

TRUNG V. HA
Astronomy PhD. Candidate, University of Massachusetts Amherst

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Curriculum Vitae

(Last updated: October 27, 2025)

EDUCATION

2024 – present	University of Massachusetts Amherst, Amherst, Massachusetts PhD candidate in Astronomy, expected graduation May 2026 PhD advisor: Yuan Li GPA: 4.00 / 4.00
2020 – 2024	University of North Texas, Denton, Texas PhD candidate – transferred to UMass before receiving degree Master of Science in Physics – conferred May 2022 GPA: 4.00 / 4.00
2017 – 2020	University of Rochester, Rochester, New York Bachelor of Science in Physics
2015 – 2017	Central Arizona College, Coolidge, Arizona Associate of Science

WORK & RESEARCH EXPERIENCE

Sep 2024 – present	Graduate Research Assistant , University of Massachusetts Amherst
Jun 2021 – Aug 2024	Graduate Research Assistant , University of North Texas
Sep 2023 – May 2024	Research Analyst (Pre-doctoral Fellow) and Guest Researcher , Center for Computational Astrophysics, Flatiron Institute – Simons Foundation
Aug 2020 – May 2021	Graduate Teaching Assistant , University of North Texas
Sep 2018 – May 2020	Undergraduate Research Student , Center for Computational Relativity and Gravitation, Rochester Institute of Technology
Sep 2018 – Dec 2019	Undergraduate Teaching Assistant , University of Rochester
Jun 2018 – Aug 2018	Summer Research Intern , Laboratory for Laser Energetics, University of Rochester

SELECTED TALKS

Jun 2025	INVITED - Vietnam National Space Center , Astrophysics Department Seminar, Hanoi, Vietnam Title: “Feedback-driven Multiphase Accretion in M87: Results from Mesoscale Simulations”
Jun 2025	IAUS 397 – UniversAI: Exploring the Universe with Artificial Intelligence , Athens, Greece

Jun 2024	Title: “aweSOM: an Open-source Python Package for Efficient Clustering of Intermittency in Magnetized Plasma Turbulence” AstroAI Workshop , Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA & Midwest Magnetic Fields Workshop , Madison, WI, USA Title: “Segmentation of Current Sheets in Magnetized Plasma Turbulence with Computer Vision”
Apr 2024	INVITED - Center for Computational Relativity and Gravitation Lunch Talk , Rochester, NY, USA Title: “Can Neural Networks Recognize Current Sheets? Using Computer Vision to Analyze Magnetized Plasma Turbulence”
Feb 2024	Kavli Institute for Theoretical Physics (KITP) – Turbulence in the Universe Workshop , Santa Barbara, CA, USA Title: “Segmentation of Current Sheets in Magnetized Plasma Turbulence with Computer Vision”
Dec 2023, Jan 2024	243rd Meeting of the AAS , New Orleans, LA, USA & Black Holes on Broadway: The Next Generation of AGN Models in Galaxy Formation , New York, NY, USA Title: “Bridging the Gap: Modeling Supermassive Black Holes Feeding and Feedback at the Meso-Scale”
Aug 2022, Jan 2023	241st Meeting of the AAS , Seattle, WA, USA & Star Formation in Different Environments 2022 , Rencontres du Vietnam, Quy Nhon, Vietnam Title: “Turbulence in Milky Way Star-forming Regions Traced by Young Stars and Gas”

PROFESSIONAL SERVICE

Served as referee for the Astrophysical Journal Letters.

SUPERCOMPUTING & OBSERVING AWARDS

Dec 2024	Co-I., XMM-Newton proposal Title: “Identifying a Robust and Practical Accretion-Rate Indicator for Distant Quasars”; observing time: 110 kiloseconds.
Mar 2024	P.I., NSF ACCESS Explore allocation Title: “Turbulent multiphase accretion flows from supermassive black hole feedback”; amount: 400,000 ACCESS credits

AWARDS AND HONORS

Spring 2025	Mary Dailey Irvine Graduate Travel Grant, UMass Amherst, \$1000
2023 – 2024	The Zhibing Hu Scholarship, University of North Texas, \$1000.
May 2023	Featured on University of North Texas College of Science news: “UNT Physics Graduate Student Selected for Prestigious Pre-Doctoral Program” (link to article)

Spring 2023	College of Science Travel Award, University of North Texas. \$500.
Feb 2022	Featured on University of North Texas's Graduate Research Spotlight .
2021 – 2025	R. B. Toulouse Scholarship, University of North Texas. \$1000/year.
Apr 2021	Featured on the <i>North Texan</i> : “Turbulent Motion Moves Research Forward” (link to article).
2019 – 2020	Take Five Scholar, University of Rochester. Thesis: “Exploring the Advantages and Shortcomings of French Literature in Translation”.

