

CARA GIOVANETTI

 caragiovanetti.com github.com/cgiovanetti

RESEARCH INTERESTS

Beyond-Standard-Model Phenomenology, Big Bang Nucleosynthesis, Computational Methods, Dark Matter and Astroparticle Phenomenology, Particle Cosmology

APPOINTMENTS

University of California, Berkeley, and Lawrence Berkeley National Lab **Berkeley, CA 94720**
Leinweber Institute for Theoretical Physics

Postdoctoral Researcher Aug. 2025 – Present

EDUCATION

New York University New York, NY 10003

Center for Cosmology and Particle Physics

Ph.D., Physics Aug. 2020 – May 2025

Thesis: Cosmology, Astrophysics, and Computation to Advance the Detection Prospects of Dark Matter

Advisor: Ken Van Tilburg

Princeton University Princeton, NJ 08544

A.B., Physics Sep. 2016 – Jun. 2020

Senior Thesis: Cosmological

Engineering Applications in Manufacturing and Homeland Security

- James Arthur Grant Associate (JAGA) Fellowship, *NYU Physics* AY 2024-2025
A competitive research assistantship for students working with Center for Cosmology and Particle Physics (CCPP) faculty. Selection reflects CCPP appreciation for the quality and promise of recipient's work.
 - Outstanding Graduate Student Instructor Award, *NYU Physics* 2024
This award recognizes graduate student instructors for their exceptional contribution to teaching some of the department's most challenging and demanding courses.
 - Graduate Research Fellowship, *National Science Foundation* Tenure 2020 – 2023
Recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees at accredited United States institutions.
 - Dean's Doctoral Fellowship, *New York University* 2020
Fellowship awarded to a small number of NYU doctoral students expected to contribute to an intellectually challenging and inclusive educational environment.
 - LeRoy Apker Award Finalist, *American Physical Society* 2020
Recognizes outstanding achievements in physics by undergraduate students.

- Allen G. Shenstone Prize in Physics, *Princeton University* 2019
Given to outstanding Physics undergraduates who have shown excellence in course work and promise in independent research.
- Bell Burnell Fellowship, *Princeton University* 2017, 2018
Summer research fellowship awarded to encourage pursuit of physics.

PUBLICATIONS



6. [C. Giovanetti](#), R. Lasenby, K. Van Tilburg (2024). *Orbital Dynamics of the Solar Basin*. *J. High Energ. Phys.* 2024, 7 (2024). [[arXiv:2408.16041](#)]
5. [C. Giovanetti](#), M. Lisanti, H. Liu, S. Mishra-Sharma, J. T. Ruderman (2024). *Cosmological Parameter Estimation with a Joint-Likelihood Analysis of the Cosmic Microwave Background and Big Bang Nucleosynthesis*. *Phys. Rev. D* 112, 063530. [[arXiv:2408.14531](#)]
4. [C. Giovanetti](#), M. Lisanti, H. Liu, S. Mishra-Sharma, J. T. Ruderman (2024). *LINX: A Fast, Differentiable, and Extensible Big Bang Nucleosynthesis Package*. *Phys. Rev. D* 112, 063531. [[arXiv:2408.14538](#)]
3. [C. Giovanetti](#), M. Schmaltz, N. Weiner (2024). *Neutrino-Dark Sector Equilibration and Primordial Element Abundances*. *Phys. Rev. D* 111, 043526. [[arXiv:2402.10264](#)]
2. [C. Giovanetti](#), M. Lisanti, H. Liu, J. T. Ruderman (2021). *Joint CMB and BBN Constraints on Light Dark Sectors with Dark Radiation*. *Phys. Rev. Lett.* 129, 021302. [[arXiv:2109.03246](#)]
1. L. Lancaster, [C. Giovanetti](#), P. Mocz, Y. Kahn, M. Lisanti, D. N. Spergel (2020). *Dynamical Friction in a Fuzzy Dark Matter Universe*. *Journal of Cosmology and Astroparticle Physics*, 2020(01). [[arXiv:1909.06381](#)]

SEMINARS AND CONFERENCE TALKS

- Sydney Consortium for Particle Physics and Cosmology Remote, Feb. 2025
- Fermilab Theoretical Physics Seminar Batavia, IL, Nov. 2024
- McGill Theory HEP Seminar Montreal, QC, Nov. 2024
- University of Washington Particle Theory Seminar Seattle, WA, Nov. 2024
- MIT Center for Theoretical Physics Seminar Boston, MA, Nov. 2024
- Stanford Institute for Theoretical Physics Wine and Cheese Seminar Stanford, CA, Oct. 2024
- Berkeley Center for Theoretical Physics Particle Seminar Berkeley, CA, Oct. 2024
- Perimeter Institute Particle Physics Seminar Waterloo, ON, Oct. 2024
- University of Maryland Elementary Particle Theory Seminar College Park, MD, Sep. 2024
- Simons Foundation CCA PACMAN Seminar New York, NY, Mar. 2024
 Center for Computational Astrophysics, Particle Astrophysics and Cosmology Meeting Around New York
- Simons Foundation CCA PACMAN Seminar New York, NY, Oct. 2021
 Center for Computational Astrophysics, Particle Astrophysics and Cosmology Meeting Around New York
- Princeton Pheno & Vino Princeton, NJ, Feb. 2020

