Molly Wolfson

https://mollywolfson.github.io/
http://enigma.physics.ucsb.edu/

Department of Physics, UC Santa Barbara
email: mawolfson@ucsb.edu
phone: (518) 728-1896

Education

University of California, Santa Barbara (UCSB) — Santa Barbara, CA
- Physics M.A. 2021; Physics Ph.D. expected June 2023

The University of Chicago — Chicago, IL
- Physics B.A. with honors; Mathematics B.S. 2018

Research Experience

2018–present: **Graduate Student Researcher**, UCSB, Santa Barbara, CA
PI: Professor Joseph Hennawi

2017: **NSF Mathematics REU Participant**, The University of Chicago Department of Mathematics, Chicago, IL

2017–2018: **Research Assistant**, Enrico Fermi Institute, Chicago, IL
PI: Professor Yau Wah

2016: **DHS Summer Research Intern**, NSTec, Las Vegas, NV
Supervisor: Dr. Eric Wagner

2015-2017: **Research Assistant**, James Franck Institute, Chicago, IL
PI: Professor Stuart A. Rice and Dr. Binhua Lin

Publications

1. **Wolfson, M.**, Hennawi, J. F., Davies, F. B., Oñorbe, J. "Future high-redshift thermal state constraints from the Lyman-α forest flux auto-correlation function" in prep.
2. **Wolfson, M.**, Hennawi, J. F., Davies, F. B., Oñorbe, J. "Forecasting constraints on the mean free path of ionizing photons at $z \geq 5.4$ from the Lyman-α forest flux auto-correlation function" submitted to MNRAS
3. **Wolfson, M.**, Hennawi, J. F., Davies, F. B., Oñorbe, J., Hiss, H., Lukić, Z. "Improving IGM temperature constraints using wavelet analysis on high-redshift quasars" 2021, MNRAS, 508, 5493
4. **Wolfson, M.**, Liepold, C., Lin, B., and Rice, S. A. "A comment on the position dependent diffusion coefficient representation of structural heterogeneity" 2018, J. Chem. Phys., 148, 194901
5. **Wolfson, M.** "Weyl Curvature as a cross-ratio of points on the celestial sphere" 2017, UChicago Math REU Website, http://math.uchicago.edu/~may/REU2017/

Research Talks

2022 *Forecasting constraints on the high-z mean free path of ionizing photons from the Lyman-α forest auto-correlation function*
240th Meeting of the American Astronomical Society

2022 *Using the Lyman-α forest auto-correlation function to constrain the mean free path of ionizing photons at $z \geq 5.4$*
Reionization and Cosmic Dawn: Looking Forward To the Past

2018 *Determining the Lifetime of K^0_L from $K^0_L \to 3\pi^0$ Decay*
The University of Chicago Department of Physics Honors Thesis Defense

Research Posters

2021 *Improving IGM Thermal State Constraints using Wavelet Analysis on High-Redshift Quasars*
European Astronomical Society Annual Meeting

2017 *Radial Dependence of the Self-Diffusion Coefficient of Colloids in Circularly Confined Geometries*
Chicago Area Undergraduate Research Symposium

2017 *Characterization of a Cylindrical 2-inch, ^{7}Li-enriched CLYC Detector*
The University of Chicago Undergraduate Summer Research Symposium

2016 *Diffusive Dynamics of Colloidal Systems in Circularly Confined Geometries*
Chicago Area Undergraduate Research Symposium

Awards and Honors

UCSB Department of Physics, Department Service Award 2018-2020
University of Chicago Dean's List 2014-2018
Enrico Fermi Institute Undergraduate Summer Research Grant 2017
Honorable Mention Poster at the Chicago Area Undergraduate Research Symposium 2017
UCISTEM Summer Research Grant 2015

Teaching and Supervision

2022–present: **Research Mentor** University of California, Santa Barbara
Supervised Linda Zhenyu Jin (undergrad) build an emulator for Lyman-α forest statistics with machine learning

2018–2019: **Teaching Assistant** UCSB Department of Physics
PHYS 3L (now 20AL) Fall 2018, PHYS 4L (now 20BL) Winter 2019 - introductory labs for physics majors

2016–2018: **Physics Tutor** The University of Chicago Harper Library
Covered materials from PHYS 121-123, PHYS 131-133, PHYS 141-143, and more

2015: **Course Assistant** The University of Chicago Department of Mathematics
MATH 151 Fall 2015 - Calculus I

Synergistic Activities

1. **UCSB Service:**
   (i) President, Women and Gender Minorities in Physics, 2018 - present
   (ii) Mentor, Graduate Scholars Program, 2020 - present
   (iii) Organizer, "Astro Lunch" a UCSB, KITP, and LCO talk series, 2019 - present
   (iv) Mentoring Chair, GradLife, 2019 - 2021
   (v) Coordinator, APS Bridge Partnership Institution Application, 2020 - 2021
   (vi) LOC Member, "APS Conference for Undergraduate Women in Physics" 2018 - 2019
   (vii) Mentor, Women in Science and Engineer Mentoring Program, 2018 - 2019
   (viii) Finance Co-Chair, "Beyond Academia" industry conference, 2020 - 2021
2. **Invited Panels:**
   (i) "Being a Woman in Physics" UCSB SPS, 2021
   (ii) "Applying to Graduate School and Fellowships" APS CUWiP, 2019
   (iii) "Exploring Undergraduate Research Opportunities" UCSB Dept. of Physics, 2018