KALEY BRAUER

Harvard University, Center for Astrophysics | Harvard & Smithsonian 60 Garden St, MS-51, Cambridge, MA 02138 kaley.brauer@cfa.harvard.edu

EDUCATION

Ph.D. in Physics Massachusetts Institute of Technology Astrophysics Division; GPA: 5.0/5.0	2023
B.Sc. in Physics Brown University University honors, departmental honors, GPA: 4.0/4.0	2017
ACADEMIC POSITIONS	
NSF Postdoctoral Fellow Center for Astrophysics Harvard & Smithsonian	2023 - present
US Department of Energy Graduate Fellow; Graduate Researcher Massachusetts Institute of Technology	2017 - 2023
Visiting Research Fellow Lawrence Berkeley National Laboratory	Fall 2021

HONORS & AWARDS

NSF Astronomy & Astrophysics Postdoctoral Fellowship (\$330,000)	2023 - present
Department of Energy Computational Science Graduate Fellowship (\sim \$450,000)	2018 - 2022
Spot Awards, MIT, in recognition of community service to School of Science	2020 and 2022
NSF Graduate Research Fellowship (\sim \$150,000), offer declined	2018
Whiteman Fellowship (\sim \$100,000), MIT	2017 - 2018
R. Bruce Lindsay Award, Brown University, given to senior for excellence in physics	2017
Eva A. Mooar Prize, Brown University, given to woman for academic excellence	2017
Sigma Xi Research Honor Society	2017
Karen T. Romer Undergraduate Teaching and Research Award, Brown University	2015

PUBLICATIONS

First Author or Major Contributions

- Brauer, K., Mead, J., Ji, A. P., Wise, J. H., Bryan, G. L., Mac Low, M. M., Emerick, A., Andersson, E., Frebel, A., Cote, B. (2025). AEOS: The Impact of Pop III Initial Mass Function and Star-by-Star Models in Galaxy Simulations. *submitted to The Astrophysical Journal*. arXiv:2502.20433
- Mead, J., Brauer, K., Bryan, G. L., Mac Low, M. M., Ji, A. P., Wise, J. H., Emerick, A., Andersson, E., Frebel, A., Cote, B. (2025). AEOS: Transport of metals from minihalos following Population III stellar feedback. *The Astrophysical Journal*, 980, 62.

- Brauer, K., Emerick, A., Mead, J., Ji, A. P., Wise, J. H., Bryan, G. L., Mac Low, M. M., Cote, B., Andersson, E., Frebel, A. (2025). AEOS: Star-by-Star Cosmological Simulations of Early Chemical Enrichment and Galaxy Formation. *The Astrophysical Journal*, 980, 41.
- 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.
- 3. 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.
- 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., Vrtilek, 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.

N-th Author

- Chiti, A., Mardini, M. K., Limberg, G., Frebel, A., Ji, A. P., Reggiani, H., Ferguson, P., Andales, H. D., Brauer, K., Li, T. S., Simon, J. D. (2024). Signatures of Extragalactic First Stars in the Large Magellanic Cloud. *Nature Astronomy*, 8, 637647.
- Ji, A. P., Naidu, R., Brauer, K., Ting, Y., & Simon, J. (2022). Chemical Abundances of the Typhon Stellar Stream. Monthly Notices of the Royal Astronomical Society, 519, 4467-4478.
- 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.
- 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.

Non-Refereed

- 2. 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-processenhanced halo stars: Evidence for origins in now-destroyed ultra-faint dwarf galaxies. *Proceedings* of the International Astronomical Union, 14(S353), 71-74.

PRESENTATIONS

INVITED	
Astronomy Seminar Talk at Yale University	New Haven, CT, USA; May 2025
Astronomy Seminar Talk at Columbia University	New York, NY, USA; Mar 2025
Fundamental Physics Seminar Talk at Brown University	Providence, RI, USA; Mar 2025
Astronomy Seminar Talk at Lund University	Lund, Sweden; Mar 2025
Astronomy Seminar Talk at American Museum of Natural History	New York, NY, USA; Oct 2024

Nuclear Astrophysics Seminar Talk at IReNAEast Lansing, MI (remote), USA; Sep 2024Colloquium Summer Talk at Harvard-Smithsonian CfACambridge, MA, USA; July 2023Talk at US Department of Energy CSGF Program ReviewWashington, DC, USA; July 2022High Performance Computing Talks at IHPCSSAthens, Greece; June 2022Colloquium Talk at University of MelbourneMelbourne, Australia (remote); Oct 2021Seminar Talk at Computational Research in Boston and BeyondBoston, USA (remote); Oct 2021Pasadena, CA, USA (remote); Oct 2020

