Roark Habegger – Curriculum Vitae

rhabegger@wisc.edu roarkhabegger@gmail.com

Research Interests

Plasma Astrophysics	Cosmic ray propagation, Parker instability, neutron star structure, accretion disks
Computational Methods	Magnetohydrodynamic simulations, expanding grid, genetic algorithms, particle-in-cell methods. (C++, Python)

Teaching Interests

Computational Methods	Python, numerical integration & interpolation, data visualization, image manipulation
Physics	Quantum mechanics, electrodynamics, astrophysics, hydrodynamics

Education

In Progress	**University of Wisconsin – Madison**: Astronomy Ph.D. (Expected 2025)
2020-2022	**University of Wisconsin – Madison**: Physics M.A. & Astronomy M.S.
	GPA: 3.96
2016-2020	**University of North Carolina at Chapel Hill**: Physics B.S. with Highest Honors (`Thesis Link`), Mathematics B.S.
	GPA: 3.80 (Highest Distinction, Honors Carolina Laureate, Phi Beta Kappa)
	Creative Writing (Poetry) Minor with Highest Honors (`Thesis Link`)

Publications

2022, In prep	R. Habegger & E. Zweibel. *The Impact of Cosmic Ray Injection on Magnetic Flux Tubes in a Galactic Disk*.
2021	R. Habegger & F. Heitsch. *A Coscaling Grid for Athena++*. 2021 ApJS 256 42. `Link`.

Presentations

2021	American Physical Society (APS) Division of Plasma Physics (DPP) Annual Meeting: poster on Cosmic Ray Loaded Magnetic Flux Tubes
2020	APS-DPP Annual Meeting: poster on Coscaling Grid
2019	NC Space Symposium: poster on Polarimeter Software development
2017	SESAPS (Southeastern Section of the APS): poster on Polarimeter Hardware

Teaching & Mentorship

2020-2022	Undergraduate Research Scholar (URS) Mentor
2019	Educational Research In Radio Astronomy (ERIRA) Project Coordinator & Mentor
2018-2019	Introductory Physics Teaching Assistant (Phys-119: Introductory Calculus based Electromagnetism and Quanta)

Accepted Funding & Grants

2022-2025	NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST): *The Impact of Localized Cosmic Ray Injections on Galactic Evolution*
	Total amount: $146,703.00
2019	Sigma Xi Grant-In-Aid-of-Research
	Total Amount: $5,000.00
Summer 2018	North Carolina Space Grant Undergraduate Research Scholarship
	Total amount: $5,000.00
Summer 2017	North Carolina Space Grant Undergraduate Research Scholarship
	Total amount: $5,000.00

Outreach

2022	Wisconsin Science Festival – Computational Astrophysics Booth
2021-Present	Contributor to Radio Astronomy podcast on local Madison radio station WORT 89.9