

# Emily M. Silich

Department of Astronomy, California Institute of Technology

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## Education

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### California Institute of Technology (Caltech)

Astrophysics, PhD (expected 2026)   Astrophysics, MS (2023)

*NSF Graduate Research Fellow*

2023 - 2026

*Wallace L. W. Sargent Graduate Fellow*

2021 - 2022

### University of Iowa

2017 - 2021

Astronomy, BS   Physics, BS   Mathematics, minor   Major GPA: 4.0

*with University Honors, High Distinction, Honors in Astronomy, Phi Beta Kappa*

## Research

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### Predoctoral Fellow

2024 -

Center for Astrophysics — Harvard & Smithsonian

### Graduate Research Assistant

2021 -

Division of Physics, Mathematics and Astronomy, Caltech

### Undergraduate Research Assistant

2017 - 2021

Department of Physics & Astronomy, University of Iowa

### Research Intern

Summer 2020

X-ray Astrophysics Laboratory, NASA Goddard Space Flight Center

### Student Researcher

Winter 2019

Canada-Norway Student Sounding Rocket Program (CaNoRock)

## Publications (selected)

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1. **E.M. Silich**, E. Bellomi, J. Sayers, J. ZuHone, U. Chadayammuri, S. Golwala, D. Hughes, A. Montaña, T. Mroczkowski, D. Nagai, D. Sánchez, S.A. Stanford, G. Wilson, M. Zemcov, and A. Zitrin, “*ICM-SHOX. Paper II: Galaxy cluster sample overview*”, 2023, to appear in Proc. of the mm Universe 2023 conference, EPJ Web of conferences, EDP Sciences.
2. **E.M. Silich**, E. Bellomi, J. Sayers, J. ZuHone, U. Chadayammuri, S. Golwala, D. Hughes, A. Montaña, T. Mroczkowski, D. Nagai, D. Sánchez, S.A. Stanford, G. Wilson, M. Zemcov, and A. Zitrin, “*ICM-SHOX. Paper I: Methodology overview and discovery of a baryon–dark matter velocity decoupling in the MACS J0018.5+1626 merger*”, 2023, submitted to The Astrophysical Journal.
3. **E.M. Silich**, K. Jahoda, L. Angelini, P. Kaaret, A. Zajczyk, D.M. LaRocca, R. Ringuette, and J. Richardson, “*A Search for the 3.5 keV Line from the Milky Way’s Dark Matter Halo with HaloSat*”, 2021, The Astrophysical Journal, 916, 2.
4. A. Zajczyk, P. Kaaret, D. LaRocca, W. Fuelberth, H.C. Gulick, K. Jahoda, D.L. Kirchner, R. McCurdy, W.T. Robison, and **E. Silich**, “*On-ground calibration of the HaloSat science instrument*”, J. Astron. Telesc. Instrum. Syst. 6(4), 044005 (2020).
5. **E.M. Silich**, P. Kaaret, A. Zajczyk, D.M. LaRocca, J. Bluem, R. Ringuette, K. Jahoda, and K.D. Kuntz, “*Global X-Ray Properties of the Vela and Puppis A Supernova Remnants*”, 2020, The Astronomical Journal, 160, 1.
6. P. Kaaret, A. Zajczyk, D.M. LaRocca, R. Ringuette, J. Bluem, W. Fuelberth, H. Gulick, K. Jahoda, T.E. Johnson, D.L. Kirchner, D. Koutroumpa, K.D. Kuntz, R. McCurdy, D.M. Miles, W.T. Robison, and **E.M.**

Silich, “*HaloSat - A CubeSat to Study the Hot Galactic Halo*”, 2019, The Astrophysical Journal, 884, 2.

## Teaching

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Ay 105: Optical Astronomy Instrumentation Lab	Graduate TA //	Spring 2023
Ay 122c: High Energy Astronomical Measurements & Instrumentation	Graduate TA //	Winter 2023
Ay 127: Astrophysical Cosmology	Graduate TA //	Fall 2022
PHYS 1611: Introductory Physics I	Undergraduate TA //	Spring 2020
PHYS 1512: College Physics II	Undergraduate TA //	Spring 2020

