

Maria Clara Cavalcante-Siviero

MSc student

EDUCATION

2024–Present **M.Sc in Physics**, *Brazilian Center for Research in Physics, Rio de Janeiro (CBPF) - Brazil.*

Top ranked candidate

Highest honors

Advisor: Prof. Dr. Karín Menéndez-Delmestre

Co-advisor: Dr. Pedro Bonetti Beaklini

◦ Expected Thesis: The Universality of Dark Matter Density Profiles for Milky Way Analog Galaxies

2020–2024 **B.Sc in Astronomy with emphasis in Mathematics**, *Federal University of Rio de Janeiro (UFRJ), Valongo Observatory, Rio de Janeiro - Brazil.*

Top ranked candidate

First Class Honors

Advisor: Prof. Dr. Karín Menéndez-Delmestre

◦ Thesis: Dark Matter Distribution in Simulated Milky Way Analogs

Graduation Date: 08/08/24

Average Grade: 8.7 (out of 10.0)

Research Experience

2025-present **Research group**, *Comparing Simulations with Observations of Nearby Galaxies & Focused Stellar Populations and Implications for Supermassive Black Holes*

Advisor: Prof. Dr. Karín Menéndez-Delmestre

2024-present **Research project**, *HI observations of nearby galaxies with VLA and GMRT radio telescopes*, Brazilian Center for Research in Physics (CBPF).

Advisor: Prof. Dr. Karín Menéndez-Delmestre & Dr. Pedro Paulo Bonetti Beaklini

2024-Present **Research group**, *History of Star Formation in Nearby Galaxies with the CANGA Survey*, Federal University of Rio de Janeiro, Brazil.

Advisors: Prof. Dr. Karín Menéndez-Delmestre & Prof. Dr. Thiago Signorini Gonçalves

2021-present **Research project**, *Comparing cosmological simulations with observations of nearby galaxies – Illustris TNG50 in focus*, Federal University of Rio de Janeiro, Brazil.

Advisor: Prof. Dr. Karín Menéndez-Delmestre

Scholarships & Honors

2025 **Research Exchange Fellowship at the NRAO Facilities in New Mexico, USA**, *Studentship supported by the National Radio Astronomy Observatory (NRAO) and the National Council for Scientific and Technological Development (CNPq) for a research exchange at the VLA/NRAO Facilities, in New Mexico, USA.*

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Rio de Janeiro, RJ, Brazil

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- 2024-Present **MSc Scholarship at the Brazilian Center for Research in Physics**, *Master's scholarship by the National Council for Scientific and Technological Development (CNPq)*, Brazilian Center for Research in Physics, Rio de Janeiro - Brazil.
- 2021-2024 **University Scholarship**, *Undergraduate research scholarship by the Brazilian Foundation for Research Support in the State of Rio de Janeiro (FAPERJ) - extended in 2022, 2023 and 2024*, Federal University of Rio de Janeiro, Brazil.
- 2024 **Honorable Mention**, *45th UFRJ Scientific Initiation Journey*, Federal University of Rio de Janeiro, Brazil.
- 2023 **Honorable Mention**, *12th UFRJ Academic Integration Week*, Federal University of Rio de Janeiro, Brazil.

Publications

- 2025 **The Universality of Dark Matter Density Profiles for Milky Way Analog Galaxies**
Cavalcante-Siviero et al. (submitted to ApJ)
- 2025 **Dark Matter Distribution in Simulated Milky Way Analogs**
Cavalcante-Siviero & Menéndez-Delmestre. *Boletim da Sociedade Astronômica Brasileira*, 36, no. 1, 174-178

Observational Experience

- 2025 **Optical observations with the Perkin-Elmer Telescope**, *CANGA: Census of Austral Nearby GALaxies Survey*, Pico dos Dias Observatory, Brazil.
Responsible for the observational mission: prepared the proposal, defined the sample and controlled the instruments.
- 2025 **Optical observations with the Perkin-Elmer Telescope**, *CANGA: Census of Austral Nearby GALaxies Survey*, Pico dos Dias Observatory, Brazil.
Responsible for the observational mission: prepared the proposal, defined the sample and controlled the instruments.
- 2024 **Optical observations with the Perkin-Elmer Telescope**, *CANGA: Census of Austral Nearby GALaxies Survey*, Pico dos Dias Observatory, Brazil.
Responsible for the observational mission, controlling the instruments.

