

# MANSI PADAVE

University of California San Diego



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<https://mansipadave.github.io/>

## EDUCATION

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- 2018 - 2024    **Ph.D. in Astrophysics**  
Arizona State University, Arizona, USA  
Dissertation Title: [Multiwavelength Insights into Star Formation and Stellar Disk Growth in Nearby Galaxies](#)
- 2015 - 2017    **M.Sc. in Astronomy & Astrophysics**  
Pondicherry University, India
- 2012 - 2015    **B.Sc. in Physics (Hons.)**  
St. Xavier's College, Mumbai, India

## RESEARCH EXPERIENCE

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- 2024-Present    **Postdoctoral Fellow at UCSD**  
Advisor: Dr. Karin Sandstrom
- 2018-2024    **Research Assistantship at ASU**  
Advisor: Dr. Sanchayeeta Borthakur
- Sep 2023    **Visiting student at Johns Hopkins University**  
Advisor: Dr. David Thilker

## AWARDS & HONORS

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- 2024    **Arijit Guha Advocacy Award**  
Received recognition for involvement, service, research, and leadership in advancing a cause through advocacy efforts
- 2023    **ASU FWA Distinguished Graduate Student Award**  
Received recognition for exceptional research, creative activities, and noteworthy performance in leadership and service. [Read here](#)
- 2023    **GPSA Student Service Award**  
Received recognition for exemplary service at Arizona State University
- 2020    **Chambliss Astronomy Achievement Student Award**  
Received recognition for exemplary research presented at AAS 234 poster session. [Read here](#)
- 2017    **Gold Medalist in M.Sc. (Astronomy & Astrophysics) at Pondicherry University**  
Received for holding 1st rank in the Astronomy & Astrophysics Department
- 2015    **Bronze Medalist in B.Sc. (Physics) at St. Xavier's College**  
Received for holding 3rd rank in the Physics Department

## FELLOWSHIPS & GRANTS

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- 2024    **ASU Focus on Finishing your Degree Award**  
Total Award: \$10,000
- 2023    **Graduate and Professional Student Association Travel Grant**  
Total Award: \$950
- 2022    **Vivian Forde Graduate Fellowship** [Read here](#)  
Total Award: \$10,000
- 2022    **Graduate and Professional Student Association Travel Grant**  
Total Award: \$950
- 2022    **Graduate and Professional Student Association Travel Grant**  
Total Award: \$900

2021	<b>Graduate and Professional Student Association Travel Grant</b> ( <i>Declined</i> ) Total Award: \$850
2021	<b>Soffen Fund Travel Grant</b> <a href="#">Read here</a> Total Award: \$200
2019	<b>SESE Summer Exploration Graduate Fellowship</b> <a href="#">Read here</a> Total Award: \$8,000
2017	<b>Spring Merit Scholarship at Pondicherry University</b> Total Award: ₹20,000
2016	<b>Fall Merit Scholarship at Pondicherry University</b> Total Award: ₹20,000
2016	<b>Spring Merit Scholarship at Pondicherry University</b> Total Award: ₹20,000

## COLLABORATIONS

2018-Present	<b>Deciphering the Interplay between Stars, Interstellar Medium, and Circumgalactic Medium (DIISC) Survey</b> PI: Dr. Sanchayeeta Borthakur
2024-Present	<b>JWST Whirlpool Treasury Program</b> PI: Dr. Karin Sandstrom, Dr. Danny Dale
2024-Present	<b>Physics at High Angular resolution in Nearby Galaxies Survey (PHANGS)</b>

## PUBLICATIONS

[\[ADS link to all publications\]](#)  [\[0000-0002-3472-0490\]](#)

\* *Forthcoming publications*

### Lead Author

1. **\*DIISC-V: Variations in H $\alpha$ -to-FUV Star Formation Rate Ratios Across Star-forming Regions in Nearby Galaxies**  
**Padave, M.**, Borthakur, S., Jansen, R. A., Thilker, D. A., Gim, H. B., Monckiewicz, J., Heckman, T. M., et al., *submitted to ApJ – in review* [\[arXiv:2407.16690\]](#)
1. **DIISC-III: Signatures of Stellar Disk Growth in Nearby Galaxies**  
**Padave, M.**, Borthakur, S., Gim, H. B., Jansen, R. A., Thilker, D. A., Monckiewicz, J., Kennicutt, R. C., Kauffmann, G., Fox, A. J., Momjian, E., Heckman, T. M., 2023, ApJ, 960, 24 [\[ADS\]](#)
2. **DIISC-II: Unveiling the Connections between Star Formation and ISM in the Extended Ultraviolet Disk of NGC 3344**  
**Padave, M.**, Borthakur, S., Gim, H. B., Jansen, R. A., Thilker, D., Heckman, T. M.; Kennicutt, R. C., Jr., Momjian, E., Fox, A. J., 2021, ApJ, 923, 199 [\[ADS\]](#)

