

Teja Teppala

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EDUCATION

University of Missouri, Columbia

- Ph.D. - Astronomy 2019 - 2025 (Expected)
- Graduate Certificate - Public Engagement July 2023
- Master of Science - Physics July 2022

University of Hyderabad, Hyderabad, India

- Integrated Master of Science - Physics October 2018
Thesis: *First principles study of the electronic structure of Copper chalcopyrites $CuMTe_2$*
($M = Al, Ga, In$)

RESEARCH EXPERIENCE

Graduate Student, University of Missouri, Columbia

2019 - present

Department of Physics and Astronomy

Advisor: Prof. Yicheng Guo

Topic: *Bursty star formation in low-mass galaxies.*

- Visually classified optical Keck-DEIMOS spectra from the HALO7D survey.
- Modeling star formation histories to understand starbursts in low-mass galaxies to test the dark matter halo-galaxy connection.

This work resulted in 2 co-authored publications in prestigious astrophysics journals ApJ, and ApJS and was partially funded through NASA's Astrophysics Data Analysis Program (ADAP).

Project Assistant, University of Hyderabad, Hyderabad

2017 - 2019

School of Physics

Principal Investigator: Dr. Seema Pooranchand

Topic: *Investigation of SPITZER mid-infrared spectra on a sample of Ultra Large/ Large Infrared Galaxies to understand the role of Polycyclic Aromatic Hydrocarbons (PAHs).*

- Reduced SPITZER mid-infrared spectra of an Ultra Large/ Large Infrared Galaxies sample.
- Studied strengths of Polycyclic Aromatic Hydrocarbons (PAH) emission lines using PAHFIT.

This work was funded through the Women Scientists Scheme (WOS) of the Department of Science and Technology, Government of India.

RESEARCH GRANTS/ OBSERVING PROPOSALS

Contributions to submitted observing proposals

Securing Spectroscopic Redshifts in a Galaxy-Galaxy Lensing System in CEERS.

Principal Investigator: Prof. Yicheng Guo

James Webb Space Telescope Cycle 3 GO Proposal

Submitted October 2023

Role: Designed the target field and set up for the observations. Worked on technical justification, and created the APT file for submitting the observing proposal.

PUBLICATIONS

Published in peer-reviewed journals

1. Pharo, J., Guo, Y.,..., Teppala, T., et. al., **Dwarf Galaxies Show Little ISM Evolution from $z \sim 1$ to $z \sim 0$: A Spectroscopic Study of Metallicity, Star Formation, and Electron Density**, 2023, ApJ, 959, 48
2. Pharo, J., Guo, Y.,..., Teppala, T., et. al., **The Dwarf Galaxy Population at $z \sim 0.7$: A Catalog of Emission Lines and Redshifts from Deep Keck Observations**, 2022, ApJS, 261, 12.

CONFERENCES ATTENDED

Annual Meeting of the American Association for the Advancement of Science February 2024
Denver CO

Mid-American Regional Astrophysics Conference (MARAC) - 2022 October 2022
University of Arkansas, Fayetteville AR

240th meeting of the American Astronomical Society June 2022
Pasadena CA

DAWN Winter School - 2022 February 2022
Organized virtually by the Cosmic DAWN Center, Copenhagen, Denmark.

Mid-American Regional Astrophysics Conference (MARAC) - 2021 April 2021
Organized virtually by the University of Kansas.

PRESENTATIONS

Oral presentations

1. Hydrodynamical simulations of the galaxy populations, *Astronomy seminar*, October 2023.
2. Investigating star formation in low-mass galaxies, *Astronomy seminar*, October 2022.
3. Investigating star formation in low-mass galaxies, *Mid-American Regional Astrophysics Conference (MARAC)*, October 2022.

Poster presentations

1. Investigating star formation burstiness in low-mass galaxies using Helium recombination lines, *240th meeting of the American Astronomical Society, Pasadena CA*, June 2022.

