Martin Fournier

Bundesstraße 16, 20146 Hamburg, Germany

+33 6 83 49 43 70 martin.fournier@hs.uni-hamburg.de

Research interests : *Computational Astrophysics, Multiphase Gas, Active Galactic Nuclei*

Education

PhD Student in Astrophysics — from Jul. 2023

University of Hamburg, with Prof. Marcus Brüggen — Hamburg, Germany

Master Degree in Astronomy & Astrophysics — Sep. 2022 – Jul. 2023

Observatoire de Paris & Université Paris-Cité — Paris, France

- **Master Internship** : "Cosmic rays propagation in the Milky-Way", ENS Lyon
  Advisors : Dr. Jérémy Fensch and Dr. Benoit Commerçon

Master Degree in Physics and Engineering — Sep. 2019 – Jun. 2022

Phelma – Grenoble INP – Grenoble Alpes University — Grenoble, France

- **Master Internship** : "Properties of Magellanic Clouds Analogs in TNG50", Max-Planck-Institut für Astronomie
  Advisor : Dr. Annalisa Pillepich
- **Master Internship** : "Using the Pencil Beam to distinguish ice anisotropy scenarios", Johannes Gutenberg-Universität Mainz
  Advisors : Dr. Martin Rongen and Prof. Sebastian Böser

Publications

First author publications:

- **M. Fournier** et al., XMAGNET: Investigating the Velocity Structure Functions of an AGN-Driven Multiphase Intracluster Medium, *in preparation*
- **M. Fournier** et al., The properties of magnetised cold filaments in a cool-core galaxy cluster, *Published, A&A*
- **M. Fournier** et al., Past activity of Sgr A* is unlikely to affect the local cosmic-ray spectrum, *Published, A&A*

Co-author publications:

- P. Grete, ..., et al., The XMAGNET Exascale MHD simulations of SMBH feedback in galaxy groups and clusters: Overview and preliminary cluster results, *Submitted, ApJ*
- A. Pillepich, ..., **M. Fournier** et al., Milky Way and Andromeda analogs from the TNG50 simulation, *Published, MNRAS*

Awarded projects

- Project contributor of "*Inertial range dynamics in the exascale era with the largest compressible magnetized turbulence simulation*",
  120 Mcore-h on JUPITER (Jülich Supercomputing Centre), 2025
- Co-PI of "*Magnetohydrodynamical simulations of jet-cloud interactions in the intracluster medium*",
  1.00 Mcore-h on JUWELS GPU Booster (Jülich Supercomputing Centre), 2024

Talks

- **The life cycle of cold gas in cool-core clusters**, *Colloquium*, Newcastle University
- **Resolving cold filaments in the intracluster medium with GPU–accelerated simulations**, *Galaxy Clusters & Radio Relics II*, Harvard–Smithsonian Center for Astrophysics
- **The life and death of cold filaments in cool-core clusters**, *Colloquium*, Institute of Theoretical Astrophysics, Heidelberg
- **The life and death of cold filaments in cool-core clusters**, *Galaxy Coffee*, Max-Planck-Institut für Astronomie
- **The life and death of cold filaments in cool-core clusters**, *Colloquium*, École Normale Supérieure de Lyon
- **Resolving cold filaments in the intracluster medium with GPU–accelerated simulations**, *Journées de la Société Française d'Astronomie & d'Astrophysique (SF2A) 2024*, Marseille

Languages

French :	Native
English :	C1 level
German :	B2 level

Technical Skills

Languages :	Fortran, Python, C++, MySQL, LaTeX
Codes :	Arepo, Ramses, AthenaPK
Editing software :	Adobe Lightroom, Adobe Photoshop, Adobe Premiere Pro, Inkscape

Hobbies

Art :	Digital and Analog Photography (see **Instagram** and **Flickr**), former president of INProd, a students audiovisual production association based in Grenoble. Logo design, including 2021–2022 EPFL's Physics Section **official sweater**.
Music :	Drums, 22 years of practice
Sport :	Hiking, running and climbing