

KALEY V. BRAUER

Massachusetts Institute of Technology
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EDUCATION

Massachusetts Institute of Technology	2017 - present
Ph.D. Candidate in Physics	
Advisor: Anna Frebel; GPA: 5.0/5.0	
Lawrence Berkeley National Laboratory	2021
Visiting Research Fellow	
Advisor: Daniel Kasen	
Brown University	2013 - 2017
B.Sc. in Physics (Astrophysics)	
University honors, departmental honors, GPA: 4.0/4.0	

HONORS & AWARDS

Department of Energy Computational Science Graduate Fellowship (\sim \$400,000)	2018 - 2022
National Science Foundation Graduate Research Fellowship (\sim \$150,000), <i>offer declined</i>	2018
Whiteman Fellowship (\sim \$100,000), MIT	2017 - 2018
R. Bruce Lindsay Award, Brown University, <i>given to senior for excellence in physics</i>	2017
Eva A. Mooar Prize, Brown University, <i>given to woman for academic excellence</i>	2017
Sigma Xi Research Honor Society	2017
Karen T. Romer Undergraduate Teaching and Research Award, Brown University	2015

PUBLICATIONS

REFERREED

Ji, A. P., Naidu, R., **Brauer, K.**, Ting, Y., & Simon, J. (2022). Chemical Abundances of the Typhon Stellar Stream. *accepted to MNRAS*.

Brauer, K., Andales, H., Ji, A. P., Mardini, M., Frebel, A., Gomez, F. A., & O'Shea, B. W. (2022). Possibilities and Limitations of Kinematically Identifying Stars from Accreted Ultra-Faint Dwarf Galaxies. *The Astrophysical Journal*, 937, 14.

Mardini, M., Frebel, A., Chiti, A., Meiron, Y., **Brauer, K.**, Ou, X. (2022). Characterization of the Metal Weak Thick Disk of the Milky Way. *The Astrophysical Journal*, 936, 78.

Brauer, K., Ji, A. P., Drout, M., Frebel, A. (2021). Collapsar R-Process Yields Can Reproduce [Eu/Fe] Abundance Scatter in Metal-Poor Stars. *The Astrophysical Journal*, 915, 81.

Gull, M., Frebel, A., Hinojosa, K., Roederer, I. U., Ji, A. P., **Brauer, K.** (2021). R-process-rich stellar streams in the Milky Way. *The Astrophysical Journal*, 912, 52.

Brauer, K., Ji, A. P., Frebel, A., Dooley, G. A., Gomez, F. A., & O'Shea, B. W. (2019). The Origin of r-process Enhanced Metal-Poor Halo Stars In Now-Destroyed Ultra-Faint Dwarf Galaxies. *The Astrophysical Journal*, 871, 247.

Brauer, K., Vrtillek, S. D., Peris, C., & McCollough, M. (2018). Phase-resolved spectroscopy of the low-mass X-ray binary V801 Ara. *Monthly Notices of the Royal Astronomical Society*, 478, 4894-4904.

NON-REFERREED

Brauer, K. (2021). “I’ll Finish it This Week” And Other Lies. *arXiv April Fools Paper*. arXiv:2103.16574

Brauer, K., Ji, A., Hattori, K., Escobar, S., & Frebel, A. (2019). Kinematics of highly r-process-enhanced halo stars: Evidence for origins in now-destroyed ultra-faint dwarf galaxies. *Proceedings of the International Astronomical Union*, 14(S353), 71-74.

PRESENTATIONS

INVITED

Talk at US Department of Energy CSGF Program Review Washington, DC, USA; July 2022
“Studying the Tiniest, Oldest Galaxies That Merged Into the Milky Way Throughout its Formation History”

High Performance Computing Talks at IHPCCS Athens, Greece; June 2022
Invited Mentor at the International High Performance Computing Summer School

Colloquium Talk at University of Melbourne Melbourne, Australia (remote); Oct 2021
“Studying the Tiniest, Oldest Galaxies in the Milky Way’s Assembly History through Chemical Tagging and Kinematics”

Seminar Talk at Computational Research in Boston and Beyond Boston, USA (remote); Oct 2021
“Investigating Galactic Evolution through Ancient Stars & Galaxies”

Seminar Talk at Carnegie Observatories Pasadena, CA, USA (remote); Oct 2020
“Collapsars as a Source of R-Process in Metal-Poor Stars”