CONTRIBUTED

Talk at Galactic Frontiers II at Dartmouth Hanover, CT, USA; Jun 2025 Talk at First Galaxies Meeting at Oxford Oxford, UK; Apr 2025 Talk at NSF Postdoctoral Fellows Symposium 2025 Washington DC, USA; Jan 2025 Talk at IAU Symposium 395 on Stellar Populations Paraty, Brazil; Nov 2024 Talk at Astrophysical Origins of Carbon Tokyo, Japan; Sep 2024 Talk at First Stars VII at CCA NYC, NY, USA; May 2024 Talk at Galaxies from Scratch 2024 Vienna, Austria; Feb 2024 Talk at 243rd Meeting of the American Astronomical Society New Orleans, LA, USA; Jan 2024 Talk at NSF Postdoctoral Fellows Symposium 2024 New Orleans, LA, USA; Jan 2024 Talk at Flatiron CCA Galactic Frontiers NYC, NY, USA; July 2023 Talk at IAU Symposium 377 on Early Disk Galaxy Formation Kuala Lumpur, Malaysia; Feb 2023 Talk at 241st Meeting of the American Astronomical Society Seattle, WA, USA; Jan 2023 Talk at JINA-CEE Frontiers in Nuclear Astrophysics Meeting South Bend, IN, USA; May 2022 Talk at 2021 GALAH Science Meeting Svdnev, Australia (remote); June 2021 Talk at Linking the Galactic and Extragalactic Wollongong, Australia (remote); Dec 2020 Talk at 235th Meeting of the American Astronomical Society Honolulu, HI, USA; Jan 2020 Talk at IAU Symposium 353 on Galactic Dynamics Shanghai, China; July 2019 Poster at JINA-CEE Frontiers in Nuclear Astrophysics Meeting East Lansing, MI, USA; May 2019 Talk at JINA-CEE Frontiers in Nuclear Astrophysics Meeting South Bend, IN, USA; May 2018 Poster at 229th Meeting of the American Astronomical Society Grapevine, TX, USA; Jan 2017 Poster at 47th Meeting of the Division of Planetary Science Washington, DC, USA; Nov 2015 Talk at SETI Institute's Summer Colloquium Series Mountain View, CA, USA; Aug 2015

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)

TEACHING

8.03 Vibrations and Waves Teaching Assistant Physics Department, Massachusetts Institute of Technology	Spring 2023
8.S30 Stellar Archaeology Teaching Assistant Physics Department, Massachusetts Institute of Technology	Fall 2022
Cosmology Course Designer and Instructor Spark, MIT Educational Studies Program	Spring 2021
Catalyst Computer Science Instructor Citizen Schools and Mass STEM Hub	Spring 2019
PHYS0220/0270 Astronomy Teaching Assistant Physics Department, Brown University	Fall 2014 - Spring 2015
PHYS0030 Introductory Physics Workshop Assistant <i>Physics Department, Brown University</i>	Fall 2014

LEADERSHIP & SERVICE

Leader & Mentor to Postdoc Applicants Astronomy Mentorship Program for Upcoming Postdocs (AMP-UP)	2023 - present
Pi Day Outreach Organizer Harvard University	2024 - present
Graduate Women in Physics Leader Massachusetts Institute of Technology	2019 - 2023
High Performance Computing Mentor *only graduate student to ever serve as a mentor International High Performance Computing Summer School, Athens, Greece	June 2022
Reviewer for JOSS Journal of Open Source Software	2022 - present
President, MIT Salsa Club Massachusetts Institute of Technology	2018 - 2022
Physics Representative, Diversity and Inclusion Committee <i>MIT Graduate Student Council</i>	2018 - 2022
Treasurer, Students for the Exploration and Development of Space Massachusetts Institute of Technology	2017 - 2021
Adopt-a-Physicist Volunteer Sigma Pi Sigma	2018 - 2020
Designer & Observer, MIT Sidewalk Astrogazers MIT Kavli Institute for Astrophysics and Space Research	2017 - 2019
Head of Design Team, The Triple Helix Magazine Brown University	2014 - 2017
Women in Physics Co-coordinator Brown University	2016 - 2017
Physics Show Presenter Physics & Astronomy Department, Texas A&M University	Summer 2014