/2021 Tonale Winter School of Cosmology 2021, Passo Del Tonale, Italy.

References

Julian Adamek

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Luis Raul Weber Abramo

Department of Mathematical Physics, University of São Paulo, Brazil,

e-mail: lrwabramo@gmail.com

Marcos Lima

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Eric Jullo

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Stephanie Escoffier

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Luca Amendola

Heidelberg University

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