

# Matteo Nurisso, Ph.D.

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## Employment

- 2024 – present 📌 **Assegno di ricerca Post Dottorale (Post-Doc)** Consiglio Nazionale delle Ricerche, Institute of Atmospheric Sciences and Climate (CNR-ISAC), Turin.  
Topic: EPOCHAL project about paleoclimate simulations and code development of AQUA in the Destination Earth project.
- 2022 – 2024 📌 **Assegno di ricerca professionalizzante** Consiglio Nazionale delle Ricerche, Institute of Atmospheric Sciences and Climate (CNR-ISAC), Turin.  
Topic: Teleconnections diagnostic and code development of the framework for the AQUA code in the Destination Earth project.

## Education

- 2018 – 2022 📌 **Ph.D., Scuola Internazionale di Studi Superiori Avanzati (SISSA)** Astrophysics and Cosmology.  
Thesis title: *Particles acceleration with Magnetic Reconnection in large scale MHD simulations*.  
Supervisors: *Annalisa Celotti and Andrea Mignone*
- 2014 – 2018 📌 **Master Degree, University of Turin** Astrophysics and Theoretical Physics.  
Thesis title: *Anisotropic Cosmic Ray transport in the galaxy with PLUTO*.  
Supervisors: *Andrea Mignone and Nicolao Fornengo*
- 2011 – 2014 📌 **Bachelor Degree, University of Turin** Physics.  
Thesis title: *The Heisenberg model and the Bethe Ansatz*.  
Supervisor: *Marco Billó*

## Research Publications

- 1 **Nurisso, M.**, Celotti, A., Mignone, A., Bodo, G., & Surano, A. (*To be submitted*). Particles acceleration with magnetic reconnection in large scale mhd simulations: II. spectra update. *MNRAS*.
- 2 **Nurisso, M.**, Celotti, A., Mignone, A., & Bodo, G. (2023). Particles acceleration with magnetic reconnection in large scale RMHD simulations: I. current sheet identification and characterization. *Monthly Notices of the Royal Astronomical Society*. [🔗 doi:10.1093/mnras/stad1348](https://doi.org/10.1093/mnras/stad1348)
- 3 **Nurisso, M.**, Celotti, A., Mignone, A., & Bodo, G. (2022). Particle acceleration via magnetic reconnection in large-scale MHD jet simulations. (Vol. 17, pp. 54–55). [🔗 doi:10.1017/s1743921323000935](https://doi.org/10.1017/s1743921323000935)
- 4 **Nurisso, M.** (2022). *Particles acceleration with magnetic reconnection in large scale mhd simulations* (Ph.D thesis). Retrieved from [🔗 https://hdl.handle.net/20.500.11767/130671](https://hdl.handle.net/20.500.11767/130671)
- 5 **Nurisso, M.** (2018). Anisotropic cosmic ray transport in the galaxy with pluto. Retrieved from [🔗 https://api.semanticscholar.org/CorpusID:221133901](https://api.semanticscholar.org/CorpusID:221133901)

## Projects

- 2024 – present 📌 Participation as Post-Doc in the PRIN: Earth system modeling of PaleOclimatic Hyperthermals (EPOCHAL) funded by the NextGeneration EU.
- 2022 – present 📌 Participation in the WP7 of the Destination Earth project, a flagship initiative of the European Commission.

## Code contributions

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- AQUA (Application for Quality assessment and Uncertainty quAntification). Developer of the framework and the teleconnections diagnostic.
- PLUTO code. Developer of a module for magnetic reconnection particles acceleration in Magneto-Hydrodynamical simulations.

## Conferences and Hackatons

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- 2023 ■ **2nd Destination Earth User eXchange** (Present poster from our group: <http://bit.ly/aqua-poster>)
- **NextGEMS Cycle 3 Hackathon** (Madrid, Spain)
- **Destination Earth Hackathon @ BSC** (Barcelona, Spain)
- 2022 ■ **7th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy** (Barcelona, Spain)
- **Active Galactic Nuclei XIV: The Renaissance of Black Holes and Galaxies** (Florence, Italy)
- 2020 ■ **EuroScience Open Forum 2020** (Trieste, Italy)
- 2019 ■ **International Conference of Physics Students 2019** (Cologne, Germany)
- 2017 ■ **International Conference of Physics Students 2017** (Turin, Italy)

## Skills

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- Languages ■ Strong reading, writing and speaking competencies for English and Italian. Moderate reading, writing and speaking competencies for French.
- Coding ■ c, c++, Python (xarray, dask), Fortran
- Software ■ Git, Github, Linux, Slurm, EC-Earth code, CDO, ci/cd, MPI, OpenMP, Cuda, IDL, Visit, Html, PLUTO code
- Scientific ■ Climate simulations, Magnetohydrodynamic simulations, Academic research,  $\LaTeX$  typesetting and publishing.

## Miscellaneous Experience

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### Teaching

- 2017 – 2018 ■ **Tutor** of "Introduzione alla programmazione", University of Turin

### Workshops




- 2023 ■ **CodeRefinery workshop**: Introduction to Git, Collaborative distributed version control, Reproducible and tested code and research
- 2022 ■ **SCtrain training week**: Introduction to Parallel Programming
- 2021 ■ **Machine Learning Lectures** Cluster of Galaxies IFPU group
- 2020 ■ **Deep Learning Day** AI Student Society

### Science Communication






- 2022 ■ **Social media management and Personal Branding**
- **Science Communication**: the use of objects and easy experiments in face-to-face events

## Miscellaneous Experience (continued)

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- 2021  **Science Communication** mini-course
- 2019  **Training and Sharing:** Best practices in Science Communication
-  **Science Dialogues:** training course on Science Communication

### Outreach

- 2020-2022  **Trieste Next** volunteer
- 2018 – 2022  **Sissa4Schools** volunteer
- 2018-2021  **SISSA Student Day** speaker
- 2017  **ICPS** volunteer (International Conference of Physics Students)
- 2013 – present  President of **Silviadizenzero**, active in Climate Science outreach