

KALEY BRAUER

EDUCATION

BROWN UNIVERSITY, CLASS OF 2017

Expected Bachelor of Science (B.Sc.), Physics – Astrophysics
GPA: 4.0

RESEARCH PROJECTS

CREATING INTERACTIVE ATOMISTIC ENVIRONMENT, BROWN UNIVERSITY

October 2016 – present

Senior thesis. Creating a browser-based interactive environment for investigating atomistic-level phenomena that uses machine learning techniques to quickly calculate forces.

MAPPING STRUCTURE OF X-RAY BINARIES, HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS

June 2016 – August 2016

Analyzed spectra of X-ray binaries systems (Cyg X-3 and V801 Ara) and constructed Doppler tomograms to image the structure of the systems.

MODELING NEAR-EARTH ASTEROID, SETI INSTITUTE & NASA AMES

*June 2015 – August 2015,
August 2016 – present*

Studied radar data for asteroid 2000 RS11 and produced a detailed model of its shape, spin state, and trajectory. Currently finalizing model and computing gravitational slopes and potentials.

EMULATING THE CMS TRIGGER, BROWN UNIVERSITY

September 2015 – December 2015

Emulated the LHC's CMS trigger to determine the thresholds of detecting graviton or Z' signatures.

- Supported by the Karen T. Romer Undergraduate Teaching and Research Award.

PUBLICATIONS

Brauer, K., Vrtilek, S. D., et al. 2017. "Doppler Tomograms of X-ray Binary System V801 Ara from Optical Spectroscopy". *ApJ*, *In press*.

Brauer, K., Busch, M. W., et al. 2017. "The Shape of Near-Earth Asteroid (275677) 2000 RS11 from Inversion of Arecibo and Goldstone Radar Images". *In prep*.

CONFERENCE PRESENTATIONS

229TH MEETING OF THE AMERICAN ASTRONOMICAL SOCIETY

6 January 2017, The Structures of X-ray Binary Systems V801 Ara and Cyg X-3

47TH MEETING OF THE DIVISION OF PLANETARY SCIENCE

10 November 2015, The Shape of Near-Earth Asteroid 275677 (2000 RS11)

EXTRA -CURRICULARS

HEAD OF DESIGN, THE TRIPLE HELIX MAGAZINE

April 2014 – present

Elected head of the Design Team for Brown's chapter of The Triple Helix, an undergraduate magazine that publishes research-based perspectives on scientific issues facing society today.

CO-COORDINATOR, PHYSICS WISE

September 2016 – present

Organizing events to promote community, diversity, and inclusion in Brown's Physics Department.

ASTRONOMY TEACHING ASSISTANT, BROWN UNIVERSITY

September 2014 – May 2015

Assisted in leading labs and explaining concepts to students.

TECHNICAL SKILLS

Matlab, Python, Java, Scala, Javascript, Adobe Creative Cloud