João Ferri

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Education

University of Sao Paulo, PhD in Cosmology – Sao Paulo, Brazil — May 2022 – May 2026
- Sandwhich Doctorate at Kavli IPMU from Oct 2024–Apr 2025

University of Sao Paulo, MSc in Cosmology – Sao Paulo, Brazil — Feb 2020 – Apr 2022

University of Sao Paulo, BSc in Physics — Jan 2016 – Dec 2019

Research Experience

PhD research, University of Sao Paulo – Sao Paulo, Brazil — June 2022 – May 2026
- Advisor : Luis Raul Weber Abramo – Grant: CNPq 140344/2022-5
- Multi-tracer formalism
- Fourier/Harmonic/Real space equivalences
- Cross-correlation of galaxies and gravitational wave events

Guest researcher, Kavli IPMU – Kashiwa, Japan — Oct 2024 – Apr 2025
- Advisor: Elisa Gouvea Mauricio Ferreira – Grant: CAPES 88881.982198/2024-01
- Consistency analysis of Hyper-Suprime-Camera galaxy shear data

MSc research, University of Sao Paulo – Sao Paulo, Brazil — Feb 2020 – Apr 2022
- Advisor: Luis Raul Weber Abramo – Grant: CNPq 132397/2020-0
- Multi-tracer formalism in harmonic space
- Full-sky redshift-space distortions in harmonic space

Undergrad research, University of Sao Paulo – Sao Paulo, Brazil — Jan 2019 – Dec 2019
- Advisor: Luis Raul Weber Abramo
- Full-sky redshift-space distortions in harmonic space

Research Interests

Multi-tracer formalism

Collaborators: Luis Raul Weber Abramo, Ian Tashiro, Arthur Loureiro
- Analytical computations of multi-tracer power spectrum covariance matrices accounting for redshiftspace distortions
- Tracer number optimization for galaxy surveys

Gravitational waves

Collaborators: Miguel Quartin, Riccardo Sturani, Tessa Baker, Charles Dalang, Luis Raul Weber Abramo, Ian Tashiro, Isabella Matos, Bernardo Veronese

- Using the angular cross-correlation between GW and galaxy maps to constrain the expansion history of the late-Universe
- Investigate the correspondence between line-of-sight and spatial correlation methods to constrain GW physics

Galaxy shear

Collaborators: Elisa Gouvea Mauricio Ferreira, Masahiro Takada, Ryo Terasawa

- Consistency analysis of Hyper-Suprime-Camera (HSC) Y3 galaxy shear

data: comparing analyses done in real and harmonic space; employing emulators for small-scale modeling

Awards

Best poster award – Kashiwa-no-ha Dark Matter and Cosmology Symposium – Kavli IPMU, Kashiwa, Japan Nov 2024

"A Hubble diagram from the cross-correlations of galaxies and dark sirens"

Publications

"First measurement of the Hubble constant from gravitational wave-galaxy cross-correlations" Nov 2025
Isabela Matos, Charles Dalang, Tessa Baker, Raul Abramo, **João Ferri**, Miguel Quartin
arxiv.org/abs/2512.15380 (Submitted to ApJ)

"The contribution from smalls scales on two-point shear analysis: comparison between power spectrum and correlation function" Nov 2025
Ferri, J., Ferreira, E., Terasawa, R
arxiv.org/abs/2512.17022 (accepted for publication in JCAP)

"A robust cosmic standard ruler from the cross-correlations of galaxies and dark sirens" Apr 2025
Ferri, J., Tashiro, I.L., Abramo, L.R., Matos, I., Quartin, M., Sturani, R
arxiv.org/abs/2412.00202 (Journal of Cosmology and Astroparticle Physics)

"Fisher matrix for the angular power spectrum of multi-tracer galaxy surveys" Aug 2022
Abramo, L.R., **Ferri, J.**, Tashiro, I. L., Loureiro, A.
10.1088/1475-7516/2022/08/073 (Journal of Cosmology and Astroparticle Physics)

"Fisher matrix for multiple tracers: the information in the cross-spectra" Apr 2022
Abramo, L.R, **Ferri, J.** , Tashiro, I.L
10.1088/1475-7516/2022/04/013 (Journal of Cosmology and Astroparticle Physics)

Talks

A robust cosmic standard ruler from the cross-correlations of galaxies and dark sirens

- University of Sao Paulo, II Agorá Meeting, Oct 2025 (in person)
- Kavli IPMU, Astro Lunch Seminars, Jan 2025 (in person)
- Chiba University, Cosmology Group Meeting, Dec 2024 (in person)
- ICTP-SAIFR, São Paulo Research Group meetings Astro & Cosmo, Aug 2024 (in person)

What can we gain from small scales in shear analysis?

- ICTP-SAIFR, São Paulo Research Group meetings Astro & Cosmo, Aug 2025 (in person)

Skills & Interests

Programming: Python, Latex, C

Tools: Linux, HEALPix, NaMaster, GLASS, CosmoSIS, CCL, Jupyter/VS Code

Languages: English (proficient, DET 135/160), Japanese (beginner, JLPT N3), Portuguese (native speaker

Hobbies: Cars, Music

Teaching & Other Activities

Teaching Assistant, University of Sao Paulo (2025): Introduction to Physical Cosmology

Internship Assistant, Kavli IPMU (2025): Introduction to Fisher Matrix formalism, Cluster & Jupyter Lab usage

Teaching Assistant, University of Sao Paulo (2023): Classical Mechanics II

Teaching Assistant, University of Sao Paulo (2022): Electromagnetism Lab