## Fellowships & Awards (selected)

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Garmire Scholar, France A Cordova Graduate Student Fund (Caltech)		2023
NSF Graduate Research Fellowship (GRFP)		2023 - 2026
Wallace L. W. Sargent Graduate Fellowship (Caltech)		2021 - 2022
Chambliss Astronomy Achievement Student Awards - Honorable Mention		2021
University of Iowa Dare to Discover		2021
Barry Goldwater Scholar		2020
James A. Van Allen Award (Ulowa)		2020
John Mather Nobel Scholar (NASA/GSFC)		2020
Western Dubuque High School Young Accomplished Alumni		2020
APS Division of Astrophysics (DAP) Travel Grant		2020
Manuel Paul & Abraham Chinitz Liberal Arts & Sciences Scholarship (Ulowa)	2019 - 2020, 2020 - 2021	
NASA Iowa Space Grant Consortium Research Fellowship	2018 - 2019, 2019 - 2020	
Myrtle K. Maier Scholarship (Ulowa)	2019 - 2020	
Rhodes Dunlap Award for Excellence in the First/Second Year (Ulowa)	2018 - 2019, 2019 - 2020	
ICRU Academic Year Research Fellowship	2018 - 2019, 2019 - 2020	
Charles A. Wert Summer Research Fund (Ulowa)	2019	
UI Department of Physics & Astronomy Poster Prize	2018, 2019	
ICRU Summer Research Fellowship	2018	
UI Old Gold Scholarship	2017 - 2021	
UI Top Scholars Award	2017 - 2021	
UI Academic Success Scholarship	2017 - 2021	
CLAS Undergraduate Scholarship (Ulowa)	2018 - 2019	
Stanley Merit-Based Study Abroad Scholarship (Ulowa)	2019	
Ann Morse Study Abroad Grant (Ulowa)	2019	
Iowa Abroad Scholarship	2019	
President's List, University of Iowa	2020 - 2021	
Dean's List, University of Iowa	2017 - 2021	

## Academic Presentations (selected)

### Talks:

1. *Merging Cluster Workshop*, Yonsei University, Seoul, KR. December 2023.
2. *Caltech Observational Cosmology Seminar*, Pasadena, CA. October 2023.
3. *Observing the Universe at Millimetre Wavelengths*, Grenoble, FR. June 2023.
4. *Caltech Observational Cosmology Seminar*, Pasadena, CA. February 2023.
5. *Galaxy Cluster Discussion Group Meeting*, Center for Astrophysics — Harvard & Smithsonian, Virtual. November 2022.
6. *240th American Astronomical Society (AAS) Meeting*, Pasadena, CA. June 2022.

7. *University of Iowa Department of Physics & Astronomy Awards Colloquium*, Virtual. April 2021.
8. *University of Iowa Department of Physics & Astronomy Colloquium*, Virtual. October 2020.
9. *Gulf Coast Undergraduate Research Symposium*, Virtual. October 2020.
10. *NASA/GSFC Code 660 Intern Presentation Symposium*, Virtual. August 2020.
11. *Iowa Space Grant Consortium Student Research Symposium*, Virtual. April 2020.
12. *Conference for Undergraduate Women in Physical Sciences*, Lincoln, NE. November 2019.
13. *University of Iowa Astrophysics & Space Physics Seminar*, Iowa City, IA. October 2019.

#### Posters:

1. *STScI Galaxy Clusters 2022: Challenging Our Cosmological Perspectives*, Virtual. April 2022.
2. *237th American Astronomical Society (AAS) Meeting*, Virtual. January 2021.
3. *American Physical Society (APS) April Meeting*, Virtual. April 2020.
4. *Iowa Space Grant Consortium Student Research Symposium*, Virtual. April 2020.
5. *APS Conference for Undergraduate Women in Physics*, Minneapolis, MN. January 2020.
6. *ICRU Fall Undergraduate Research Festival*, Iowa City, IA. November 2019.
7. *ICRU Fall Undergraduate Research Festival*, Iowa City, IA. November 2018.
8. *Conference for Undergraduate Women in Physical Sciences*, Lincoln, NE. October 2018.

## Computer Skills

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<b>Languages</b>	Python, R, HTML
<b>Applications</b>	Xspec/PyXspec, $\LaTeX$ , CIAO/Sherpa, IRAF/dsimulator, SLURM, Keck Remote Observing Software (DEIMOS, LRIS), yt, SpecPro, Pypelt, CASA, ds9
<b>Operating Systems</b>	macOS, Linux, Windows

## Outreach

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#### Lectures & speaking engagements:

1. Caltech stargazing lectures, “*Galaxy Clusters Collide: The Most Energetic Events since the Big Bang*”, Pasadena, CA. August 2023. Watch here: [https://www.youtube.com/watch?v=X2\\_5uiAL\\_vE](https://www.youtube.com/watch?v=X2_5uiAL_vE)
2. Death Valley NP Dark Sky Festival, “*Ask an Astrophysicist*” Q&A panelist, DVNP, CA. March 2023.

#### Volunteering:

1. Astronomy on Tap – Los Angeles	Volunteer & telescope operator	//	2022 -
2. Caltech stargazing lectures & public observing	Telescope operator	//	2022 -
3. Gabrielino High School physics classrooms	Guest lab assistant & speaker	//	2021 -
4. Girl Scouts Troop 6371 (Monrovia, CA)	Guest speaker	//	2023
5. Death Valley NP Dark Sky Festival	Science booth & telescope operator	//	2022, 2023
6. Astrobites	Guest author	//	2021
7. Iowa Center for Research by Undergraduates	Research ambassador	//	2020 - 2021
8. Society of Physics Students	Vice president & secretary	//	2017 - 2021
9. Van Allen Observatory public observing	Volunteer & telescope operator	//	2017 - 2021
10. Drexler Middle School FIRST Lego League	Team mentor	//	2018