# Katherine Elder – Curriculum Vitae

**Email** kat.elder@asu.edu

## Education

**2020-Present** Astrophysics PhD Program – Arizona State University
Research Advisor: Dr. Daniel Jacobs

**2015-2019** Bachelor of Sciences in Physics – Fresno State
Graduated Magna Cum Laude

## Awards, Honors, and Scholarships

**2021** National Science Foundation – Honorable Mention for the Graduate Research Fellowship Program

**2019-2020** Fresno State Department of Physics – Louise and Dick Avakian Scholarship

**Jan 2019** American Astronomical Society – Honorable Mention in the Chambliss Astronomy Achievement Student Award

**2018-2019** Fresno State Department of Physics – Louise and Dick Avakian Scholarship

**2018-2019** Fresno State Department of Physics – Physics Millennium Scholarship

**2017-2018** Fresno State Department of Physics – Physics Millennium Scholarship

**2016-2017** Fresno State Department of Physics – Cheunjit Katkanant Memorial Scholarship

**Nov 2016** National Science Foundation – PhysCon Diversity Travel Award

**2015-2016** Fresno State Department of Physics – Improving the Image of Science in Our Society Scholarship

## Presentations

### Talks

(Those with an * were presentations at outreach events for K-12 Students)

**Aug. 28, 2021** *CHAMP Summer Research, Moderator*
Virtual, 9th Annual CAMPARE, CHAMP, and Cal-Bridge Research Symposium

**Feb. 2, 2019** *Cal-Bridge and CAMPARE Programs Advertisement and Student Panel*
CSU East Bay, SPS Zone 18 Meeting, 2019

**Sep. 8, 2018** *Constant Offset in Cross-Polarized HERA Data*
Cal Poly Pomona, 6th Annual CAMPARE, CHAMP, and Cal-Bridge Research Symposium

**Mar. 3, 2018** *Graduate and Undergraduate Student Panel**
Fresno State, Sonia Kovalevsky Mathematics Day, 2018

### Posters

**Jan. 5, 2020** *Modeling Stress in Silicon Membranes*
Hawai'i Convention Center, 235th Meeting of the American Astronomical Society Poster Session

**Aug. 1, 2019** *Modeling Stress in Silicon Membranes*
NASA Goddard Space Flight Center, Summer Intern Poster Session

**Feb. 2, 2019** *Identifying and Modeling Constant Additive Offset in HERA Visibility Data*
CSU East Bay, SPS Zone 18 Meeting, 2019

**Jan. 9, 2019** *Identifying and Modeling Constant Additive Offset in HERA Visibility Data*
Washington State Convention Center, 233rd Meeting of the American Astronomical Society Poster Session

**Nov. 8, 2018** *Identifying and Modeling Constant Additive Offset in HERA Visibility Data*
Arizona State University, HERA Annual Meeting

**Nov. 4, 2016** *Astronomy Outreach Through the Downing Planetarium*
Hyatt Regency San Francisco, The Physics Congress (PhysCon) Poster Session

## Employment History

**Summer 2021-Present** Arizona State University, SESE
*Research Assistant*
Research Assistant to Dr. Daniel Jacobs working on the HERA, MWA, and LWA radio telescopes. Includes collecting observation data and calculating power spectra and delay spectra to identify faint systematics in the data.

**Spring 2021** Arizona State University, SESE
*Head Teaching Associate*
Teaching Introductory Astronomy Laboratory. Included teaching my own sections of the course, writing my own lesson plans, and collaborating with other instructors on conceptual understanding of the material. As Head TA, I also modified or created material for use in the other lab sections and provided advice and assistance to the other TA's.

**Fall 2020** Arizona State University, SESE
*Teaching Associate*
Teaching Introductory Astronomy Laboratory. Included teaching my own sections of the course, writing my own lesson plans, and collaborating with other instructors on conceptual understanding of the material.

**Spring 2019-Fall 2019** Fresno State Learning Center
*Tutor in Physics*

I tutored Physics for lower division undergraduate students. This included preparing activities for students and refreshing on all foundation Physics courses. (6 hours of work each week.)

**Summer 2019** NASA Goddard Space Flight Center
*Astrophysics Research Intern*
I worked with COMSOL to model stress within bolometric sensors used in astrophysical observations. Worked on problem solving, data analysis, computer programming, and collaboration with NASA research scientists.

**Fall 2017-Fall 2018** Fresno State Learning Center
*Supplemental Instructor – Physics 4B*

I led Supplemental Instruction sessions for Physics 4B – Thermodynamics and E/M. This included preparing additional material for the class and working with the professor to make sure I presented the correct ideas. (13 hours of work each week.)

**Summer 2018** CAMPARE / CHAMP REU
*Research Assistant*

I worked with the Hydrogen Epoch of Reionization Array (HERA) radio astronomy group at Arizona State University analyzing data using Python and looking into sources of signal leakage within the data. I wrote and updated programming scripts used by the collaboration.

**Summer 2017** Fresno State Educational Opportunities Program

*Tutor in Math Remediation*

I tutored Math Remediation for incoming Freshmen to help them pass the Math Placement Exam. I worked with them for 3 hours each day, for five days each week.

**Spring 2017** Fresno State Learning Center
*Supplemental Instructor – Math 76*

I led Supplemental Instruction sessions for Math 76 – Calculus II. This included preparing additional material for the class and working with the professor to make sure I presented the correct ideas. (13 hours of work each week.)

**2015-2017** Downing Planetarium at Fresno State
*Student Assistant*

I worked with the head of the Planetarium, Dr. White, on the customer service aspects of running the Planetarium. This included leading crafts about astronomy and explaining the science exhibits to visiting school groups. (2 -20 hours of work each week, depending on the season.)

## Publications

**Aug. 16, 2018** *HERA Project Memorandum 58, Constant Offset in Cross-Polarized HERA IDR2.1 Data*, HERA Collaboration. http://reionization.org/manual_uploads/HERA_Constant_Offset_Memo_Elder.pdf