CONTRIBUTED

Talk at IAU Symposium 377 on Early Disk Galaxy Formation Kuala Lumpur, Malaysia; Feb 2023
“The Smallest, Earliest Galaxies and their Contributions to the Milky Way”

Talk at 241st Meeting of the American Astronomical Society Seattle, WA, USA; Jan 2023
“The Smallest Galaxies in the Milky Way’s Assembly History and the Origin of Heavy Elements”

Talk at JINA-CEE Frontiers in Nuclear Astrophysics Meeting South Bend, IN, USA; May 2022
“Simulating the Astrophysical Origins of Metal-Poor R-Process Stars”

Talk at 2021 GALAH Science Meeting Sydney, Australia (remote); June 2021
“Modeling Galactic Chemical Evolution in Dwarf Galaxies with Individual Stars”

Talk at *Linking the Galactic and Extragalactic* Wollongong, Australia (remote); Dec 2020
“Exploring the Low-Mass End of the Assembly History of Milky Way-Mass Galaxies”

Talk at 235th Meeting of the American Astronomical Society Honolulu, HI, USA; Jan 2020
“Chemical Tagging of Halo Stars From Ultra-Faint Dwarf Galaxies”

Talk at IAU Symposium 353 on Galactic Dynamics Shanghai, China; July 2019
“Kinematics of Highly r-Process-Enhanced Halo Stars”

Poster at JINA-CEE Frontiers in Nuclear Astrophysics Meeting East Lansing, MI, USA; May 2019
“Origin of r-Process-Enhanced Stars in Ultra-faint Dwarf Galaxies”

Talk at JINA-CEE Frontiers in Nuclear Astrophysics Meeting South Bend, IN, USA; May 2018
“Metallicity and Mass Distributions of Accreted Dwarf Satellites in Milky Way-Mass Halos”

Poster at 229th Meeting of the American Astronomical Society Grapevine, TX, USA; Jan 2017
“The Structures of X-ray Binary Systems V801 Ara and Cyg X-3 from Doppler Tomography”

Poster at 47th Meeting of the Division of Planetary Science Washington, DC, USA; Nov 2015
“The Shape of Near-Earth Asteroid 275677 (2000 RS11) From Inversion of Arecibo and Goldstone Radar Images”

SKILLS

Programming	Python, C/C++, Julia, Java, HTML/CSS, SQL
High Performance Computing	OpenMP, MPI, OpenACC, experience with the National Energy Research Scientific Computing Center (NERSC)

STUDENTS ADVISED

Hillary Diane Andales (MIT undergraduate)	Summer 2020-present
Joseph Merkel (MIT undergraduate)	Summer 2020

TEACHING

8.S30 Stellar Archaeology Teaching Assistant	Fall 2022
<i>Physics Department, Massachusetts Institute of Technology</i>	
PHYS0220/0270 Astronomy Teaching Assistant	Fall 2014 - Spring 2015
<i>Physics Department, Brown University</i>	
PHYS0030 Introductory Physics Workshop Assistant	Fall 2014
<i>Physics Department, Brown University</i>	

LEADERSHIP & SERVICE

Graduate Women in Physics Leader	2019 - present
<i>Massachusetts Institute of Technology</i>	
High Performance Computing Mentor	June 2022
*only graduate student to ever serve as a mentor	
<i>International High Performance Computing Summer School, Athens, Greece</i>	
Reviewer for JOSS	2022 - present
<i>Journal of Open Source Software</i>	
President, MIT Salsa Club	2018 - 2022
<i>Massachusetts Institute of Technology</i>	
Physics Representative, Diversity and Inclusion Committee	2018 - 2022
<i>MIT Graduate Student Council</i>	
Cosmology Volunteer Course Designer and Instructor	Spring 2021
<i>Spark, MIT Educational Studies Program</i>	
Treasurer, Students for the Exploration and Development of Space	2017 - 2021
<i>Massachusetts Institute of Technology</i>	
Adopt-a-Physicist Volunteer	2018 - 2020
<i>Sigma Pi Sigma</i>	
Catalyst Volunteer Computer Science Instructor	Spring 2019
<i>Citizen Schools and Mass STEM Hub</i>	

Designer & Observer, MIT Sidewalk Astrogazers <i>MIT Kavli Institute for Astrophysics and Space Research</i>	2017 - 2019
Head of Design Team, The Triple Helix Magazine <i>Brown University</i>	2014 - 2017
Women in Physics Co-coordinator <i>Brown University</i>	2016 - 2017
Physics Road Show Presenter <i>Physics & Astronomy Department, Texas A&M University</i>	Summer 2014