Benjamin Naeve Velguth

benjamin (dot) n (dot) velguth (dot) gr (at) dartmouth (dot) edu | OrcID | LinkedIn | Website

Education

Dartmouth College, PhD Student in Physics & Astronomy — September 2025 – Present
- Advisor: Burçin Mutlu-Pakdil

University of Michigan, BS in Astronomy & Astrophysics, Physics — September 2020 – May 2024
- Graduated with Highest Honors

Research Interests

Galactic Evolution, Galaxy Mergers, Stellar Halos, Stellar Populations and Star Formation, Interstellar Medium

Honors and Awards

TEXAS Bridge Fellow, University of Massachusets – Amherst — June 2024 – August 2025

Douglas Houghton Scholar, University of Michigan — September 2020 – May 2024

Publications

The Star Formation History and Evolution of the Ultra-Diffuse M81 Satellite, F8D1 — Submitted to ApJ

Adam Smercina, Eric F. Bell, Benjamin F. Williams, **Benjamin N. Velguth**, et al.

https://arxiv.org/abs/2507.13349

Probing Turbulence, Gravity, Supernovae, and Magnetic Field Effects with the 6D Kinematics of Young Stars in Milky Way Star-Forming Regions — Accepted in ApJ

Benjamin N. Velguth, Yuan Li, Trung Ha, et al.

https://arxiv.org/abs/2507.22107

A Timeline of the M81 Group: Properties of the Outskirts of M82 and NGC 3077 — October 2024

Benjamin N. Velguth, Eric F. Bell, Adam Smercina, et al.

10.3847/1538-4357/ad6cd8

Selected Presentations

** Indicates an Invited Presentation*

2025

Studying the Tidal Disruption and Star Formation History of the Nearby Ultra-Diffuse Galaxy F8D1 Using Resolved Stars

Galactic Frontiers II: Dwarf Galaxies in the Local Volume and Beyond

Probing Turbulence, Gravity, Supernovae, and Magnetic Fields with the 6D Kinematics of Young Stars in the Milky Way

Inter+Stellar: Harnessing the Intersection Between Stars and the Interstellar Medium

Anisotropic Motion in Star-Forming Regions Probed with 6D Stellar Kinematics

AAS 245

2024

Stars as Tracers of Galactic Evolution in the Near Universe: From Large to Small Scales

** Indiana University Astronomy Tea Talk*

Constraining the Star Formation History in the Nearest UDG, F8D1

AAS 243

Computational Skills

High Proficiency: Python, LaTeX

Intermediate Proficiency: DS9, QFitsView

Basic Familiarity: MATLAB, C++, HTML/CSS

Service and Leadership

AAS Certified Peer Reviewer	January 2024 - Present
Secretary of the Not Rich @ UMich Student Advocacy Group	September 2023 - May 2024
Undergraduate Representative for the UMich Astronomy & Astrophysics Curriculum Committee	September 2023 - May 2024
Outreach Chair of the UMich Entomology Club	May 2023 - May 2024

Outreach and Mentorship

Mentoring two students (Charlotte Moore and Riley Fish) at UMich, studying the stellar halos of nearby galaxies	April 2024 - Present
Organized Sidewalk Astronomy events with the UNT Physics department	July 2024
Secured funding for and organized pay-as-you-can meals for underprivileged students through Not Rich @ Umich	September 2023 - May 2024
Mentor in the Student Astronomical Society Grad-Undergrad Mentorship Program for students interested in Ultra-Faint Dwarf galaxy research	September 2023 - May 2024
Organized social events for Entomology Club members, including documentary screenings and weekly “bug walks”	May 2023 - May 2024