

Dr. Farhanul Hasan

POSTDOCTORAL FELLOW · SPACE TELESCOPE SCIENCE INSTITUTE

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Education

Reed College

Portland, OR

B.A.: PHYSICS; DEGREE RECEIVED: MAY 2018; THESIS ADVISORS: ALISON CROCKER & JOHNNY POWELL.

Aug. 2014 - May 2018

THESIS TITLE: "INTO THE VOID: MASS FUNCTION OF SUPERMASSIVE BLACK HOLES IN THE LOCAL UNIVERSE"

New Mexico State University

Las Cruces, NM

M.SC.: ASTRONOMY; DEGREE RECEIVED: AUG. 2022; ADVISORS: JOSEPH BURCHETT & CHRIS CHURCHILL

Aug. 2018 - Aug. 2022

New Mexico State University

Las Cruces, NM

PH.D.: ASTRONOMY; DEGREE RECEIVED: AUG 2024; ADVISOR: JOSEPH BURCHETT.

Aug. 2018 - Aug. 2024

THESIS TITLE: "ON THE EVOLUTION OF GALAXIES IN COSMIC ECOSYSTEMS"

Experience

Space Telescope Science Institute

Baltimore, MD

POSTDOCTORAL RESEARCH FELLOW

Sept 2024 - Present

- Processing and analyzing grism spectroscopy and imaging data from James Webb and Hubble Space Telescopes
- Studying the evolution of intermediate- and high-redshift galaxies, including metallicities and spatially-resolved properties
- Mapping the cosmic web, studying its gas properties and interplay with galaxy evolution, and making predictions for future galaxy surveys

New Mexico State University

Las Cruces, NM

GRADUATE RESEARCH ASSISTANT

Aug 2018 - Aug 2024

- Analyzing observed quasar spectra and cosmological simulations
- Developing new tools for large-scale structure identification from simulated and observational data
- Observing with ground-based telescopes at Apache Point and Keck Observatories

SCIENCE DEVELOPMENT LEAD, *CosmoVis*

May 2021 - Present

- Developing and improving *CosmoVis*, an open-source astrophysical 3D data visualization tool for exploring and analyzing hydrodynamical cosmological simulations of the universe, including identifying and implementing scientific uses and elucidating observations

GRADUATE TEACHING ASSISTANT

Aug. 2018 - Dec. 2022

- Including ASTR 1115G/110G: Introduction to Astronomy, ASTR 305V: Life in the Universe, and ASTR 105G: The planets

Reed College

Portland, OR

UNDERGRADUATE RESEARCH ASSISTANT

May 2017 - Aug 2018

- Analyzing large SDSS photometric and spectroscopic catalogs and photometric images of nearby spiral galaxy NGC 4736

University of California, Irvine

Irvine, CA

UNDERGRADUATE RESEARCH ASSISTANT

June 2016 - Aug. 2017

- Analyzing spectroscopic data of redshift ~ 1 galaxies to obtain their spectral energy distributions from UV to IR and physical properties

Refereed Publications

Malkan, M.,..., **Hasan, F.**, et al., "**Parallel Application of Slitless Spectroscopy to Analyze Galaxy Evolution (PASSAGE): Survey Overview**". *The Astrophysical Journal*, Volume 993, Number 1, Page 152, Oct 2025.

Luber, N., **Hasan, F.**, et al. "**CHILES IX: Observational and Simulated HI Content and Star Formation of Blue Galaxies in Different Cosmic Web Environments**" *The Astrophysical Journal*, Volume 985, Number 2, Page 214, May 2025.

Runnholm, A., et. al., including **Hasan, F.** "**The JWST/PASSAGE Survey: Testing Reionization Histories with JWST's First Unbiased Survey for Lyman alpha Emitters at Redshifts 7.5-9.5**" *The Astrophysical Journal*, Volume 984, Number 1, Page 95, May 2025.

Hasan, F., et al., "**Filaments of The Slime Mold Cosmic Web And How They Affect Galaxy Evolution**" *The Astrophysical Journal*. Volume 970, Number 2, Page 177, Aug 2024.

Hasan, F., et al., “The Evolving Effect Of Cosmic Web Environment On Galaxy Quenching” *The Astrophysical Journal*, Volume 950, Number 2, Page 114, Jun 2023.

Hasan, F., et al., “Evolution of CIV Absorbers. II. Where Does CIV Live?” *The Astrophysical Journal*, Volume 924, Number 1, Page 12, Jan 2022.

