

Molly Wolfson

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Education

University of California, Santa Barbara (UCSB) Santa Barbara, CA
– Physics M.A. 2021; Physics Ph.D. expected June 2024

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**, UChicago, Chicago, IL
<http://math.uchicago.edu/~may/REU2017/REUPapers/Wolfson.pdf>

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

Main Publications

1. **Wolfson, M.**, Hennawi, J. F., Davies, F. B., Oñorbe, J. “Forecasting constraints on the high- z IGM thermal state from the Lyman- α forest flux auto-correlation function” 2023, arXiv:2309.05647
2. **Wolfson, M.**, et al. “Measurements of the $z > 5$ Lyman- α forest flux auto-correlation functions from the extended XQR-30 data set” 2023, arXiv:2309.03341
3. **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” 2023, MNRAS, 521 (3), 4056-4073
4. **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 (4), 5493-5513
5. **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 (19), 194901

Work in Collaboration

1. D’Odorico, V., Bañados, E., Becker, G. D., Bischetti, M., Bosman, S. E. I., Cupani, G., Davies, R., Farina, E. P., Ferrara, A., Feruglio, C., Mazzucchelli, C., Ryan-Weber, E., Schindler, J.-T., Sodini, A., Venemans, B. P., Walter, F., Chen, H., Lai, S., Zhu, Y., Bian, F., Campo, S., Carniani, S., Cristiani, S., Davies, F., Decarli, R., Drake, A., Eilers, A.-C., Fan, X., Gaikwad, P., Gallerani, S., Greig, B., Haehnelt, M. G., Hennawi, J. F., Keating, L., Kulkarni, G., Mesinger, A., Meyer, R. A., Neeleman, M., Onoue, M., Pallottini, A., Qin, Y., Rojas-Ruiz, S., Satyavolu, S., Sebastian, A., Tripodi, R., Wang, F., **Wolfson, M.**, Yang, J., Zanchettin, M. V., “XQR-30: the ultimate XSHOOTER quasar sample at the reionization epoch” 2023, MNRAS, 523 (1), 1399-1420

Awards and Honors

Worster Summer Research Fellowship	2023
Doctoral Student Travel Grant	2023
Mananya Tantiwivat Fellowship Award	2022
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

Research Talks

- 2023 *Constraining reionization with the Lyman- α forest flux auto-correlation function*
MIT Monday Afternoon Talk, July 10, 2023, Cambridge, MA
- 2023 *Constraining Reionization with the Lyman- α forest flux auto-correlation function*
Reionization in the Summer, June 26 - 29, 2023, Heidelberg, Germany
- 2023 *Constraining Reionization with the Lyman- α forest flux auto-correlation function*
UCSB Astro Lunch Seminar, May 31, 2023, Santa Barbara, CA
- 2023 *The Lyman- α forest flux auto-correlation function as a source of information on the $z > 5$ universe*
Future Cosmology, April 23 - 29, 2023, IESC Cargese, France
- 2022 *Constraining the mean free path of ionizing photons at $z > 5$ from the Lyman- α forest flux auto-correlation function*
UC Berkeley Cosmology Seminar, October 18, 2022, Berkeley, CA
- 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, June 12-16 2022, Pasadena, CA
- 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, March 21 - 23, 2022, BCCP Berkeley, CA

Teaching and Supervision

- 2022–present: **Research Mentor** University of California, Santa Barbara
Supervised Linda Zhenyu Jin (undergrad) build an emulator with machine learning
- 2018–2019: **Teaching Assistant** UCSB Department of Physics
PHYS 3L (now 20AL), PHYS 4L (now 20BL) - introductory labs for physics majors
- 2016–2018: **Research Mentor** James Franck Institute
Trained and supervised Linsey Nowack (undergrad) on running diffusion experiments
- 2016–2018: **Physics Core Tutor** The University of Chicago Harper Library
Covered introductory physics course material and beyond

Synergistic Activities

1. Collaborations:

- (i) Member, the XQR-30 team, <https://xqr30.inaf.it/>

2. Public Talks:

- (i) "The History of the Universe with High-Redshift Quasars", UCSB Lunch & Learn, June 2, 2023

3. UCSB Service:

- (i) Mentor, Graduate Scholars Program, 2020 - present
- (ii) Organizer, “Astro Lunch” a UCSB, KITP, and LCO talk series, 2019 - present
- (iii) Member, Women and Gender Minorities in Physics, 2018 - present
- (iv) President, Women and Gender Minorities in Physics, 2019 - 2022
- (v) Mentoring Chair, GradLife, 2019 - 2021
- (vi) Co-Author, APS Bridge Partnership Institution Application, 2020 - 2021
- (vii) LOC Member, “APS Conference for Undergraduate Women in Physics” 2018 - 2019
- (viii) Mentor, Women in Science and Engineer Mentoring Program, 2018 - 2019
- (ix) Finance Co-Chair, “Beyond Academia” industry conference, 2020 - 2021

4. 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