### Contributing Author

1. **DIISC - VI (COS-DIISC): UV Metal Absorption Relative to the HI disk of Galaxies**  
Kopitz, B., Borthakur, S., Heckman, T. M., **Padave, M.**, McCabe, T., Tumlinson, J., Fox, A. J., Kauffmann, G., 2025, ApJ, 982, 171 [\[ADS\]](#)
2. **\*DIISC Survey: Deciphering the Interplay Between the Interstellar Medium, Stars, and the Circumgalactic Medium Survey**  
Borthakur, S., **Padave, M.**, Gim, H. B., DIISC Collaboration, 2024. – *submitted to ApJ – in review* [\[arXiv:2409.12554\]](#)
3. **DIISC-IV: DIISCcovery of Anomalously Low Metallicity H II Regions in NGC 99: Indirect Evidence of Gas Inflows**

Olvera A.J., Borthakur S., **Padave M.**, Heckman T.M., Gim H. B., Koplitz B., Dupuis C., Momjian E., Jansen R. A., 2024, ApJ, 926, 205 [\[ADS\]](#)

4. **DIISC-I: The Discovery of Kinematically Anomalous HI Clouds in M 100**

Gim, H. B., Borthakur, S., Momjian, E., **Padave, M.**; Jansen, R. A., Nelson, D.; Heckman, T. M.; Kennicutt, R. C., Jr., Fox, A. J., Pineda, J. L., Thilker, D., Kauffmann, G., Tumlinson, J. 2021, ApJ, 922, 69 [\[ADS\]](#)

5. **Discovery of a Low-Redshift Damped Ly $\alpha$  System in a Foreground Extended Disk Using a Starburst Galaxy Background Illuminator**

Dupuis, C. M., Borthakur, S., **Padave, M.**, Jansen, R. A., Alexandroff, R. M., Heckman, T. M. 2021, ApJ, 903, 103 [\[ADS\]](#)

### In Preparation

1. **\*DIISC-VII: Unveiling the Stellar Populations and Star Formation History in the Extended Ultra-violet Disk of NGC 3344**

**Padave, M.**, Borthakur, S., Jansen, R. A., Thilker, D., et al., *expected submission in Fall 2025*

## SELECTED TALKS, SEMINARS, & POSTERS

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### INVITED TALKS

- May 2025     **Summer Conference on High Energy Physics & Astrophysics**, Virtual  
Plenary: *Star Formation in the Outskirts of Galaxies*
- Dec 2024     **Nehru Planetarium Public Lecture**, Mumbai, IN  
Public Talk: *Walking Down a Galaxy's Ecosystem*
- Oct 2024     **UCSD Astrophysics Colloquium**, San Diego, CA  
Invited Talk: *Star Formation in the Outskirts of Nearby Galaxies*
- Aug 2024     **NCSU ASTro Talk**, online  
Invited Talk: *Probing Disk build-up and Galaxy Growth with the DIISC survey*
- Aug 2024     **PHANGS-HST Journal Club**, Online  
Invited Talk: *H $\alpha$ -to-FUV SFR Ratios Across Star-forming Regions in Nearby Galaxies*

### CONTRIBUTED TALKS & POSTERS

- Nov 2024     **PAH Workshop**, Charlottesville, VA  
Contributed Talk: *On Tracing Molecular & Atomic Gas with Mid-IR Emissions in M51*
- Dec 2023     **Resolving Galaxy Ecosystems Across All Scales**, Hongkong, PRC  
Contributed Talk: *Probing Disk build-up and Galaxy Growth with the DIISC survey*
- Sep 2023     **Informal Science Hour at STScI**, Baltimore, MD  
Discussion: *Inside Out Galaxy Growth*
- Jul 2023     **New Views on Feedback & the Baryon Cycle in Galaxies Meeting**, Healesville, Australia  
Contributed Talk: *Probing Disk build-up and Galaxy Growth with the DIISC survey*
- Feb 2023     **Oases in the Cosmic Desert: Understanding the Structure of the CGM**, Tempe, AZ  
Contributed Talk: *Connecting the CGM to Stellar Disk Growth in Nearby Galaxies*
- Jan 2023     **241<sup>st</sup> Meeting of the American Astronomical Society**, Seattle, WA  
Contributed Talk: *Signs of Disk Growth in Nearby Galaxies* [\[ADS link\]](#)
- Aug 2022     **School of Earth & Space Exploration Internal Symposium**, ASU, Tempe, AZ  
Contributed Talk: *Signs of Disk Growth in Nearby Galaxies*
- Jun 2022     **From Stars to Galaxies II**, Gothenburg, Sweden