HONORS & AWARDS

O. M. Stewart Scholarship Summer 2023
University of Missouri

James L. and Dora D. Ferguson Fund for Excellence in Physics Fall 2019
University of Missouri

TEACHING EXPERIENCE

Graduate Teaching Assistant, University of Missouri, Columbia

- **Instructor:** ASTRON 1020 - Introduction to Laboratory Astronomy Spring & Fall 2023, Spring 2024
Responsibilities: Developed and delivered 15 two-hour lecture and laboratory sessions to a group of 20 undergraduate students each semester.
- **Discussion TA:** PHYSCS 1220 - College Physics II Fall 2023, Spring 2024
Responsibilities: Led discussion sessions for 70 undergraduate students each semester; explained physics concepts and their applications, and solved problems while engaging the students.
- **Grader:** ASTRON 1010 - Introduction to Astronomy Fall 2019, Spring 2023
PHYSCS 3150 - Introduction to Modern Physics Fall 2019
Responsibilities: Graded lab reports of 200 undergraduate students for ASTRON 1010 each semester. Graded homework for PHYSCS 3150.

SERVICE & OUTREACH

AVID Mentor

February 2024 - present

The Bridge - College of Education & Human Development, University of Missouri, Columbia

- Mentoring sophomore students at Battle High School to prepare them for college and future careers.

Organizer

January 2024 - present

Great American Eclipse Viewing Party, University of Missouri, Columbia

- Planning and organizing a viewing party on campus for the Great American Eclipse on April 8, 2024.
- Collaborating with MU Extension, with support from the Astronomical Society of the Pacific.
- Designing posters and other publicity materials; promoting the event on social media and print media.
- Delivering presentations and performing demonstrations on the science behind eclipses to 4-H clubs and community groups in Boone County, MO, and prisoners at Moberly Correctional Center; distributing eclipse glasses and informational material.
- Providing logistical and technical support to MU Extension programs along the path of totality.

Organizer

August - October 2023

Partial Eclipse Viewing Party, University of Missouri, Columbia

- Planned and organized a viewing party at the Lowry Mall on campus for the partial solar eclipse on October 14, 2023. Set up telescopes and provided eclipse glasses and informational material to attendees.
- Collaborated with MU Extension, and the Division of Inclusion, Diversity, and Equity, University of Missouri; supported by the Astronomical Society of the Pacific.
- Designed and published posters and other publicity materials; operated logistics.
- Number of attendees: ~ 250. External links to media coverage: Columbia Missourian, KOMU

Instructor

Summer & Fall 2023

STEM Cubs, University of Missouri, Columbia

- Developed lesson plans for STEM Cubs, a free STEM education program hosted by the Office of Academic Access and Leadership Development, College of Education & Human Development, and College of Engineering at the University of Missouri.
- Instructed astronomy lessons to 2nd and 3rd graders through kinesthetic activities.

– *Earth's Tilt and Seasons*

October 28, 2023

– *Motion of the Earth: Rotation vs Revolution*

June 17, 2023

Assistant Director of Programming

August 2023 - present

Graduate Professional Council, University of Missouri, Columbia

- Co-leading the Programming Committee of the Graduate Professional Council.
- Assisting GPC events and the Research & Creative Activities Forum (RCAF).

Co-Director - Publicity Team

June 2023 - present

Missouri International Student Council, University of Missouri, Columbia

- Co-leading the Publicity Team of the Missouri International Student Council.
- Responsible for the organization's image on campus: social media, graphic design, photography, and videography.

Student Volunteer

June 2021 - present

Laws Observatory, University of Missouri, Columbia

- Operating and maintaining the telescopes; performing demonstrations to the general public.
- Maintaining the observatory and keeping records.
- Designed the new logo for the observatory.

- Outreach Coordinator** January 2021 - present
Physics & Astronomy Graduate Student Association, University of Missouri, Columbia
- Giving presentations at public and private schools in and around Columbia, MO.
 - Title: *How Astronomy Shaped The Modern Civilization & How To Find Direction Using The Stars*
 - * West Middle School April 5, 2023
 - * Jefferson Middle School January 28 and May 17, 2022; October 8 and December 13, 2021
 - Title: *How Do Telescopes Work? & How Do They Unlock The Secrets Of The Universe?*
 - * The Children's School at Stephen's College December 7, 2023
 - Coordinating and organizing public outreach events for the Department of Physics and Astronomy.
 - Columbia Young Scientists Expo March 11, 2023; March 9, 2024
 - Department Open House April 23, 2022; April 22, 2023
 - Department outreach at Rock Bridge High School November 13, 2021

- Vice President** January - December 2023
Cultural Association of India, University of Missouri, Columbia
- Performed the duties of the President in their absence; assisted other members of the Executive Board in carrying out their specific tasks.

