

Sarah Healy

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<https://www.sarah-healy-astronomer.com/>

Research Interests

Supermassive stars • Core-collapse supernovae • Neutrinos • Multimessenger astronomy • Stellar evolution theory • Mass loss rates • Galactic core-collapse supernovae progenitors • Circumstellar dust • Transients • Big data management

Education

Ph.D. Physics , Virginia Tech Advisor: Dr. Shunsaku Horiuchi Sigma Pi Sigma	2020-Present
B.A. Physics , Vanderbilt University, Nashville, TN Major in Physics, Minors in Math and German Studies Reily Family Scholarship (Merit/Need-based, covers 11/50th of tuition) Darryl David Berger Jr Schol Scholarship (Merit/Need-based, covers 2/25th of tuition)	2016-2020

Research Awards and Honors

• AAS International Travel Grant	March 2024
• James R. Dunn Award in Physics for excellence in Research and service to the community	March 2024
• Vanderbilt Summer Undergraduate Research Funding Award	2019
• Scholarship for Research at Vanderbilt University (5k per semester)	2019, 2020

Selected Press

- Local Group red supergiants and supernovae (Healy et al. submitted ([ArXiv: 2412.04386v1](#)))
- [Forbes](#)

Presentations (* invited)

Seminars

1. *TUNA series at University of Virginia	October 2024
2. *SNEWS Supernova Seminar series	August 2023
3. Virginia Tech Astronomy Seminar	July 2022

Presentations

1. AAS 245 Dissertation Talk	January 2025
2. Center for Neutrino Physics Symposium at Virginia Tech	December 2024
3. *BigBoom Meeting	November 2024
4. Rise_Time at Purdue University	August 2024
5. Center for Neutrino Physics Symposium at Virginia Tech	December 2023
6. APS April	April 2023
7. SNEWS Hackathon	Aug 2022
8. Vanderbilt Summer Research Intern Session	July 2019

Posters

1. IAU General Assembly 2024
2. AAS 243
3. Vanderbilt Student Research Poster Symposium

August 2024
January 2024
July 2019

Publications

First Author	3. The Story of all Galactic Core-collapse Progenitors
Refereed	Healy, S., Horiuchi, S., Milisavljevic, D., in prep
Publications	2. The Red Supergiant Problem: As Seen from the Local Group's Red Supergiant Populations Healy, S., Horiuchi, S., Ashall, C., submitted (ArXiv: 2412.04386v1)
	1. Red supergiant candidates for multimessenger monitoring of the next Galactic supernova Healy, S., Horiuchi, S., Colomer Molla, M., Milisavljevic, D., Tseng, J., Bergin, F., Weil, K., Tanaka, M., Otero, S., MNRAS, https://doi.org/10.1093/mnras/stae738

Telescope Proposals

- P.I. 58 hours on JWST (ID 9205) Cycle 4: “The Hidden Lives of Red Supergiants: JWST’s Role in Uncovering Circumstellar Material”, submitted

Undergraduate Research Positions

Undergraduate Research Assistant, Vanderbilt university with Dr. Keivan Stassun	2017-2020
Undergraduate Research Assistant, Vanderbilt University with Dr. Kalman Varga	2019-2020
Undergraduate Research Assistant, Vanderbilt University with Dr. Lauren Campbell	2017

Outreach and Leadership

AAS 245 Undergraduate Chambliss Award Reviewer	January 2025
Graduate Representative for Faculty Graduate Committee	August 2022-Present
Telescope Operator for 2024 VT Eclipse Event, ~5000 attendees	April 2024
DEI in Physics Panelist for SPS Zone 4 Meeting	March 2024
Ad Hoc climate committee member for the VT Physics Department	Jan 2023-Nov 2024
Undergraduate Representative, Society of Physics Students	2019-2020
Outreach and Social Development Chair, Phi Sigma Rho sorority for Women in Technical Studies	2018-2020
Candidate Class President, Phi Sigma Rho sorority for Women in Technical Studies	2017-2018

Skills

Programming	Python, Mathematica, LaTeX, GitHub, Linux, DUSTY, MARCS, SED fitting
Data Management	Survey data retrieval and analysis, Machine learning (Principle Component Analysis and Support Vector Machine), Bayesian Inference

References

- Shunsaku Horiuchi, Associate Professor, Virginia Tech, horchi@vt.edu
- Danny Milisavljevic, Associate Professor, Purdue University, dmilisav@purdue.edu
- Chris Ashall, Assistant Astronomer, University of Hawaii, cashall@hawaii.edu