




Vikram Manikantan

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 vikrammanikantan

 vikrammanikantan.com

Education

May 2027	Ph.D., Astronomy & Astrophysics	University of Arizona
		GPA: 4.0/4.0
Jun 2022	B.A., Physics w/ Honors	Northwestern University
	+ Computer Science Minor	GPA: 3.8/4.0

Research Projects

- Jan 2023 **Multi-Messenger Eccentric Binary BH Mergers** (with Einstein Toolkit)
– present
- Running numerical relativity and magnetohydrodynamic simulations to understand the evolution of an eccentric binary black hole system.
 - Studying multi-messenger signals (gravitational waves and electromagnetic) to provide qualitative differences from circular mergers.
- Oct 2022 **Initial Accretion Disk Solutions and Their Effect on Simulation**
– present **Evolution** (with Athena++ GRMHD Simulations)
- Developed in-house analysis tools in python with Numpy and Matplotlib to study Athena++ simulation data sets.
 - Implemented two additional accretion disk torus solutions (Penna+ 2013; Chakrabarti 1985;) into Athena++ code.
- Jul 2020 **Magnetized Winds as a Dominant Mode of Angular Momentum Transport**[^]
– Feb 2023 (with H-AMR GRMHD Simulations)
- Won department-wide outstanding thesis research project [Department Page](#); [Press Release](#).
 - Developed novel python analysis code to study multiple angular momentum transport modes within magnetically arrested accretion disks.
 - Designed a new, consistent method to define disk/wind boundaries in magnetically driven accretion regimes.

Employment

Aug 2022	Astrophysics Graduate Research Assistant	University of Arizona
– present	Advisor: Prof. Vasilis Paschalidis	Tucson, AZ
Jun 2019	Computational Astrophysics Researcher	Northwestern University
– Jul 2022	Advisor: Prof. Sasha Tchekhovskoy	Evanston, IL
Jun 2021	Solutions Engineering Summer Intern	Deloitte Consulting
– Aug 2021		Chicago, IL

[^] Manuscript available upon request

Publication(s) ---

1. Manikantan et al. 2023, Magnetized Winds as the Dominant Mode of Angular Momentum Transport in Magnetically Arrested Disks (in prep)

Grants ---

Feb 2023	Theoretical Astrophysics Program Travel Grant Announcement.	\$1000
Jun 2020	Summer Undergraduate Research Grant	\$3500
Jun 2019	Undergraduate Research Assistantship Program	\$3500

Presentations ---

Jun 2022	Annual European Astronomical Society Meeting (EAS)	Poster
May 2022	UChicago High-Energy Journal Club	Talk
Jan 2022	237 th American Astronomical Society Meeting (Cancelled)	Poster

Meetings ---

Jul 2023 **Code/Astro Workshop** at Northwestern University

Teaching/Mentoring ---

- Jan 2022 **Senior Student Mentor** in the *Society of Physics Students* and
– Jun 2022 *We're in Physics* mentorship program
- Jan 2022 **Undergraduate Grader** for physics 140–2 and 140–3 (introductory
– Jun 2022 honors physics for majors)

Awards ---

AY 2021 **Outstanding Undergraduate Thesis Research in** Northwestern University
– 2022 **the Physics and Astronomy Department** Evanston, IL

[Department Page](#); [Press Release](#).

References ---

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|------------------------------|-------------------------|
| 1. Prof. Vasilis Paschalidis | University of Arizona |
| 3. Prof. Sasha Tchekhovskoy | Northwestern University |
| 5. Prof. Jens Koch | Northwestern University |

* Contact information available upon request