- External Affairs Officer** January - December 2022
Cultural Association of India, University of Missouri, Columbia
- Communicated with the newly admitted students from India, and built a bridge between them and the local Indian community.
 - Coordinated with the pickup, provided temporary housing and addressed the concerns of the newly admitted students.

- Judge** February 26, 2022
Columbia Young Scientist Fair, Columbia Co-op of Home School Educators (CHE)
- Judged the demonstrations and experiments by home-schooled children from grades K-12.
 - Scored the projects based on creative ability, scientific thought, thoroughness, skill, and clarity.

SKILLS

- **Programming Languages:** Python, C, C++, FORTRAN, Bash
- **Astronomy software packages:** TOPCAT, DS9, IRAF
- **Operating systems:** Microsoft Windows, Linux - Ubuntu
- **Typesetting software and application suites:** L^AT_EX, Microsoft Office
- **Multimedia software:** Inkscape, Darktable, DaVinci Resolve

LANGUAGES

- **Telugu** (Native)
- **English** (Fluent)
- **Hindi** (Intermediate)
- **German** (Beginner)
- **American Sign Language** (Beginner)

PAST WORKSHOPS/SCHOOLS ATTENDED

- 36th Annual Meeting of the Astronomical Society of India** February 2018
Osmania University, Hyderabad, India.
- IIST Astronomy and Astrophysics School – 2015** December 2015
Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram, India.
- Pulsar Observatory for Students (POS) – 2015** October 2015
Radio Astronomy Centre, Ooty, India.
- Radio Astronomy Winter School (RAWS) - 2014** October 2014
Inter-University Centre for Astronomy and Astrophysics (IUCAA) and National Centre for Radio Astronomy (NCRA), Pune, India.
- QIP School on Optics of Gravitational Wave Detectors** September 2014
Indian Institute of Technology, Kanpur, India.
- 1st Introductory Workshop in Computational Numerical Methods** September – October 2013
Homi Bhabha Centre for Science Education (NIUS-HBCSE), Tata Institute of Fundamental Research (TIFR), Mumbai, India.

PAST RESEARCH EXPERIENCE

- Summer Research Fellow, Physical Research Laboratory, Ahmedabad** May - July 2016
Astronomy & Astrophysics Division
Research Supervisor: Prof. Shashikiran Ganesh
Topic: *Photometric variability of Narrow Line Seyfert 1 galaxy 1H0323+342 and blazar 3C273.*

- Carried out observations using the 1.2-meter telescope at the Mount Abu Observatory.
- Reduced CCD data and performed photometry with IRAF.
- Measured the variability of the active galaxies and determined the black-hole masses.

This work was funded through the Science Academies' Summer Research Fellowship Program, Department of Science and Technology, Government of India.

- Research Intern, Radio Astronomy Center, Ooty** December 2016
Pulsar Observatory for Students

- Carried out live observation of pulsar B1946+35 using the Ooty Radio Telescope (ORT).
- Analyzed the observed data to obtain characteristic properties of the pulsar.

This work was funded by the National Centre for Radio Astrophysics, Department of Atomic Energy, Government of India.

PAST SERVICE & OUTREACH

- Coordinator** July 2016 - April 2018
Astronomy Club, University of Hyderabad, Hyderabad

- Coordinated and organized talks on astronomy and astrophysics.
- Conducted several night sky observation sessions.
- Demonstrated some basic radio astronomy experiments.

- Coordinator** July 2013 - April 2017
Junior Science Club, University of Hyderabad, Hyderabad

- Coordinated and organized talks on interdisciplinary sciences and research.
- Organized public outreach programs for school students.
- Designed and demonstrated science experiments using day-to-day objects.