

Mahan Mirza Khanlari

Curriculum Vitae

CONTACT INFORMATION

University of Texas at Austin
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EDUCATION

University of Texas at Austin
PhD. in Astronomy

Anticipated 2030
Advisor: Karl Gebhardt

University of Texas at Austin
BS in Astronomy & BS in Physics

May 2024
Dean's Honored Graduate (Research Distinction)

FIELD INTERESTS

Circumgalactic Medium & Intergalactic Medium, The Cosmic Web, Evolution of high redshift galaxies, Lyman Alpha Forest, Machine learning with big data

RESEARCH EXPERIENCE

University of Texas at Austin, Department of Astronomy
Undergraduate & Graduate Research Assistant, HETDEX
Advisor: Karl Gebhardt

May 2023 -Present

- Probing neutral Hydrogen in the CGM of Ly α Emitters in HETDEX
- Removing False Detection Emission Lines in HETDEX through Dimensionality Reduction and Visualization

SCHOLARSHIPS

- Summer Undergraduate Research Funding (SURF), **University of Texas at Austin**, Department of Astronomy
- John Kelley Texas Amateur Astronomers' Scholarship. **University of Texas at Austin**, Department of Astronomy
- Joe Orr Fellowship, **University of Texas at Austin**, Department of Astronomy
- Lambert Graduate Fellowship, **University of Texas at Austin**, Department of Astronomy

PUBLICATIONS

- "The HETDEX Survey: Probing Neutral Hydrogen in the Circumgalactic Medium of $\sim 88,000$ Lyman Alpha Emitters", Mahan Mirza Khanlari et al., ApJ, accepted, 2025. DOI: 10.3847/1538-4357/adf10e. Preprint: arXiv:2507.15942.
- "Using Ly α Absorption to Measure the Intensity and Variability of $z \sim 2.4$ Ultraviolet Background Light", Laurel H. Weiss et al., 2025, ApJ 983, 72. DOI: 10.3847/1538-4357/adc0f9.
- "Absorption Troughs of Ly α Emitters in HETDEX", Laurel H. Weiss et al., 2024, ApJ 962, 102. DOI: 10.3847/1538-4357/ad1b51.

SCIENCE TALKS

- Applications of Machine Learning in HETDEX, **UT Board of Visitors (BoV) meeting**, McDonald Observatory, Fort Davis, TX - Feb 2024 (Invited)
- Exploring HI Density Around & Between Lyman Alpha Emitter, **HETDEX Large Scale Structure Group**, Oct 2023

- Probing neutral hydrogen in the Circumgalactic medium of Lyman Alpha Emitters in HETDEX - **HETDEX Annual Meeting**, Penn State University, May 2024

OBSERVING TIME

2.7 m (107") Harlan J. Smith Telescope – McDonald Observatory

9 Nights

PUBLIC OUTREACH

Astronomy Student Association, University of Texas at Austin, Department of Astronomy

Public Outreach Event, Enchanted Rock, TX, Oct 2022

- Provided telescopes for attendees, enabling direct observations of celestial objects including planets and nebulae.
- Offered detailed explanations and insights on the observed celestial objects, enriching the attendees' understanding and appreciation.

WORK EXPERIENCE

University of Texas at Austin, Department of Astronomy

McDonald Observatory Student Assistant, May 2022 – Aug 2022

Supervisor: Anna V. Boxall

- Assisted in administrative tasks, including preparing and dispatching monthly mail correspondence to the observatory donors.
- Updated member profiles, recorded donations, and managed communications, sending both weekly and monthly emails.

University of Texas at Austin, Gregory Gymnasium

Facility Assistant, May 2022 – Aug 2022 | May 2023 – Aug 2023

Supervisor: Ian P. Overman

- Maintained gym facilities and ensured safety and cleanliness.
- Assisted gym members with queries and equipment.

SKILLS

- Python
- Machine Learning: t-SNE, Umap, PCA, TensorFlow
- Experience with Linux computing & JupyterLab environment
- Parallel computing: Slurm job scheduling
- Photoshop, Lightroom
- Astrophotography & Macro photography

LANGUAGES

- English: Fluent
- Persian: Native