

Andrea Caputo

Associate Professor of Theoretical Physics

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Personal Information

Date of Birth: 02/05/1992

Place of Birth: Cosenza (CS), Italy

Languages: Italian (Native), English (Fluent), Spanish (Fluent), French (Basic), Hebrew (Basic)

Work Experience

Associate Professor

Sapienza University of Rome, Italy

November 2024 – Present

Teaching and research in theoretical physics.

Fellow

Theory Group, CERN, Switzerland

November 2022 – November 2025

Research in particle and astroparticle physics.

Postdoctoral Researcher

Tel Aviv University and Weizmann Institute, Israel

2020 – November 2022

Research in dark matter and astrophysics.

Education

PhD in Physics

University of Valencia, Spain

2016 – 2020

Advisor: Prof. Pilar Hernandez

Grade: Cum laude

MSc in Theoretical Physics

Sapienza University of Rome, Italy

2014 – 2016

Average Grade: 30/30

BSc in Physics

Unical University, Italy

2011 – 2014

Average Grade: 29.9/30

Research Funding

ERC Starting Grant (2023)

Awarded €1.5 million from the European Commission for my research about dark matter and new particles using astrophysical and cosmological tools.

Fellowships and Awards

June 2023: IUPAP Best Young Scientist Prize in Astroparticle Physics.
May 2023: First Place CNRS Researchers Competition, section 02 CRCN (declined).
Nov 2022 – Oct 2025: Senior Fellowship at CERN Theory Group, Switzerland.
2020–2022: IASH Postdoctoral Fellowships for Foreign Researchers.
2022: Individual Marie Skłodowska-Curie Fellowship (€184,698.24, declined).
2022: Azrieli International Postdoctoral Fellowship (€53K/year for 3 years, declined).
2022: ASN – Associate Professor, FIS 02/A2 Qualification.
2021: Prize for the Best Ph.D. Thesis in Physics, University of Valencia.
2018: “Giuliano Preparata” Prize from the Italian Society of Physics.
2018: “Tito Maiani” Prize from Accademia Nazionale dei Lincei [€ 2K].

Selected Talks

Main Invited Seminars

2024: Weizmann Institute, Rehovot, June 2024
2023: Harvard University HEP-Seminars, Boston, October 2023
2022: New York PACMAN Seminar, New York, March 2022
2022: IAS Astrophysics Seminar, Princeton, March 2022
2022: Berkeley Pheno-Seminar, Berkeley, February 2022
2021: CERN-TH, Geneva, September 2021
2021: IPMU, Tokyo, May 2021
2020: Cornell University, November 2020
2020: Stony Brook University, November 2020
2019: SLAC, Menlo Park, November 2019
2019: University of Princeton, New Jersey, October 2019
2019: Physics Department of MIT, Cambridge, October 2019

Colloquia

2025: KIT, Karlsruhe, February 2025
2024: Ben Gurion University, Be'er Sheva, July 2024
2024: MITP, Mainz, January 2024
2023: GRAPPA Colloquia, Amsterdam, June 2023
2022: DESY Theory Colloquium, Hamburg, January 2022
2021: SFB Colloquy, Garching, October 2021

Main Invited Conference Talks

2024: ALPS 2024, Austria
2023: Review Talk at PONT Avignon 2023, Avignon
2023: ALPs 2023, Austria
2022: Current Topics in Astroparticle Physics, Munich
2022: PADUA Workshop, Padua
2022: Barolo Astroparticle Meeting 2022, Barolo
2021: DESY Theory Workshop 2021, Hamburg
2020: ICHEP 2020, Prague

Selected Publications

2024

Resonant Conversion of Wave Dark Matter in the Ionosphere
Phys.Rev.Lett. 133 (2024) 25, 251001

Pulsar Nulling and Radio Emission from Axion Clouds

Phys.Rev.Lett. 133 (2024) 16, 161001

2022

Comparison of Low-Redshift Lyman-alpha Observations to Hydrodynamical Simulations with Dark Photon Dark Matter

Phys.Rev.Lett. 129 (2022) 21, 211102

Low-Energy Supernovae Severely Constrain Radiative Particle Decays

Phys.Rev.Lett. 128 (2022) 22, 221103

2021

Radiative Decay of the Cosmic Neutrino Background with Line-Intensity Mapping

Phys.Rev.Lett. 127 (2021) 13, 131102

Dark photon limits: A handbook

Phys.Rev.D 104 (2021) 9, 095029

Supervision of Students

I have co-supervised **5 Master's theses** in recent years:

- **Mr. Giuseppe Rossi** – La Sapienza University, Rome.
- **Mr. Enrico Cannizzaro** – La Sapienza University, Rome.
- **Mr. Andres Bernabeu** – University of Valencia.
- **Mr. Federico Pavone** – University of Padua.
- **Mr. Thomas Levasseur** – Ecole Normale Supérieure, Lyon.

Additionally, I have worked closely with several PhD students, including:

- **Mr. Carl Beadle** – PhD student with Sebastian Ellis, University of Geneva.
- **Dr. Enrico Cannizzaro** – Now postdoc in Lisbon.
- **Mr. Luca Teodori** – PhD student with Kfir Blum, Weizmann Institute of Science.
- **Mr. Giuseppe Rossi** – PhD student, Tel Aviv University.
- **Dr. Xucheng Gan** – Former PhD student of Josh Ruderman, NYU; now postdoc at DESY.

References

Prof. Diego Blas

Long-term Collaborator and Mentor

ICREA Barcelona
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Dr. Georg Raffelt

Long-term Collaborator and Mentor
Max Planck of Particle Physics

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Prof. Pilar Hernandez

PhD Advisor
University of Valencia and IFIC

pilar.hernandez@ific.uv.es

Prof. Mark Kamionkowski

Collaborator and Mentor
Johns Hopkins University

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Prof. Tomer Volansky

Postdoc Mentor
Tel Aviv University

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