Benedetta Mestichelli

PHD STUDENT

I am a second year PhD student of Astroparticle Physics at the Gran Sasso Science Institute. My main research field is related to the study of formation channels of intermediate-mass black holes in dynamical environments at various redshifts.

HOW TO REACH ME:

Via Francesco Crispi, 7 - L'Aquila (AQ) - Italy
email: benedetta.mestichelli@gssi.it
LinkedIn: @benedettamestichelli

CURRENT OCCUPATION

Gran Sasso Science Institute
PhD in Astroparticle Physics
- Attended Nov. 2022 - Nov. 2026

EDUCATIONAL TRAINING

University of Padova
Master's degree in Astrophysics and Cosmology
- Attended Sept. 2020 - Sept. 2022
- Final grade: 110/110 cum laude

University of Camerino
Bachelor in Physics
- Attended Sept. 2016 - Feb. 2020
- Final grade: 109/110

OTHER FUNDED RESEARCH POSITIONS

Institut für Theoretische Physik - Universität Heidelberg
Visiting PhD student
-Period: Nov. 2023 - July 2024

PUBLICATIONS

Co-author

-Jiang et al. "Fading of the broad H-beta emission in OQ 208 from Copernico spectroscopic observations", *The Astronomer's Telegram* (n. 15354)
-Cozzumbo et al. "Opportunities and limits of lunar gravitational-wave detection" 10.48550/arXiv.2309.15160 (Sept. 2023)

RESEARCH EXPERIENCE

PhD Thesis

Gran Sasso Science Institute

Period: Nov. 2023 - Nov. 2026
Title: *Intermediate-mass black holes across cosmic time*
Supervisor: Prof. Marica Branchesi, Co-supervisor: Prof. Michela Mapelli
Abstract: We will focus on the formation scenarios of intermediate-mass black holes in massive clusters starting from the Milky Way and moving outwards to the remote universe.

Master Thesis

University of Padova

Period: March 2022 - Sept. 2022
Title: *Intermediate-mass black hole formation in dense massive clusters*
Supervisor: Prof. Michela Mapelli, Co-supervisor: Dr. Sara Rastello
Abstract: In this work, we discussed the formation channels of intermediate-mass black holes in young globular clusters by generating simulations with the direct N-body code PeTar-MOBSE.

Reverberation mapping campaign of quasars

University of Padova - Copernico Telescope (Asiago)

Period: March 2022 - January 2023
Supervisors: Prof. Mauro D'Onofrio, Prof. Paola Marziani
Training in the usage of the AFOSC instrument at the Copernico Telescope (Asiago) for the spectroscopic observation of quasars.

Post-graduation scholarship

University of Camerino

Period: June 2020 - Sept. 2020
Supervisor: Prof. Sebastiano Pilati
Application of machine learning techniques to pharmacological issues. The aim of the developed algorithm was to predict the binding affinity of compounds for which such parameter was missing. The goodness of the algorithm was tested using a smaller number of features, to which a lower performance corresponded.

WORK EXPERIENCE

Post-graduation scholarship

University of Camerino - 6 Tour s.r.l.

Period: March 2020 - June 2020
Handling of tasks involving data analysis with Python and training in the usage of JavaScript

LANGUAGES

Italian	Mother tongue
English	Certificate in Advanced English (Cambridge Assessment English)

COMPUTING SKILLS

Python: used throughout the master degree and the PhD for data analysis and computational astrophysics
Bash: used daily to manage simulations/data on computer clusters
C: used in the context of a bachelor degree course
JavaScript: learned during the work experience at 6Tour s.r.l. to create/manage websites

CONFERENCES

Poster presentation: Two in a Million - ESO Garching (11-15 Sept. 2023)

PHD SCHOOLS

Scientific Communication in Astronomy - Bertinoro (2-6 Oct. 2023)

OUTREACH

Sharper Night - L'Aquila (29 Sept. 2023)