

KALEY BRAUER

Harvard University, Harvard-Smithsonian Center for Astrophysics
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EDUCATION

Ph.D. in Physics	2023
Massachusetts Institute of Technology Astrophysics Division; GPA: 5.0/5.0	
B.Sc. in Physics	2017
Brown University University honors, departmental honors, GPA: 4.0/4.0	

ACADEMIC POSITIONS

NSF Prize Postdoctoral Fellow	2023 - present
Harvard-Smithsonian Center for Astrophysics	
US Department of Energy Graduate Fellow; Graduate Researcher	2017 - 2023
Massachusetts Institute of Technology	
Visiting Research Fellow	Fall 2021
Lawrence Berkeley National Laboratory	

HONORS & AWARDS

NSF Astronomy & Astrophysics Postdoctoral Fellowship (\$330,000)	2023 - present
Department of Energy Computational Science Graduate Fellowship (~ \$450,000)	2018 - 2022
Spot Awards, MIT, <i>in recognition of community service to School of Science</i>	2020 and 2022
NSF Graduate Research Fellowship (~ \$150,000), <i>offer declined</i>	2018
Whiteman Fellowship (~ \$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

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.

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.

Talk at Astrophysical Origins of Carbon Tokyo, Japan; Sep 2024
 “Simulating Detailed Chemical Abundances of Key Elements in Early Dwarf Galaxies”

Talk at First Stars VII NYC, NY, USA; May 2024
 “Simulating Chemical Enrichment from the First Stars and Galaxies”

Talk at Galaxies from Scratch 2024 Vienna, Austria; Feb 2024
 “Early Chemical Enrichment and Formation of the Smallest Dwarf Galaxies”

Talk at 243rd Meeting of the American Astronomical Society New Orleans, LA, USA; Jan 2024
 “Early Chemical Enrichment and Formation of the Smallest Dwarf Galaxies”

Talk at NSF Postdoctoral Fellows Symposium 2024 New Orleans, LA, USA; Jan 2024
 “Simulating Chemical Enrichment and the First Galaxies”

Talk at Flatiron CCA Galactic Frontiers NYC, NY, USA; July 2023
 “Understanding Accreted Ultra-Faint Dwarf Galaxies”

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)
Graphic Design	Adobe Creative Cloud, illustration and layout design

STUDENTS ADVISED

Christine Gyure (Harvard REU student)
Hillary Diane Andales (MIT undergraduate)
Joseph Merkel (MIT undergraduate)

Summer 2024 - present
Summer 2020 - Spring 2023
Summer 2020

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

PHYS0220/0270 Astronomy Teaching Assistant
Physics Department, Brown University

Fall 2014 - Spring 2015

PHYS0030 Introductory Physics Workshop Assistant
Physics Department, Brown University

Fall 2014

LEADERSHIP & SERVICE

Leader & Mentor to Postdoc Applicants
Astronomy Mentorship Program for Upcoming Postdocs (AMP-UP)

2023 - 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
MIT Graduate Student Council

2018 - 2022

Cosmology Volunteer Course Designer and Instructor
Spark, MIT Educational Studies Program

Spring 2021

Treasurer, Students for the Exploration and Development of Space
Massachusetts Institute of Technology

2017 - 2021

Adopt-a-Physicist Volunteer
Sigma Pi Sigma

2018 - 2020

Catalyst Volunteer Computer Science Instructor
Citizen Schools and Mass STEM Hub

Spring 2019

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

2016 - 2017

Brown University

Physics Show Presenter

Summer 2014

Physics & Astronomy Department, Texas A&M University