- Poster: *Star formation in the Outer Disk and Clues to Disk Growth*
- Apr 2022 **NOIR Lab Friday Lunch Seminar**, Virtual  
Contributed Talk: *The XUV Disk of NGC 3344 - Connecting Star Formation, ISM, and CGM*
- Feb 2022 **Extragalactic Research Group Meeting of Osservatorio Astrofisico di Arcetri, INAF**, virtual  
External Guest Speaker: *The XUV Disk of NGC 3344 - Connecting Star Formation, ISM, and CGM*
- Oct 2021 **Star Formation: From Clouds to Discs Meeting, Ireland**  
Virtual Poster: *Connecting Star formation in the outer regions of galaxies to the ISM* [[Zenodo](#)]
- Aug 2021 **School of Earth & Space Exploration Internal Symposium, ASU, Tempe, AZ**  
Contributed Talk: *The Story of NGC 3344 - Connecting Star Formation, ISM, and CGM*
- Nov 2019 **Steward Observatory Internal Symposium, Tucson, AZ**  
Contributed Talk: *Unveiling the Connections between Star Formation and ISM Kinematics in the Extended Disk of NGC 3344*
- Jun 2019 **234<sup>th</sup> Meeting of the American Astronomical Society, St. Louis, MO**  
Poster: *Tracing Young Stars in the Outer Disks of HI-rich Galaxy* [[ADS link](#)]

## OBSERVING EXPERIENCE & SUCCESSFUL PROGRAMS

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### Observing Experience

1. Certified observer at the Vatican Advanced Technology Telescope, Mt. Graham, AZ.  
Total 36 nights of observing from 2019-2022
2. Certified observer at the 90' BOK Telescope, Kitt Peak National Observatory, Tucson, AZ  
Total 7 nights of observing from 2022-2023
3. Virtual observing run with 12m telescope, Kitt Peak National Observatory, Tucson, AZ  
Total 51 hours of observing
4. Virtual observing run with Keck telescope, W. M. Keck Observatory, Waimea, HI  
Total 2 nights of observing between 2024-25
5. Virtual observing run with MMT, Mt. Hopkins, AZ  
Total 6.5 nights of observing from 2019-2020

### Successful Observing Proposals

1. **PI, 12m Telescope (AZ)** – Oct 2023  
*Connecting Molecular Gas to the Circumgalactic Medium in Nearby Galaxies*  
Time Awarded: 51 hours to obtain CO(1-0) observations
2. **PI, Large Binocular Telescope** – 2023, 2022, 2021 (Spring & Fall)  
*Tracing Stellar Populations in the Outer Disks of Nearby Galaxies*  
Time Awarded: Total 3 nights of Band-B time
3. **Co-I, Vatican Advanced Technology Telescope, AZ** – 2023, 2022  
*A Delayed Hunt for Supernovae in Nearby HI-rich Galaxies*  
Time Awarded: 4 nights (2022), 7 nights (2023)
4. **PI, 90' BOK Telescope, AZ** – 2024, 2023  
*Tracing the Radial Gradient in the [NII]/H $\alpha$  Ratios in Nearby Galaxies*, 2022  
Time Awarded: 4 (+3 upcoming) nights with B&C Spectrograph
5. **Co-I, MMT** – 2023, 2022, 2021  
*Linking HII Region Metallicity Distributions and Other Properties to Gas Flows in L $_{\ast}$  Galaxies*  
Time Awarded: 4 nights with BinoSpec
6. **PI, Vatican Advanced Technology Telescope, AZ** – 2022, 2021  
*Understanding Star Formation in the Extended Ultraviolet Disk Galaxies*  
Time Awarded: 8 nights with VATT4K Imager

7. **PI, Vatican Advanced Technology Telescope, AZ** – 2021, 2020, 2019  
*Tracing Star Formation in the Outer Disks of Nearby Galaxies*  
Time Awarded: 19 nights with VATT4K Imager
8. **Co-I, Karl G. Jansky Very Large Array (VLA)** – 2020  
*xVLA-Disk survey: Tracing gas flows in and around the HI-disk of  $L_*$  galaxies*  
Time Awarded: 330 hours
9. **Co-I, Karl G. Jansky Very Large Array (VLA)** – 2019  
*Unveiling the Triggers and Impact of Star Formation in Extended Disks*  
Time Awarded: 48 hours

