

Amherst, MA

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Benjamin Naeve Velguth

Education

2020-2024

Bachelor of Science, *University of Michigan*, Ann Arbor, MI, Cumulative GPA: 3.52/4.0

Major: Astronomy and Astrophysics, Major GPA: 3.74/4.0

Major: Interdisciplinary Physics, Major GPA: 3.54/4.0

Honors and Awards

Building a Team for EXtragalactic ASTrophysics (TEXAS) Bridge Fellow, *June 2024 - Present*

Graduated with the Highest Honors: Astronomy and Astrophysics, *May 2024*

University Honors, *Winter 2023*

Douglas Houghton Scholar, *September 2020 - May 2024*

Publications

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

Velguth, B. N., Li, Y., Ha, T. et. al. (in prep)

The Resolved Star Formation History of the Nearby Ultra-Diffuse Galaxy, F8D1

Smercina, A., Bell, E. F., Williams, B., Velguth, B. N., et. al. (in prep)

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

Velguth, B. N., Bell, E. F., Smercina, A. et. al. 2024 ApJ 974 189

<https://iopscience.iop.org/article/10.3847/1538-4357/ad6cd8>

Selected Presentations

* Indicates an invited talk

2025

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

245th Meeting of the AAS

2024

[Stars as Tracers of Galactic Evolution in the Near Universe: From Large to Small Scales](#)

**Indiana University Astronomy Tea Talk*

[Characterizing the Outskirts of M82 and NGC 3077: A Timeline of the M81 Group](#)

U. of Michigan Department of Astronomy Undergraduate Research Poster Symposium

[Understanding the Outskirts of M82 and NGC 3077: A Timeline of the M81 Group](#)

U. of Michigan Student Astronomical Society - Weekly Colloquium

[Constraining the Star Formation History in the Nearest UDG, F8D1](#)

243rd Meeting of the AAS

2023

[Spatially Resolving the Quenching Time in F8D1 with Luminous AGB Stars](#)

U. of Michigan Student Astronomical Society - Weekly Colloquium

[Comparing the Stellar Mass Fractions of AGN and Non-AGN Spiral Galaxies](#)

U. of Michigan Astro 461 Poster Symposium at KPNO

[Tails from the Great Beyond: Constraining the Star Formation History within the Tidal Tail of F8D1](#)

U. of Michigan Department of Astronomy Undergraduate Research Poster Symposium

Research Interests

Galaxy formation and evolution, resolved stellar populations, star formation and quenching, feedback processes, interstellar medium

Research Experience

June 2024 - Present

TEXAS Bridge Fellow *The University of Massachusetts - Amherst, Amherst, MA and The University of North Texas, Denton, TX*

Studying turbulence and kinematic evolution in various environments, from young stellar populations in the Milky Way to the cold gas surrounding black holes in distant galaxy clusters.

Advisor: Prof. Yuan Li

February 2022-Present

Research Assistant *University of Michigan, Ann Arbor, MI*

Measuring the star formation history and metallicity of stellar populations found in tidal streams and stellar halos in the M81 Group to uncover the merger/interaction history of their host galaxies.

Advisors: Prof. Eric F. Bell and Dr. Adam Smercina

Observing Experience

MDM Observatory, McGraw-Hill 1.3m and Hiltner 2.4m, 8 hrs (PI)

Comparing the Stellar Mass Fractions of AGN and Non-AGN Spiral Galaxies

Computational Skills

- High Proficiency: Python, LaTeX
- Intermediate Proficiency: DS9
- Basic Familiarity: MATLAB, C++, HTML/CSS

Service and Leadership

- (2024-Present) AAS Certified Peer Reviewer
- (2023-2024) Secretary of the Not Rich @ UMich student advocacy group
- (2023-2024) Outreach Chair of the University of Michigan Entomology Club
- (2023-2024) Undergraduate representative for the UMich Astronomy & Astrophysics curriculum committee

Outreach and Mentorship

- (2024-Present) Mentoring two students at UMich studying the stellar halos of nearby galaxies
- (2024) Organized Sidewalk Astronomy events with the UNT Physics department
- (2023-2024) Initiated collaborations with organizations to fund pay-as-you-can meals for underprivileged students through Not Rich @ UMich
- (2023-2024) Organized a ride-share service to transport Not Rich @ UMich members to grocery stores and plasma donation centers
- (2023-2024) One of three mentors in the Student Astronomical Society Grad-Undergrad Mentorship Program for students interested in Ultra-Faint Dwarf galaxy research
- (2023-2024) Organized social events for Entomology Club members, including documentary screenings and weekly “bug walks”
- (2023-2024) Coordinated City of Ann Arbor Natural Area Preservation Stewardship Workdays with the Entomology Club