Skills & Background Knowledge

- Basic VizieR, Aladin, SQL, Mathematica.
- Advanced Linux, macOS, IRAF. Python (Astropy, Scipy, Matplotlib, Numpy, etc.), \LaTeX , ^{3D}Barolo, CASA, CARTA, MARKOV CHAIN MONTE CARLO.

Presentations

- 2025 **Oral presentation**, *XLVIII Annual Meeting of the Brazilian Astronomical Society*, Brazilian Astronomical Society, Brazil.
- 2025 **Oral presentation**, *19th International Workshop on the Dark Side of the Universe (DSU2025)*, Université de Montreal.
- 2025 **Poster**, *Galaxy Memoirs* University of Nottingham.
- 2025 **Oral presentation**, *NRAO Graduate Student Researcher Program*, National Radio Astronomy Observatory.

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- 2024 **Oral presentation**, *COSMO (CBPF's Astrophysics and Cosmology department) end-of-year meeting*, Brazilian Center for Research in Physics, CBPF, Brazil.
- 2024 **Oral presentation**, *12th UFRJ Academic Integration Week*, Federal University of Rio de Janeiro, Brazil.
- 2024 **Oral presentation**, *XLVII Annual Meeting of the Brazilian Astronomical Society*, Brazilian Astronomical Society, Brazil.
- 2023 **Oral presentation**, *12th UFRJ Academic Integration Week*, Federal University of Rio de Janeiro, Brazil.
- 2023 **Poster**, *XLVI Annual Meeting of the Brazilian Astronomical Society*, Brazilian Astronomical Society, Brazil.
- 2022 **Virtual poster**, *11th UFRJ Academic Integration Week*, Federal University of Rio de Janeiro, Brazil.
- 2022 **Virtual poster**, *XLV Annual Meeting of the Brazilian Astronomical Society*, Brazilian Astronomical Society, Brazil.
- 2022 **Virtual oral presentation**, *UFRJ Scientific Initiation Day*, Federal University of Rio de Janeiro, Brazil.

Teaching and Outreach experience

- 2025 **Science Outreach Project**, *"Physicist for an afternoon"*, Brazilian Center for Research in Physics (CBPF).
 - o Role: CBPF students mentor youth by recreating and discussing modern physics experiments.
- 2024 **Teaching assistant**, *Teaching assistant for Classical Mechanics I*, Physics Institute (IF/UFRJ), Federal University of Rio de Janeiro, Brazil.
- 2023 **Teaching assistant**, *Teaching assistant for Mathematical Methods of Theoretical Physics I*, Physics Institute (IF/UFRJ), Federal University of Rio de Janeiro, Brazil.
- 2021-2022 **Science Outreach Project**, *"Astronomy for Poets" Lecture Series*, Valongo Observatory (OV/UFRJ), Federal University of Rio de Janeiro, Brazil.
 - o Role: Effective communication of complex astronomical concepts to a broader audience.

Conferences, Workshops & Schools

- 2025 **Cycle of Special Courses**, *Lambda-CDM, Dark Matter, and Dark Energy - Stefano Profumo (University of California, USA)*, National Observatory, ON, Brazil.
- 2025 **Cycle of Special Courses**, *Galaxy Evolution in the Milky Way and Local Group - Carme Gallart-Gallart (Instituto Astrofisico de Canarias, Spain)*, National Observatory, ON, Brazil.
- 2025 **Cosmology and Gravitation School**, Brazilian Center for Research in Physics, CBPF, Brazil.
- 2024 **Cosmology and Gravitation School**, *XIX Brazilian School of Cosmology and Gravitation*. Brazilian Center for Research in Physics, CBPF, Brazil.
- 2024 **Workshop** *Lectures on the IllustrisTNG Cosmological Simulation*, University of São Paulo, USP, Brazil.
- 2024 **Workshop** *Galaxy Rotation and Dark Matter*, Brazilian Center for Research in Physics, CBPF, Brazil.
- 2023 **Winter School**, *Structure in the Universe, from CMB to galaxies*, Brazilian Center for Research in Physics, CBPF, Brazil.

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