

# KALEY V. BRAUER

Massachusetts Institute of Technology  
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## EDUCATION

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**Massachusetts Institute of Technology** 2017 - present  
Ph.D. Student in Physics  
Advisor: Anna Frebel; GPA: 5.0/5.0

**Brown University** 2013 - 2017  
B.Sc. in Physics (Astrophysics)  
University honors, departmental honors, GPA: 4.0/4.0

## RESEARCH POSITIONS

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**Massachusetts Institute of Technology**, Graduate Researcher 2017 - present  
Modeling Stellar Halo Evolution During Galaxy Formation, *Advisor: Anna Frebel*

**Brown University**, Undergraduate Researcher 2016 - 2017  
Machine Learning and Visualization in Atomic Simulations, *Advisor: Andrew Peterson*

**Harvard-Smithsonian Center for Astrophysics**, REU Intern 2016 - 2017  
Phase-resolved Spectroscopy of X-ray Binary Systems, *Advisor: Saeqa Vrtilek*

**SETI Institute and NASA Ames**, REU Intern 2015 - 2016  
Shape and Spin State Model of Near-Earth Asteroid 2000 RS11, *Advisor: Michael W. Busch*

**Brown University**, Undergraduate Researcher 2015  
Optimizing CMS Trigger for Detecting Z' Bosons, *Advisor: Meenakshi Narain*

## HONORS & AWARDS

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Department of Energy Computational Science Graduate Fellowship 2018 - present  
National Science Foundation Graduate Research Fellowship, *declined* 2018  
Whiteman Fellowship, 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 Induction 2017  
Karen T. Romer Undergraduate Teaching and Research Award, Brown University 2015  
National Advanced Placement Scholarship 2013  
National Merit Scholarship 2013

## PUBLICATIONS

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**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.

## PRESENTATIONS

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- 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”
- Talk** at SETI Institute’s Summer Colloquium Series Mountain View, CA, USA; Aug 2015  
“2000 RS11: An Unusual Near-Earth Asteroid”

## SKILLS

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- Programming Design** Python, MATLAB, C/C++, Java, HTML/CSS, Scala, Javascript, Julia  
Adobe Creative Cloud, extensive experience with illustration and layout design  
- 3.5 years as head designer for Brown’s The Triple Helix magazine  
- won 3rd in Texas for SkillsUSA Advertising Design

## TEACHING

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- PHYS0220/0270 Astronomy Teaching Assistant** Fall 2014 - Spring 2015  
*Physics Department, Brown University*
- PHYS0030 Introductory Physics Workshop Assistant** Fall 2014  
*Physics Department, Brown University*
- Physics Road Show Presenter** Summer 2014  
*Physics & Astronomy Department, Texas A&M University*

## LEADERSHIP & OUTREACH

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- Treasurer, Students for the Exploration and Development of Space** 2017 - present  
*Massachusetts Institute of Technology*
- President, MIT Salsa Club** 2018 - present  
*Massachusetts Institute of Technology*
- Physics Representative, Diversity and Inclusion Committee** 2018 - present  
*MIT Graduate Student Council*
- Designer & Observer, MIT Sidewalk Astrogazers** 2017 - present  
*MIT Kavli Institute for Astrophysics and Space Research*
- Head of Design Team, The Triple Helix Magazine** 2014 - 2017  
*Brown University*
- Women in Physics Co-coordinator** 2016 - 2017  
*Brown University*

**Writer & Animator, SciToons**  
*Brown University*

2014 - 2015