

# DIVYA MISHRA

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## EDUCATION

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<b>Texas A&amp;M University,</b> 3rd year Graduate Student, Department of Physics and Astronomy Concentration : Astrostatistics Advisor : Prof. Lifan Wang, Dr. Peter Brown	College Station, TX, USA 2022 – Present
<b>Madan Mohan Malaviya University of Technology,</b> Bachelor of Technology in Electronics and Communication Engineering Advisor : Dr. Dharmendra Kumar Thesis : <i>Photonic Crystal Fibre based refractive index sensor for early detection of blood cancer.</i>	Gorakhpur, UP, India 2017 - 2021

## RESEARCH INTERESTS

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Stars : Type Ia supernovae (SNe Ia), SNe Ia progenitor systems, Core-collapse supernovae (CCSNe);  
ISM : dust polarization; Galaxy : Magnetic fields, Star-formation.

## PROFESSIONAL SKILLS

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**Programming :** Python, R, C++, C, MySQL, Bash, Git, Wolfram Mathematica,  $\text{\LaTeX}$   
**Scientific Packages :** Astropy, SNCosmo, SNooPy, yt, Pynbody, SFFT, PyRAF, photutils, imageio  
**Softwares :** DS9, COMSOL, IRAF, ATMEL-AVR, Arduino – IDE, PartSim simulator, Adobe Photoshop, Adobe Illustrator, Microsoft Word, Microsoft Excel, Microsoft PowerPoint  
**Operating Systems :** Linux, MacOS, Windows

## RESEARCH EXPERIENCE

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Graduate:

- **Texas A&M University**, College Station, Texas 2024 - present  
Advisor: Dr. Peter Brown and Prof. Lifan Wang  
Project: Photometric and spectroscopic analysis of high velocity Type Ia supernova SN2022hrs
- **Texas A&M University**, College Station, Texas 2022 - present  
Advisor: Prof. Lifan Wang  
Project: Studying optical polarization in M83 galaxy

Undergraduate:

- **European Southern Observatory**, Garching, Germany Jul. 2021 - Nov. 2021  
Advisor: Dr. Ferdinando Patat  
Project: Optical imaging polarimetry of nearby galaxy.
- **Stockholm University**, Stockholm, Sweden Jun. 2020 - Oct. 2020  
Advisor: Prof. Ariel Goobar  
Project: Validating Type Ia and core-collapse supernovae photometric models for the SNCosmo package.
- **Astroparticle & Cosmology Laboratory**, Paris, France May 2020 - Oct. 2020  
Advisor: Dr. Gabriel Chardin  
Project: Studying Dirac-Milne cosmological model

- **Aryabhatta Research Institute of Observational Sciences, India**     June 2019 - July 2019  
Advisor: Dr. Shashi Bhushan Pandey  
Project: Photometric analysis of different types of supernovae.

## PUBLICATIONS

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1. Oelkers, R., et al., including **Mishra, D.**, 2025, *Ground-based Reconnaissance Observations of 21 Exoplanet Atmospheres with the Exoplanet Transmission Spectroscopy Imager*, The Astronomical Journal, Volume 169, Issue 3
2. Hoefflich, P., et al., including **Mishra, D.**, 2023, *The Core Normal Type Ia Supernova 2019np - An Overall Spherical Explosion with an Aspherical Surface Layer and an Aspherical  $^{56}\text{Ni}$  Core*, MNRAS, Volume 520, Issue 1
3. Yang, Yi, et al., including **Mishra, D.**, 2022, *Spectropolarimetry of the Thermonuclear Supernova SN 2021rhu: High Calcium Polarization 79 Days after Peak Luminosity*, The Astrophysical Journal, Volume 939, Issue 1
4. Yang, Y., et al., including **Mishra, D.**, 2024, *Polarized Light of the Core-Collapse Supernova 2024ggi Indicates a Bipolar Shock Breakout*, submitted
5. **Mishra, D.**, et al., *VLT Imaging Polarimetry: 1. Studying Magnetic Fields In Nearby Galaxies*, in prep.
6. **Mishra, D.**, et al., *High Resolution Spectroscopic and Photometric Analysis of SN2022hrs*, in prep.
7. Palamase, A., et al., including **Mishra, Divya**, *DESIRT: DECam Survey of Intermediate Redshift Transients*, in prep.