Hasan, F., et al., “Evolution of CIV Absorbers. I. The Cosmic Incidence” *The Astrophysical Journal*, Volume 904, Number 1, Page 44, Nov 2020.

Submitted Publications

Hasan, F., et al., “Impact of Cosmic Filaments on Galaxy Morphological Evolution and Predictions of Early Cosmic Web Structure for Roman”. in review, *The Astrophysical Journal*. Sept. 2025. arXiv:2509.23549.

Woo, J., Cowan, M., **Hasan, F., et al., “The Cosmic Web Origins of Blue-Centred Galaxies”.** in review, *Nature Astronomy*. Jul. 2025.

Acharyya, A.,..., **Hasan, F., et al., “Spatially resolved gas-phase metallicity at $z \sim 2 - 3$ with JWST/NIRISS”.** in review, *Astronomy & Astrophysics*. Jul. 2025. arXiv:2508.05335.

Hasan, F., Crocker, A. “Galaxies and Supermassive Black Holes in the local universe I: The Velocity Dispersion Function” submitted to *The Astronomical Journal*. Apr 2019. arXiv: 1904.00486.

Awards & Grants

2025-	PI: NASA High-End Computing Allocation SMD-24-54390923 , NASA Advanced Supercomputing Center	Mountain View, CA
2024-	Science PI: Director’s Discretionary Research Award , Space Telescope Science Institute	Baltimore, MD
2024-	Science PI: HST Cycle 31 Archival Research Award #17568 , Space Telescope Science Institute	Baltimore, MD
2023	Arts & Sciences Travel Grant , College of Arts & Sciences, New Mexico State University	Las Cruces, NM
2021-22	Merit-based Enhancement Award , Graduate School, New Mexico State University	Las Cruces, NM
2021	Zia Award for Outstanding Research by a Graduate Student , Dept. of Astronomy, NMSU	Las Cruces, NM
2019-20	College of Arts & Sciences General Scholarship , New Mexico State University	Las Cruces, NM
2018-20	William Webber Voyager Fellowship , Dept. of Astronomy, NMSU	Las Cruces, NM
2018	Commendation for Academic Excellence , Reed College	Portland, OR
2017	Research Fellowship Award , Reed College	Portland, OR
2017	Research Opportunity Grant , Reed College	Portland, OR
2016	Summer Experience Award , Reed College	Portland, OR

Selected Invited Talks

University of Missouri, Columbia Astrophysics Seminar	Columbia, MO
“GALAXY EVOLUTION IN THE COSMIC WEB: FROM LARGE TO SMALL SCALES OF COSMIC ECOSYSTEMS”	Sep. 2025
2025 Santa Cruz Galaxy Workshop	Santa Cruz, CA
“THE EARLY COSMIC WEB: IMPACT ON GALACTIC MORPHOLOGICAL EVOLUTION AND PREDICTIONS FOR ROMAN”	Aug. 2025
Baryon Pasting Collaboration 2025 meeting	New Haven, CT
“MODELING COSMIC WEB FILAMENTS: CHALLENGES, ADVANCEMENTS, AND FUTURE DIRECTIONS”	Apr. 2025
Yale University Special Galaxy Seminar	New Haven, CT
“COSMIC FILAMENTS: FRIENDS OF FOE OF GALAXY EVOLUTION?”	Apr. 2025
College University of New York (NYC College of Technology) Theoretical Physics Seminar	New York, NY
“THE SLIME MOLD COSMIC WEB AND WHAT IT TEACHES US ABOUT GALAXY EVOLUTION”	Nov. 2024
Princeton University Galaxy Discussion Journal Club (Galread)	Princeton, NJ
“FILAMENTS OF THE SLIME MOLD COSMIC WEB AND HOW THEY AFFECT GALAXY EVOLUTION”	Oct. 2024
2024 Santa Cruz Galaxy Workshop	Santa Cruz, CA
“FILAMENTS OF THE SLIME MOLD COSMIC WEB”	Aug. 2024
Steward Observatory/NOIRLab Galaxy Group	Tucson, AZ
“A COSMIC CONNECTION: HOW GALAXY FORMATION IS AFFECTED BY THE COSMIC WEB”	Oct. 2023
Space Telescope Science Institute/Johns Hopkins University Galaxies & AGN Journal Club	Baltimore, MD
“A COSMIC CONNECTION: HOW GALAXY FORMATION IS AFFECTED BY THE COSMIC WEB”	Sep. 2023
Columbia University Seminar	New York, NY
“A COSMIC CONNECTION: HOW GALAXY FORMATION IS AFFECTED BY THE COSMIC WEB”	Sep. 2023

