

# Benjamin Naeve Velguth

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## Education

<b>Dartmouth College</b> , PhD Student in Physics & Astronomy	September 2025 – Present
• Advisor: Professor Burçin Mutlu-Pakdil	
<b>University of Michigan</b> , BS in Astronomy & Astrophysics, Physics	September 2020 – May 2024
• Graduated with Highest Honors	

## Research Interests

Dwarf Galaxies, Galaxy Mergers, Stellar Halos, Stellar Populations and Star Formation, Interstellar Medium

## Honors and Awards

<b>TEXAS Bridge Fellow</b> , University of Massachusetts – Amherst	June 2024 – August 2025
<b>Douglas Houghton Scholar</b> , University of Michigan	September 2020 – May 2024

## Publications

<b>The Star Formation History and Evolution of the Ultra-Diffuse M81 Satellite, F8D1</b>	Submitted to ApJ
Adam Smercina, Eric F. Bell, Benjamin F. Williams, <b>Benjamin N. Velguth</b> , et al. <a href="https://arxiv.org/abs/2507.13349">https://arxiv.org/abs/2507.13349</a>	
<b>Probing Turbulence, Gravity, Supernovae, and Magnetic Field Effects with the 6D Kinematics of Young Stars in Milky Way Star-Forming Regions</b>	September 2025
<b>Benjamin N. Velguth</b> , Yuan Li, Trung Ha, et al. DOI: 10.3847/1538-4357/adf5c0	
<b>A Timeline of the M81 Group: Properties of the Outskirts of M82 and NGC 3077</b>	October 2024
<b>Benjamin N. Velguth</b> , Eric F. Bell, Adam Smercina, et al. DOI: 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

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**High Proficiency:** Python, LaTeX

**Intermediate Proficiency:** DS9, QFitsView

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

## Service and Leadership

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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

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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