

# Sarah Parker

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## Summary of Qualifications

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Passionate and driven individual, awarded a Masters of Science in Physics, with excellent experience and skills in a broad range of astronomy topics, data analysis, and research.

## Education

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**Physics, Master of Science**  
University of Missouri

Degree Awarded: May 2020  
Columbia, Missouri

**Physics, Bachelor of Science**  
University of Wisconsin-Stevens Point (UWSP)  
Minor: Mathematics

Degree Awarded: May 2018  
Stevens Point, Wisconsin

## Research Experience

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- Cataloging Galaxies in the Deepest Regions of Hubble Observation, Advisor: Dr. Yicheng Guo, August 2018-May 2020
- Morphology of Lenticular Galaxies in Isolated vs. Group Environments, Advisor: Dr. Adriana Durbala, September 2017-May 2018
- Observing Run at Kitt Peak National Observatory, Advisor: Dr. Adriana Durbala April 2016, October 2016, and October 2017
- Solar Eclipse Research on Bailey's Beads, Advisor: Prof. Arthur Stevenson, August 2017
- Research Experience for Undergraduates at Texas A&M University, Advisor: Dr. Peter Brown, May-August 2017
- Observing Run at McDonald Observatory, Advisor: Dr. Jennifer Marshall July 2017
- Morphology of Elliptical Galaxies in Isolated vs. Group Environments, Advisor: Dr. Adriana Durbala, January 2016-May 2017
- ALFALFA Workshop at Green Bank Observatory, Advisor: Dr. Adriana Durbala, June 2016

## Publications and Presentations

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- "An Exposition on Globular Clusters: Theory and Observation"
  - <http://aspbooks.org/custom/publications/paper/533-0070.html>, November 2021
- "Space Telescopes: Then and Now"
  - NASA Subject Matter Expert Presentation, November 2021
- "Sizes of Galaxies"
  - University of Missouri Astrophysics/Relativity Seminar, April 2019

- “Lenticular Galaxies in Different Environments – Isolated versus Group Environment”
  - University of Wisconsin-Stevens Point Poster Presentation, May 2018
- “Researching Light Curves of Type Ia Supernovae: Texas A&M REU 2017”
  - University of Wisconsin-Stevens Point Department of Physics and Astronomy Colloquium, October 2017
- “Elliptical Galaxies in Different Environments – Isolated versus Group Environment”
  - Wisconsin Space Grant Consortium Conference Poster Session, August 2017
- “Comparison of Light Curves for Type Ia Supernovae in the Optical and Ultraviolet”
  - Texas A&M REU Poster Presentation, August 2017
- “Elliptical Galaxies in Different Environments – Isolated versus Group Environment”
  - University of Wisconsin-Stevens Point Poster Presentation, May 2017
- “To Infinity and Back: Construction and Flight of an Experimental High Altitude Rocket”
  - University of Wisconsin-Stevens Point Poster Presentation, May 2017

## Awards

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- Wisconsin Space Grant Consortium (WSGC) Special Initiatives Program, December 2021
- Packers Foundation Education Grant, November 2021
- Waukesha Education Foundation Grant, Gravity Maze Interactive Floor Displays, June 2021
- UWSP Department of Physics & Astronomy Monica E. Bainter Scholarship, May 2017
- Wisconsin Space Grant Consortium (WSGC) Undergraduate Research Fellowship, March 2016, March 2017
- Wisconsin Space Grant Consortium (WSGC) Undergraduate Scholarship, March 2016, March 2017
- UWSP Department of Physics & Astronomy First-Year Scholarship, September 2014

## Computer Skills

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- experience using Linux, Mac, and Windows operating systems
- experience with astronomical software such as IRAF, ds9, TOPCAT, SExtractor, and Fortran (BUDDA) code
- Experience coding in Python and SQL
- Familiarity with Mathematica and programming Arduinos

## Work Experience

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- Planetarium Educator, Horwitz-DeRemer Planetarium, January 2021-Present
  - Manages large groups of individuals of all ages.
  - Communicate knowledge of astronomy in a fun and engaging manner.
  - Develop planetarium shows in Digistar 6.
  - Write and receive grants.
- Theater Presenter and Developer, Adler Planetarium January 2022-January 2023

- Code visuals for the dome using Digistar 6.
  - Present current astronomical topics and news to the public.
- Teaching Assistant, University of Missouri, January 2020-May 2020
  - Plan and teach labs for algebra-based electrodynamics students both in person and online.
  - Advise students for 100-level astronomy during their moon phases project.
  - Grade students' homework, labs, and exams.
  - Communicate difficult concepts in a fun and effective way.
- Research Assistant, University of Missouri, September 2018-May 2020
  - Analyze data from Hubble eXtreme Deep Field (HXDF) image.
  - Program in Python and use astronomical software.
  - Create catalog of the galaxies within HXDF.
- Planetarium Lecturer, Allen F. Blocher Planetarium, UWSP January 2015-May 2018
  - Provide educational shows to school groups, clubs, and the general public.
  - Operate multiple slide projectors, star ball, control panel, and computer running a Spitzer system.
- Telescope Operator, Arthur J. Pejsa Observatory, UWSP January 2015-May 2018
  - Operate a 0.4 meter Meade computer-controlled telescope.
  - Manage large groups of people and provide relevant information on objects viewed through the telescope.
- Astronomy Tutor, UWSP Tutoring-Learning Center, October, 2015-May 2017
  - Help students improve study skills and test taking strategies.
  - Have a thorough knowledge of Astronomy 100 course content.
  - Develop activities and work with course instructor to promote learning.

## Public Outreach Experience

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- Volunteer, Geneva Lake Astrophysics and STEAM, June 2021-Present
  - Remotely operate the 20" telescope at Stone Edge Observatory.
  - Advises Nigerian students in their research.
  - Make 3D models in Blender, and print prototypes.
  - Assist in public outreach events for school groups and the general public.
  - Builds and works with sensors to measure light pollution.
- Astronomy Public Outreach Assistant, University of Missouri, September 2018-August 2020
  - Guide guests through the observatory while providing intriguing and relevant information.
  - Operate 0.4m telescope without guiding technology.
- Physics and Astronomy Graduate Student Association (PAGSA) Social Events Coordinator, University of Missouri, January 2019-December 2019
  - Organize and plan events for PAGSA.
  - Plan and keep track of expenditures.

- Society of Physics Students (SPS) President, University of Wisconsin-Stevens Point, September 2017-May 2018
  - Organize public outreach and club activities .
  - Lead club meetings .
  - Communicate scholarship opportunities to SPS members.
- Star Party Host, Texas A&M University, May-August 2017
  - Operate various Meade telescopes.
  - Provide relevant information on the objects viewed through the telescope.
- Society of Physics Students Treasurer, University of Wisconsin-Stevens Point, January 2015-May 2017
  - Manage club funds.
  - Help with organizing public outreach and club activities.
- Team Lead, WSGC Collegiate Rocket Launch, University of Wisconsin-Stevens Point, October 2016-May 2017
  - Founded University of Wisconsin-Stevens Point's first Collegiate Rocket Team.
  - Design and fabricate a high-powered rocket from scratch which generated energy during flight, as well as using Python to predict altitude and power output.
  - Program Arduino Uno units to record in-flight data.
  - Manage and delegate responsibilities to the team, write reports, and give presentations.