

TRUNG V. HA

vinhtrungha99@gmail.com (personal) • trungha@my.unt.edu (school) • 585-208-2903

Curriculum Vitae

RESEARCH INTERESTS

Stellar evolution and turbulent kinematics within stellar associations.

Near-infrared spectroscopy of weak emission line quasars.

Application of computer vision in physics and astrophysics research.

EDUCATION

2020 – present	University of North Texas, Denton, Texas PhD. in Physics (anticipated 2025) M.S. in Physics – May 2022 GPA: 4.00 / 4.00
2017 – 2020	University of Rochester, Rochester, New York B.S. in Physics Minor in Mathematics
2015 – 2017	Central Arizona College, Coolidge, Arizona A.S. in Physics

RESEARCH EXPERIENCES

September 2020 – Present	Department of Physics, University of North Texas Analyze data from Gaia all sky survey to measure turbulence traced by young stars in various molecular clouds in the Milky Way. Model the evolution of turbulence traced by stellar populations in giant molecular cloud simulations. (Y. Li, supervisor) Reduce and analyze near infrared spectra of quasars to confirm the correlation between weak emission lines and accretion rates. (O. Shemmer, supervisor)
September 2018 – May 2020	Center for Computational Relativity and Gravitation, Rochester Institute of Technology Performed dynamical simulations of binary neutron stars using the Einstein Toolkit. Documented user manual for LORENE neutron stars initial data generation code. Generated binary neutron stars initial data. (J. Faber and E. Blackman, supervisor)
June 2018 – August 2018	Laboratory for Laser Energetics, University of Rochester

Wrote MATLAB program to analyze beamspray signals from laser shots through an under-dense plasma.
Performed laser wakefield acceleration simulations in 2-D and compared results with available 3-D data.
Designed a parameter space constraint for a variable-aperture ellipsoidal plasma mirror.
(J. Shaw, supervisor)

WORK EXPERIENCES

June 2021 – Present

Graduate Research Assistant, University of North Texas

Continue research on turbulent spectrum of stars, H α gas, and CO gas in nearby molecular clouds.
Advise graduate students in the Artificial Intelligence program at UNT on an inter-disciplinary project to apply neural networks to identify similar star-forming regions of the Milky Way.

August 2020 – May 2021

Graduate Teaching Assistant, University of North Texas

Led lab sections for introductory physics for life science majors.
Reviewed concepts taught in lectures as pertain to the experiments, grade and provide feedback to students through exercise questions and lab reports.

September 2018 –

Physics Undergraduate Teaching Assistant, University of Rochester

December 2019

Led physics workshop sessions at the introductory level.
Assist course instructors with homework and exam grading, review materials taught in class.
Guide students through prepared workshop modules, hold weekly office hour to provide extra help.

September 2016 – May 2017

Mathematics tutor, Mesa Community College

Held one-on-one tutoring sessions for students with disability at various mathematical levels, from basic arithmetic to pre-calculus.

PUBLICATIONS

“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., (Astrophysical Journal, submitted)

“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., (Physical Review D, submitted)

“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](#))

“Measuring Turbulence with Young Stars in the Orion Complex”
Ha, Trung; Li, Y.; Xu, S.; Kounkel M.; Li, H., ([2021ApJ...907L..40H](#))

TALKS

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| February 2021 | AAS Journal Author Series with Frank Timmes, YouTube
Interview on recent publication, title: “Measuring Turbulence with Young Stars in the Orion Complex” with Dr. Yuan Li. |
| July 2020 | TCAN on Binary Neutron Stars Workshop, Rochester Institute of Technology
Title: “Generating Initial Data for Binary Neutron Stars using LORENE” with Dr. Joshua Faber and Tanmayee Gupte. |
| October 2019 | Midwest Relativity Meeting, Grand Valley State University
Title: “Generating Physically Realistic Binary Neutron Stars Initial Data” with Grace Fiacco (Rochester Institute of Technology). |

AWARDS AND HONORS

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| Spring 2019 – Spring 2020 | Take Five Scholar, University of Rochester.
Thesis: “Exploring the Advantages and Shortcoming of French Literature in Translation”. |
| Spring 2018 – Spring 2020 | Sigma Pi Sigma member. |
| Fall 2017 | Dean’s List, University of Rochester. |
| Spring 2016 – Spring 2020 | Phi Theta Kappa member. |
| Spring 2016 | Outstanding Student in Physical Science, Central Arizona College. |
| Fall 2015 – Spring 2017 | Dean’s List, Central Arizona College. |

OTHER ACTIVITIES

Participated in student exchange programs: “Cultural Exchange Program” in Arizona, USA in 2014-2015 and “French In France” in Rennes, France in summer 2019.

Other interests include computer hardware, unconventional cooling of computer processor, assembling desktop computers and laptops, solving various Rubik’s puzzles, and traveling.

Fluent in English and Vietnamese. Intermediate level fluency in French.