## MENTORING EXPERIENCE

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Fall 2022–2024	<b>Research Mentor to NASA Space Grant Undergraduate Students</b> Project: <i>Understanding Stellar Populations in the Outer Disks of Galaxies.</i> Students: Naomi Carl, Eyan Weissbluth, Anandi Hudson (Fall 2022)
Spring 2023–2024	<b>Research Mentor to ASUOnline Undergraduate Student</b> Project: <i>Investigating Galaxy Rotation Curves using <math>H\alpha</math> Emission Line</i> Student: Sara Holeman
Fall 2019–Fall 2020	<b>Research Mentor to Undergraduate Student</b> Project: <i>Panchromatic Power Spectrum in Nearby Galaxies</i> Student: Lee Chiffelle
2020–2024	<b>Peer Mentor to 1st-year Astrophysics Graduate Students</b> <i>Leading the orchestration of the Peer Mentoring Program since 2021.</i>

## LEADERSHIP

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2024–Present	Organizer of UCSD ArXiv Hour
2023–2024	Astro Representative on SESE Equity in Qualifying Exams Leadership Team
2022–2024	Grad Representative for Inclusive Community Committee at SESE, ASU
2021–22	President for SESE Graduate Council, ASU
2021–22	Ambassador for Women in Science Program (WiSP)
2020–21	President for SESE Graduate Council, ASU
2019–20	Secretary for SESE Graduate Council, ASU
2018–19	International Student Advocate for SESE Graduate Council, ASU
2013–2014	Organizer for college festival, Malhar at St. Xavier's College

## SERVICE

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2024–Present	Member of the A&A JEDI Affinity Group, UCSD
2023–2024	Astrophysics Representative on SESE Equity in Qualifying Exam Leadership Team, ASU
Aug 2023	Member of REU Hiring Committee for STARSLab, ASU
2023	Received the GPSA Student Service Award
Feb 2023	Member of the LOC at Oases in the Cosmic Desert Meeting, ASU
Jan 2023	Chambliss Judge at the 241 <sup>st</sup> Meeting of the American Astronomical Society
2021–2024	Organizer of the SESE Peer Mentoring Program, ASU
2021–22	Graduate Member on SESE Colloquium Committee, ASU
2021–22	Grant Reviewer for SESE Emergency Fund
2014–15	Social work volunteer at NGO – Teach for India
2012–13	Social work volunteer at NGO – AKANKSHA

## OUTREACH

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Apr 2024	<b>Astronomy Division Proctor</b> for AZ Science Olympiad State Tournament
Apr 2023	<b>Astronomy Division Proctor</b> for AZ Science Olympiad State Tournament
Feb 2023	<b>Judge</b> for AZ Junior Science & Humanities Symposium
Apr 2022	<b>Astronomy Division Proctor</b> for AZ Science Olympiad State Tournament
May 2019	<b>Grand Awards Judge</b> for Intel International Science and Engineering Fair
Mar 2019	<b>Astronomy Division Event Supervisor</b> for AZ Science Olympiad State Tournament
Jan 2015	<b>Volunteer</b> at Paradigm Science Festival, St. Xavier's College, Mumbai
July 2013	<b>Exhibitor</b> at Physics Department Exhibition
2012-13	<b>Editor</b> for College Physics Magazine, Celeritas

## IN PRESS

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Dec 2024	ASU News	<i>Cosmic clues: Metal-poor regions unveil potential method for galaxy growth</i> <a href="#">Read here</a>
Feb 2021	ASU News	<i>New technique used to discover how galaxies grow</i> <a href="#">Read here</a>
May 2020	ASU News	<i>American Astronomical Society awards ASU students Chambliss medals</i> <a href="#">Read here</a>

## TEACHING ASSISTANTSHIP

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Spring 2024	AST 112: Introduction to Stars, Galaxies, & Cosmology
Fall 2023	AST 322 ASUOnline: Introduction to Galactic & Extragalactic Astrophysics
Fall 2022	AST 521: Stars & ISM I : Radiative Transfer in Astrophysics ( <i>Grader</i> )
Fall 2021	AST 422: Astrophysics II ( <i>Grader</i> )
Spring 2021	AST 114: Astronomy Lab
Spring 2020	AST 112: Introduction to Stars, Galaxies, & Cosmology

## WORKSHOPS ATTENDED

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2024	ALMA Cycle 11 Workshop
2022	Understanding mid- and far-IR data organized by SOFIA School
2021	Summer School in Astrostatistics organized by Penn State University
2017	ASTROSAT-CZT Instrumentation at Tata Institute of Fundamental Research, Mumbai
2013	Telescope Making at Nehru Planetarium, Mumbai
2013	Instrumentation in Analytical Chemistry at Dr. P.S. Ramanathan Advanced Instrumentation School