

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

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 OR 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	New Haven, CT
“A COSMIC CONNECTION: HOW GALAXY FORMATION IS AFFECTED BY THE COSMIC WEB”	Sep. 2023
2023 Santa Cruz Galaxy Workshop	Santa Cruz, CA
“HOW COSMIC WEB ENVIRONMENT AFFECTS GALAXY FORMATION: A THEORETICAL AND EMPIRICAL VIEW”	Aug. 2023
Arizona State University Borthakur Extragalactic Group	Tempe, AZ (Virtual)
“THE IMPACT OF COSMIC WEB STRUCTURES ON GALAXY FORMATION”	Sep. 2022
2022 Santa Cruz Galaxy Workshop	Santa Cruz, CA
“THE IMPACT OF COSMIC WEB STRUCTURES ON GALAXY FORMATION”	Aug. 2022
Galaxy Formation Group (Center for Computational Astrophysics, Flatiron Institute)	New York, NY (Virtual)
“EVOLUTION OF CIV ABSORBERS. I. THE COSMIC INCIDENCE”, PAPER PRESENTATION	Dec. 2020

Selected Contributed Talks

243rd Meeting of the American Astronomical Society	New Orleans, LA
“A COSMIC CONNECTION: THE EFFECT OF THE COSMIC WEB ON GALAXY EVOLUTION” (DISSERTATION TALK)	Jan. 2024
Oases in the Cosmic Desert: Understanding the Structure of the Circumgalactic Medium	Tempe, AZ
“THE CONNECTION BETWEEN GALAXY QUENCHING AND COSMIC WEB STRUCTURES ACROSS COSMIC TIME”	Feb. 2023
The Co-evolution of the Cosmic Web and Galaxies across Cosmic Time at KITP	Santa Barbara, CA
“HOW DO COSMIC WEB STRUCTURES AFFECT GALAXY QUENCHING ACROSS COSMIC TIME?”	Feb. 2023
240th Meeting of the American Astronomical Society	Pasadena, CA
“UNVEILING GASEOUS GALACTIC ECOSYSTEMS WITH COSMOVis”	Jun. 2022

Service and Leadership

HotSci 2025 Summer Colloquium Series Organizer	Baltimore, MD
SPACE TELESCOPE SCIENCE INSTITUTE	Apr 2025 – Aug 2025
Postdoc Representative to the Science Mission Office	Baltimore, MD
SPACE TELESCOPE SCIENCE INSTITUTE	Feb 2025 – Present
Journal Paper Referee	Virtual
APJ, A&A, MNRAS, OJAA, RASTI	May 2023 – Present
Co-supervisor/Research Mentor	Las Cruces, NM
DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY	May 2022 - Aug. 2024
Executive Secretary for NASA Astrophysics Proposal Review Panel	NASA
NASA ROSES	May 2023
President, Bangladesh Student Association (BSA)	Las Cruces, NM
NEW MEXICO STATE UNIVERSITY	Aug. 2023 - Aug. 2024
Mentor for Prospective Graduate Students	Científico Latino
CIENTÍFICO LATINO GRADUATE STUDENT MENTORSHIP INITIATIVE (GSMI)	Jul. 2020 - May 2022
Community Outreach Volunteer	Las Cruces, NM
DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY	Aug. 2018 - Aug. 2024
Co Mentor, UC CROSS	UC Santa Cruz
GOOGLE SUMMER OF CODE 2022	Jun. 2022-Dec. 2022
Secretary, Astronomy Graduate Student Organization (AGSO)	Las Cruces, NM
DEPARTMENT OF ASTRONOMY, NEW MEXICO STATE UNIVERSITY	Aug. 2019 - May 2020
House Advisor, Residence Life	Portland, OR
REED COLLEGE	Aug. 2017 - May 2018
Peer Health Advocate, Community Wellness	Portland, OR
REED COLLEGE	Mar. 2016 - Nov. 2017
Member, Student Committee for Academic Planning and Policy (SCAPP)	Portland, OR
REED COLLEGE	Aug. 2016 - May 2017