TEACHING EXPERIENCE

- Quantum Field Theory I, Teaching Assistant Fall 2023
Developed inclusive teaching strategies and active learning techniques to lead one recitation each week.
- Quantum Field Theory I, Grader Fall 2023
- “Quarks to Cosmos”, Laboratory Instructor Fall 2021

SCHOOLS, WORKSHOPS, AND EXTERNAL TRAINING

- JAXtronomy Workshop, Simons Foundation CCA New York, NY
Center for Computational Astrophysics Oct. 2024
- Dark Matter in the Era of Large Surveys, KITP Santa Barbara, CA
Workshop participant, affiliate May – Jun. 2024
- APS JNIPER Fellowship Remote
Joint Network for Informal Physics Education and Research Jan. – May 2024
- APS Science Trust Project Misinformation Workshop Remote
Workshop participant Aug. – Sep. 2023
- APS JNIPER Community Engagement Workshop Remote
Joint Network for Informal Physics Education and Research Jun. – Jul. 2023
Workshop participant
- Lighting New Lampposts for DM and BSM, Stony Brook University Stony Brook, NY
Workshop participant Feb. – Mar. 2023
- NYU Science Podcasting Workshop Series New York, NY
Workshop participant Oct. – Nov. 2022
- TASI, University of Colorado Boulder Boulder, CO
Theoretical Advanced Study Institute in Elementary Particle Physics Jun. – Jul. 2022
Summer Student
- NYU Advanced Science Communication Workshop Series New York, NY
Workshop participant Apr. – May 2022
- NYU Science Communication Workshop Series New York, NY
Workshop participant Sep. – Nov. 2021

INTERNAL ORGANIZING

- *Co-Chair*, NYU CU*iP Organizing Committee 2024 – 2025
Conference for Undergraduate Women and Gender Minorities in Physics
Conference name changed by APS part way through organizing process
- *Chair*, NYU CUWiP Application Committee 2023
Conference for Undergraduate Women in Physics
- *Member*, NYU G-PHORCE Equity and Inclusion Committee 2020 – 2021
Graduate Physics Organization for Research, Culture, and Education
- *Member*, Princeton Physics Climate and Inclusion Committee 2019 – 2020

BROADER IMPACTS AND COMMUNITY ENGAGEMENT

- *Author, It Takes a Village: Preparing Women in Science for Difficult Times* Oct. 2025
FEBS Letters Women in Science Essay Contest, Runner up
- *Scientist Mentor, Remote Experience for Young Engineers and Scientists (REYES)* Jun. – Aug. 2025
Mentored eleven high school and undergraduate students in a hands-on program I developed called “*What’s happening in the Early Universe?*”
- *Panelist, New Jersey Governor’s School in the Sciences Career Day* Jun. 2025
Careers in Research panel
- *Author, Vera Rubin: A Journey from Self-Doubt to Galactic Discoveries* Sep. 2024
APS PhysicsQuest 2010, “Force and Motion”
- *Author, Why Do So Many Physics Students Want to Work in Academia?* Sep. 2024
APS News “The Back Page”
- *Speaker, Liberty Science Center Space Talk* Jersey City, NJ, Aug. 2024
“*Dark Matter is Right Next to You*”
- *Speaker, Astronomy on Tap at Pete’s Candy Store* New York, NY, Jun. 2024
“*The Big Bang*”
- *Speaker, TELL GSAS Sciences (NYU)* New York, NY, Apr. 2024
“*Dark Matter is Right Next to You*”
- *Author, Did Neurons Evolve Twice?* Jan. 2024
Scientific American
- *Speaker, Cosmic Happy Hour at Book Club* New York, NY, Apr. 2023
“*Dark Matter*”
- *Guest, The Academic Minute Podcast* Nov. 2022
“*Dark Matter*”
Most listened-to segment of 2022
- *Speaker, Marion E. McKeown Elementary School STEM Day* Newton, NJ, Oct. 2022
“*Problem Solving with Physics*”
- *Guest, NSF Discovery Files Podcast* Aug. 2022
“*Dark Matter*”
- *Scientist Mentor, NY Academy of Sciences ASMP* New York, NY, Jan. – May 2022
Afterschool Science Mentorship Program