

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

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

Smercina, A., Bell, E. F., Williams, B., **Velguth, B. N.**, *13 others* (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

2024

[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 bug 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