## TELESCOPE PROPOSALS

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1. **Very Large Telescope**, European Southern Observatory     P115  
Co-I : *First identification of the explosion mechanism of a Type Ia supernova from spectropolarimetry of a nearby event*  
FORS2, 11.3 hours
2. **Very Large Telescope**, European Southern Observatory     P109  
Co-I : *Imaging Polarimetry of Thermonuclear Supernovae as a Probe of their Circumstellar Matter*  
FORS2, 11.1 hours
3. **Víctor M. Blanco 4-meter Telescope**, Cerro Tololo Inter-American Observatory     2023A, 2023B  
Co-I : *DESIRT: DECam Survey for Intermediate-redshift Transients*  
DECam, 12 nights

## OBSERVING EXPERIENCE

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1. *DECam : Blanco 4-meter Telescope*     2022A, 2022B, 2023A, 2023B  
8 nights
2. *ETSI : McDonald Observatory*,     2022A  
7 nights

## TALKS & POSTERS

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- All about the High-velocity Type Ia Supernova 2022hrs     Transients from Space, STScI, 2025
- Optical Polarization in the M83 Galaxy: Understanding Dust and Magnetism     CraigFest, UT Austin, 2024
- Optical Polarization in Nearby Galaxies     Astrosymposium : Texas A&M University, 2023
- Stargazing to Progress: Unveiling the Societal Impact of Astronomy     Astronomy on Tap, 2024

## WORKSHOPS

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- iid2022: Statistical Methods for Event Data University of Alabama, Nov. 15-18, 2022
- LSSTC Data Science Fellowship Program Texas A&M University, Feb. 27-Mar 3, 2023
- ZTF Summer School 2023 University of Minnesota, July. 24-28, 2023

## AWARDS & HONORS

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- Dr. Chia Lai Wang Memorial Scholarship Summer 2023

## TEACHING EXPERIENCE

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- Teaching Assistant - ASTR 101: Basic Astronomy Fall 2022, Spring 2023, Spring 2024
- Teaching Assistant - ASTR 103: Intro To Stars & Exoplanets Fall 2022
- Teaching Assistant - ASTR 104: Intro To Galaxies & Cosmology Spring 2023, Spring 2024
- Teaching Assistant - ASTR 314: Survey Of Astronomy Fall 2022, Spring 2023, Fall 2023
- Teaching Assistant - ASTR 401: Stars & Extrasolar Planets Fall 2022

## OUTREACH & MENTORING

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- Organized Solar Eclipse Observing Event at Texas A&M University October, 2023
- Graduate Student Mentor for Mentoring and Advising Graduates 2023 - present  
in an Inclusive Community (MAGIC)
- Organized Solar Observing Event at Texas A&M Physics and Engineering Festival April, 2023

## EXTRACURRICULAR ACTIVITIES

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- Treasurer, Graduate Student Assembly, 2022 - 2024  
Dept. of Physics & Astronomy, Texas A&M University
- Officer, The Society for the Under-represented in Physics & Astronomy, 2024 - Present  
Dept. of Physics & Astronomy, Texas A&M University
- Member of Women in Science and Engineering (WISE) 2024 - present  
Texas A&M University
- Vice President, Robotics Club, 2020-2021  
Madan Mohan Malaviya University of Technology
- Designing Lead, Robotics Club, 2019-2020  
Madan Mohan Malaviya University of Technology
- Member of National Service Scheme 2017 - 2021  
Madan Mohan Malaviya University of Technology
- Member of Robin Hood Army 2018-2020  
Madan Mohan Malaviya University of Technology
- Member of University Basketball Team 2018-2019  
Madan Mohan Malaviya University of Technology
- Member of University Badminton Team 2019-2020  
Madan Mohan Malaviya University of Technology