OTHER ACTIVITIES

Mentored two undergraduate students, one post-baccalaureate fellow, and two junior graduate students, resulting in two papers (Velguth et al. 2025 and Reinheimer et al. 2025)

Participated in the Flatiron Institute’s Center for Computational Astrophysics Pre-doctoral program in New York City in fall 2023.

Organizer for the weekly joint-UNT/UTD astronomy journal club, 2023.

Interviewed on AAS Journal Author Series about publication titled: “Measuring Turbulence with Young Stars in the Orion Complex” on [YouTube](#), 2021.

Participated in student exchange programs: “Cultural Exchange Program” in Arizona, USA during the 2014-15 school year and “French in France” in Rennes, France in summer 2019.

Citizenship: Vietnam.

U.S. Permanent Resident

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Publication List

In reverse chronological order

FIRST AUTHOR PUBLICATIONS

1. ***“Multi-phase Accretion Flows onto M87: Galaxy- and Meso-scale Simulations”***
Ha, Trung; Li, Y.; et al. (in prep., to be submitted in November 2025)
2. ***“Machine-Learning Characterization of Intermittency in Relativistic Plasma Turbulence: Single vs. Double Sheet Structures”***
Ha, Trung; Nästtilä, J.; Davelaar, J.; Sironi, L. ([2025ApJ...985L..31H](#))
3. ***“aweSOM: a CPU/GPU-accelerated Self-organizing Map and Statistically Combined Ensemble Framework for Machine-learning Clustering Analysis”***
Ha, Trung; Nästtilä, J.; Davelaar, J. ([2025.JOSS.07613](#), [GitHub](#))
4. ***“Shedding New Light on Weak Emission-Line Quasars in the CIV–H β Parameter Space”***
Ha, Trung; Dix, C.; Matthews, B. M.; Shemmer, O.; et al., ([2023ApJ...950...97H](#))
5. ***“Turbulence in Milky Way Star-forming Regions Traced by Young Stars and Gas”***
Ha, Trung; Li, Y.; Kounkel, M.; Xu, S.; Li, H.; Zheng, Y., ([2022ApJ...934....7H](#))
6. ***“Measuring Turbulence with Young Stars in the Orion Complex”***
Ha, Trung; Li, Y.; Xu, S.; Kounkel M.; Li, H., ([2021ApJ...907L..40H](#))

OTHER PUBLICATIONS

7. ***“Black Hole-Host Galaxy Correlations with Machine Learning: A Comparative Study of Illustris, TNG, and EAGLE”***
Reinheimer, J.; Li, Y.; Ha, Trung, et al. (submitted to OJA, [arXiv:2510.20751](#))
8. ***“Probing Turbulence, Gravity, Supernovae, and Magnetic Field Effects with the 6D Kinematics of Young Stars in Milky Way Star-forming Regions”***
Velguth, B.; Li, Y.; Ha, Trung, et al. ([2025ApJ...990..165V](#))
9. ***“Rest-Frame Optical Spectroscopy of Ten $z \sim 2$ Weak Emission-Line Quasars”***
Chen, Y.; ...; Ha, Trung, et al. ([2024ApJ...972..191C](#))
10. ***“Gemini Near Infrared Spectrograph - Distant Quasar Survey: Rest-Frame Ultraviolet-Optical Spectral Properties of Broad Absorption Line Quasars”***
Ahmed, H.; ...; Ha, Trung, et al., ([2024ApJ...968...77A](#))
11. ***“The Nature of the Motions of Multiphase Filaments in the Centers of Galaxy Clusters”***
Ganguly, S.; ...; Ha, Trung, ([2023FrASS..1038613](#))
12. ***“Handing-Off the Outcome of Binary Neutron Star Mergers for Accurate and Long-Term Post-Merger Simulations”***
Lopez Armengol, F. G.; ...; Ha, Trung; et al., ([2022PhRvD.106h3015L](#))
13. ***“HARM3D+NUC: A new method for simulating the post-merger phase of binary neutron star mergers with GRMHD, tabulated EOS and neutrino leakage”***
Murguia-Berthier, A.; ...; Ha, Trung, et al., ([2021ApJ...919...95M](#))

LIST OF REFERENCES

1. Yuan Li, Ph.D.
Assistant Professor, Department of Astronomy, University of Massachusetts Amherst
PhD thesis advisor
Email address: yuanli@umass.edu
2. Joonas Nättilä, Ph.D.
Associate Professor, Department of Physics, University of Helsinki
CCA pre-doctoral fellowship primary mentor
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3. Lorenzo Sironi, Ph.D.
Associate Professor, Department of Astronomy, Columbia University
Research Scientist, Center for Computational Astrophysics – Flatiron Institute
CCA pre-doctoral fellowship senior mentor
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4. Siyao Xu, Ph.D.
Assistant Professor, Department of Physics, University of Florida
Collaborator on stellar turbulence project
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5. Ohad Shemmer, Ph.D.
Professor, Department of Physics, University of North Texas
Mentor on weak-line quasar project
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