Yale University Galaxy Lunch

"A COSMIC CONNECTION: HOW GALAXY FORMATION IS AFFECTED BY THE COSMIC WEB"

[New Haven, CT](#)

Sep. 2023

2023 Santa Cruz Galaxy Workshop

"HOW COSMIC WEB ENVIRONMENT AFFECTS GALAXY FORMATION: A THEORETICAL AND EMPIRICAL VIEW"

[Santa Cruz, CA](#)

Aug. 2023

Arizona State University Borthakur Extragalactic Group

"THE IMPACT OF COSMIC WEB STRUCTURES ON GALAXY FORMATION"

[Tempe, AZ \(Virtual\)](#)

Sep. 2022

2022 Santa Cruz Galaxy Workshop

"THE IMPACT OF COSMIC WEB STRUCTURES ON GALAXY FORMATION"

[Santa Cruz, CA](#)

Aug. 2022

Galaxy Formation Group (Center for Computational Astrophysics, Flatiron Institute)

"EVOLUTION OF CIV ABSORBERS. I. THE COSMIC INCIDENCE", PAPER PRESENTATION

[New York, NY \(Virtual\)](#)

Dec. 2020

Selected Contributed Talks

243rd Meeting of the American Astronomical Society

"A COSMIC CONNECTION: THE EFFECT OF THE COSMIC WEB ON GALAXY EVOLUTION" (DISSERTATION TALK)

[New Orleans, LA](#)

Jan. 2024

Oases in the Cosmic Desert: Understanding the Structure of the Circumgalactic Medium

"THE CONNECTION BETWEEN GALAXY QUENCHING AND COSMIC WEB STRUCTURES ACROSS COSMIC TIME"

[Tempe, AZ](#)

Feb. 2023

The Co-evolution of the Cosmic Web and Galaxies across Cosmic Time at KITP

"HOW DO COSMIC WEB STRUCTURES AFFECT GALAXY QUENCHING ACROSS COSMIC TIME?"

[Santa Barbara, CA](#)

Feb. 2023

240th Meeting of the American Astronomical Society

"UNVEILING GASEOUS GALACTIC ECOSYSTEMS WITH COSMOVIS"

[Pasadena, CA](#)

Jun. 2022

Service and Leadership

HotSci 2025 Summer Colloquium Series Organizer

SPACE TELESCOPE SCIENCE INSTITUTE

[Baltimore, MD](#)

Apr 2025 – Aug 2025

Postdoc Representative to the Science Mission Office

SPACE TELESCOPE SCIENCE INSTITUTE

[Baltimore, MD](#)

Feb 2025 – Present

Journal Paper Referee

APJ, A&A, MNRAS, OJAA, RASTI

[Virtual](#)

May 2023 – Present

Co-supervisor/Research Mentor

DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY

[Las Cruces, NM](#)

May 2022 - Aug. 2024

Executive Secretary for NASA Astrophysics Proposal Review Panel

NASA ROSES

[NASA](#)

May 2023

President, Bangladesh Student Association (BSA)

NEW MEXICO STATE UNIVERSITY

[Las Cruces, NM](#)

Aug. 2023 - Aug. 2024

Mentor for Prospective Graduate Students

CIENTÍFICO LATINO GRADUATE STUDENT MENTORSHIP INITIATIVE (GSMI)

[Científico Latino](#)

Jul. 2020 - May 2022

Community Outreach Volunteer

DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY

[Las Cruces, NM](#)

Aug. 2018 - Aug. 2024

Co Mentor, UC CROSS

GOOGLE SUMMER OF CODE 2022

[UC Santa Cruz](#)

Jun. 2022-Dec. 2022

Secretary, Astronomy Graduate Student Organization (AGSO)

DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY

[Las Cruces, NM](#)

Aug. 2019 - May 2020

House Advisor, Residence Life

REED COLLEGE

[Portland, OR](#)

Aug. 2017 - May 2018

Peer Health Advocate, Community Wellness

REED COLLEGE

[Portland, OR](#)

Mar. 2016 - Nov. 2017

Member, Student Committee for Academic Planning and Policy (SCAPP)

REED COLLEGE

[Portland, OR](#)

Aug. 2016 - May 2017