MATTEO FOGLIENI

MSc in Physics

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PROFESSIONAL EXPERIENCE

Leibniz Supercomputing Centre (LRZ) *Garching bei München, DE*
SCIENTIFIC EMPLOYEE *01/10/2022 - today*

- Project InHPC-DE WP6: provide access to Jupyter servers running on remote compute resources
- Working with Rancher, Kubernetes (K8s) and Docker on the LRZ Openstack Compute Cloud
- Improving my IT skills in Linux, Networking and High-Performance Computing topics (OpenMP)

PUBLICATIONS

- Foglieni, Pantiri, Di Dio, Castorina: ***Large Scale Limit of the Observed Galaxy Power Spectrum*** (2023), Physical Review Letters, DOI 10.1103/PhysRevLett.131.111201[1], arXiv 2303.03142[2]
- Pantiri, Foglieni, Di Dio, Castorina: **The power spectrum of luminosity distance fluctuations in General Relativity** (2024), Journal of Cosmology and Astroparticle Physics, DOI 10.1088/1475-7516/2024/11/021 (arXiv 2407.01486)
- Friedman-Shaw, Krolewski, Foglieni, Afshordi: **Doppler bias: impact of peculiar velocities on color selection and the large scale structure of galaxy surveys** (2025), Journal of Cosmology and Astroparticle Physics, DOI 10.1088/1475-7516/2025/03/059 (arXiv 2410.04705)

SEMINARS AND CONFERENCES

- Oct 2023 (online): ***SPHEREx talk: Large Scale Limit of the Observed Galaxy Power Spectrum***, invited by Henry S. Gebhardt and the SPHEREx team at the Caltech University (CA, USA)

ABOUT ME

Physicist grown up with the dream to go into space.

I am curious and interested in several science fields, I enjoy discovering and learning new things.

Problem solving is the aspect of science I love the most, causing me to explore new ideas and learn new methods to improve myself in ways I've never previously considered.

LANGUAGES

Italian • Mother tongue
English • Fluent
German • Basics (learning!)

INTERESTS AND HOBBIES

- Playing chess since I was 7 y.o. (current ELO 2083)
- In love with strategic board games and movies
- Keen on history, philosophy and politics
- reader of popular scientific books and amateur guitarist in leisure time
- Football, boxe, gym, climbing, dancing and many more to come!

EDUCATION

Master Degree in Physics
Milan, IT

UNIVERSITÀ DEGLI STUDI DI MILANO *09/2019 - 05/07/2022*

- Title : *"The Galaxy Number Counts in General Relativity: implications for Primordial Non-Gaussianities"*
- Supervisor: Prof. Emanuele Castorina
- Assistant Supervisor: Prof. Luigi Guzzo
- Final grade: ***110/110 cum laude***

Bachelor's Degree in Physics
Milan, IT

UNIVERSITÀ DEGLI STUDI DI MILANO *09/2016 - 11/12/2019*

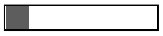
- Title : *"Evaluation of the Two-Point Correlation Function in cosmological simulations"*
- Supervisor: Prof. Luigi Guzzo
- Assistant Supervisor: Dr. Ben Granett
- Grade: ***110/110 cum laude***

High School Diploma
Bergamo, IT

LICEO SCIENTIFICO STATALE LORENZO MASCHERONI *09/2011 - 07/2016*

- Final grade: ***100/100***

COMPUTATIONAL SKILLS

Language/Software	# hours (range 0-600 h)	Main usage
Rancher, K8s and Docker		Working with K8s clusters on the LRZ Openstack Compute Cloud for a JupyterHub installation
C++		Efficiency comparison of Two-Point Correlation Function numerical estimators with different STL containers (Bachelor's Degree)
Python		Bayesian inference applied to astrophysical computational problems, through the Markov Chain Monte Carlo sampler algorithm *emcee*[3]
Mathematica		Basic usage of the Mathematica notebook for symbolic calculus (Master's Degree)
Julia		Development of a raytracing program for photorealistic image generation, see the Github repository Raytracing[4] Implementation of a Galaxy Power Spectrum Estimator for cosmological surveys (Master's Degree and PRL paper), see the Github repository GaPSE[5]

[1] link: *https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.131.111201*
[2] link: *https://arxiv.org/abs/2303.03142*
[3] link: *https://emcee.readthedocs.io/en/stable/*
[4] link: *https://github.com/foglienimatteo/Raytracing*
[5] link: *https://github.com/foglienimatteo/GaPSE.jl*