

# Teja Teppala

Department of Physics and Astronomy  
University of Missouri, Columbia  
Room 228, Physics Building,  
701 S College Ave, Columbia, MO 65201  
Phone: (573) 882-3335  
ttgbk@mail.missouri.edu

1428 Bodie Dr  
Columbia, MO 65202  
Phone: (573) 825-4874  
teja.teppala@gmail.com  
tejateppala.github.io

## 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 at Redshift of 1.*

Principal Investigator: Prof. Yicheng Guo

Gemini Observatory 2024A Fast Turnaround Proposal

Submitted February 2024; Accepted March 2024.

Role: *Designed the target field and set up for the observations. Reduced the data.*

## ***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**

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### *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**

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<b>Annual Meeting of the American Association for the Advancement of Science</b> Denver CO	February 2024
<b>Mid-American Regional Astrophysics Conference (MARAC) - 2022</b> University of Arkansas, Fayetteville AR	October 2022
<b>240<sup>th</sup> meeting of the American Astronomical Society</b> Pasadena CA	June 2022
<b>DAWN Winter School - 2022</b> Organized virtually by the Cosmic DAWN Center, Copenhagen, Denmark.	February 2022
<b>Mid-American Regional Astrophysics Conference (MARAC) - 2021</b> Organized virtually by the University of Kansas.	April 2021

## **PRESENTATIONS**

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### *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, *240<sup>th</sup> meeting of the American Astronomical Society, Pasadena CA*, June 2022.

## **HONORS & AWARDS**

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<b>Mary Elizabeth Gutermuth Award for Community Engagement</b> Graduate School, University of Missouri	Spring 2024
<b>Sandra K. Abell Science Education Award</b> Graduate School, University of Missouri	Spring 2024
<b>O. M. Stewart Scholarship</b> Department of Physics and Astronomy, University of Missouri	Summer 2023
<b>James L. and Dora D. Ferguson Fund for Excellence in Physics</b> Department of Physics and Astronomy, University of Missouri	Fall 2019

## TEACHING EXPERIENCE

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### 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

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### Vice President

April 2024 - present

Graduate Professional Council, University of Missouri, Columbia

- Chairing all assembly meetings; preparing agendas for Executive Officer, Executive Board, and Assembly meetings.
- Overseeing internal operations of GPC and its officers; assisting the President in day-to-day operations.

### 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 - April 2024

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:  $\sim 250$ . External links to media coverage: Columbia Missourian, KOMU

<b>Instructor</b>	Summer & Fall 2023
STEM Cubs, University of Missouri, Columbia	
<ul style="list-style-type: none"> <li>Developed lesson plans for STEM Cubs, a free STEM education program hosted by the Office of Academic Access and Leadership Development, College of Education &amp; Human Development, and College of Engineering at the University of Missouri.</li> <li>Instructed astronomy lessons to 2<sup>nd</sup> and 3<sup>rd</sup> graders through kinesthetic activities. <ul style="list-style-type: none"> <li><i>Earth's Tilt and Seasons</i> October 28, 2023</li> <li><i>Motion of the Earth: Rotation vs Revolution</i> June 17, 2023</li> </ul> </li> </ul>	
<b>Assistant Director of Programming</b>	August 2023 - April 2024
Graduate Professional Council, University of Missouri, Columbia	
<ul style="list-style-type: none"> <li>Co-leading the Programming Committee of the Graduate Professional Council.</li> <li>Assisting GPC events and the Research &amp; Creative Activities Forum (RCAF).</li> </ul>	
<b>Co-Director - Publicity Team</b>	June 2023 - April 2024
Missouri International Student Council, University of Missouri, Columbia	
<ul style="list-style-type: none"> <li>Co-leading the Publicity Team of the Missouri International Student Council.</li> <li>Responsible for the organization's image on campus: social media, graphic design, photography, and videography.</li> </ul>	
<b>Student Volunteer</b>	June 2021 - present
Laws Observatory, University of Missouri, Columbia	
<ul style="list-style-type: none"> <li>Operating and maintaining the telescopes; performing demonstrations to the general public.</li> <li>Maintaining the observatory and keeping records.</li> <li>Designed the new logo for the observatory.</li> </ul>	
<b>Outreach Coordinator</b>	January 2021 - present
Physics & Astronomy Graduate Student Association, University of Missouri, Columbia	
<ul style="list-style-type: none"> <li>Giving presentations in and around Columbia, MO. <ul style="list-style-type: none"> <li>Title: <i>The Reason Behind Seasons</i> <ul style="list-style-type: none"> <li>DeafLEAD Monthly Meeting April 17, 2024</li> <li>South Boone Area YMCA April 17, 2024</li> </ul> </li> <li>Title: <i>How Astronomy Shaped The Modern Civilization &amp; How To Find Direction Using The Stars</i> <ul style="list-style-type: none"> <li>South Boone Area YMCA April 10, 2024</li> <li>West Middle School April 5, 2023</li> <li>Jefferson Middle School January 28 and May 17, 2022; October 8 and December 13, 2021</li> </ul> </li> <li>Title: <i>Why Don't We See Solar Eclipses Often?</i> <ul style="list-style-type: none"> <li>South Boone Area YMCA April 03, 2024</li> <li>Saturday Morning Science, Ragtag Cinema March 30, 2024</li> <li>Moberly Correctional Center March 14, 2024</li> <li>BoCo Adventurers 4-H Club March 12, 2024</li> <li>Centralia 4-H Club March 10, 2024</li> <li>Back To Basics 4-H Club February 13, 2024</li> <li>Hickman High School February 5, 2024</li> </ul> </li> <li>Title: <i>How a Leap Year Works</i> <ul style="list-style-type: none"> <li>Science on Tap at the International Tap House February 29, 2024</li> </ul> </li> </ul> </li> </ul>	

- 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; April 20, 2024.

– 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.

## PROFESSIONAL MEMBERSHIPS

### Member, Rollins Society

April 2024 - present

Honors society of graduate and professional students at the University of Missouri.

### Member, American Association for the Advancement of Science

January 2024 - present

### Member, National Science Policy Network

January 2024 - present

### Member, Sigma Pi Sigma

April 2022 - present

University of Missouri chapter of the Physics & Astronomy honor society.

### Member, American Astronomical Society

September 2021 - present

## 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<sup>A</sup>T<sub>E</sub>X, Microsoft Office
- **Multimedia software:** Inkscape, Darktable, DaVinci Resolve

## LANGUAGES

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

## PAST WORKSHOPS/SCHOOLS ATTENDED

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- 36<sup>th</sup> 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.
- 1<sup>st</sup> 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

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- 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

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- 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.