

Sanika Khadkikar

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EDUCATION

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| The Pennsylvania State University, State College, PA | 2022 |
| Ph.D. in Physics <i>Exploring the fundamental physics of neutron stars using astrophysics and gravitational waves</i> , advisor Bangalore Sathyaprakash | |
| Birla Institute of Science and Technology, Pilani, India | 2017 - 2022 |
| M. Sc. (Hons) in Physics B.E. (Hons) in Mechanical Engineering <i>Quasi-stationary sequences of hyper-massive neutron stars with exotic equations of state</i> , advisor Sarmistha Banik | |
| The Pennsylvania State University, State College, PA | 2021 - 2022 |
| BITS Pilani Master's Thesis exchange program <i>Binary neutron star post-merger signal analysis using wavelet transforms</i> , advisor Bangalore Sathyaprakash and Sujith R. | |

SELECTED FELLOWSHIPS AND HONORS

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| Distinguished Student Award <i>American Physical Society</i> | 2025 |
| W. Donald Miller Graduate Fellowship, <i>Pennsylvania State University</i> | 2025 |
| David C. Duncan Graduate Fellowship, <i>Pennsylvania State University</i> | 2025 |
| Division of Gravitational Physics Travel Grant, <i>American Physical Society</i> | 2025 |
| Peter Eklund Award for Scientific Communication (<i>Honorable mention</i>), <i>Pennsylvania State University</i> | 2025 |
| ACCESS Computing Grant (Co-PI), <i>National Science Foundation</i> | 2024 |
| I am STEM Award, <i>Pennsylvania State University</i> | 2024 |
| Homer F. Braddock Scholarship in Biology, Chemistry, and Physics, <i>Pennsylvania State University</i> | 2022 |
| Off-Campus International Master's Thesis Fellowship, <i>Birla Institute of Technology and Science</i> | 2021 |
| Charpak Indo-France Research Scholarship, <i>Government of France</i> | 2021 |
| LIGO Summer Undergraduate Research Fellowship (SURF), <i>California Institute of Technology</i> | 2020 |
| BITS Pilani Merit Scholarship, <i>Birla Institute of Technology and Science</i> | 2018- 2021 |
| INSPIRE Award, <i>Government of India</i> | 2014 |

Publications

- Khadkikar, S., et al. (2025). Cosmic Calipers: Precise and Accurate Neutron Star Radius Measurements with Next-Generation Gravitational Wave Detectors. arXiv. <https://arxiv.org/abs/2502.03463>.
- Gupta, I., et al. (2023). Characterizing gravitational wave detector networks: From A# to Cosmic Explorer. *Class.Quant.Grav.* 41 (2024) 24, 245001. <https://doi.org/10.1088/1361-6382/ad7b99>
- Evans, M., et al. (2023). Cosmic Explorer: A submission to the NSF MPSAC ngGW Subcommittee. arXiv. <https://arxiv.org/abs/2306.13745>
- Khadkikar, S., Mangat, C. S., and Banik, S. (2022). Quasi-stationary sequences of hyper-massive neutron stars with exotic equations of state. *Journal of Astrophysics and Astronomy*, 43(2), 57. <https://doi.org/10.1007/s12036-022-09849-0>
- Khadkikar, S., Raduta, A. R., Oertel, M., and Sedrakian, A. (2021). Maximum mass of compact stars from gravitational wave events with finite-temperature equations of state. *Physical Review C*, 103(5), 055811. <https://doi.org/10.1103/PhysRevC.103.055811>

INVITED TALKS

- Astronomy on Tap, *State College, PA*
- AstroChat Talk at University of California, Berkeley, *Berkeley CA*
- **Department Colloquium** at California State University Fullerton, *Fullerton CA*
- Einstein Telescope Nuclear Astrophysics Call *virtual*

CONTRIBUTED TALKS

- Neighborhood Workshop 2025, *State College, PA*
- American Physical Society Global Summit Meeting 2025, *Sacramento, CA*
- American Astronomical Society 245 Meeting, *Oxon Hill, MD*
- LIGO -Virgo Collaboration Meeting, *virtual*
- American Physical Society April Meeting 2024, *Sacramento, CA*
- Penn State Primordial Universe and Gravity Seminar, *State College, PA*
- LIGO-SURF Presentation at California Institute of Technology (*virtual*) *Pasadena, CA*
- Finesse interferometric modelling workshop and Hackathon at IUCAA *Pune, India*

TEACHING AND MENTORSHIP

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| Graduate Teaching Assistant | 2022-2024 |
| <i>Department of Physics, Pennsylvania State University</i> | |
| Quantum Information and Computing | |
| Introductory Electromagnetism | |
| Introductory Mechanics | |
| Undergraduate Teaching Assistant | 2020 |
| <i>Department of Physics, BITS Pilani</i> | |
| Statistical Mechanics | |

SERVICE, LEADERSHIP AND OUTREACH

Graduate Student Newsletter Editorial Team 2025
Eberly College of Science Office of Communications, Pennsylvania State University

Responsible for editing and managing content, ensuring engaging and informative communication for the graduate student community.

GAPP Graduate Student Liaison 2024
Department of Physics, Pennsylvania State University

Instrumental in arranging and managing the Gravity, Astrophysics and Particle Physics (GAPP) seminars at Pennstate along with faculty

PAW Pals Volunteer 2023-2024
Physics and Astronomy for Women+, Pennsylvania State University

PAW Pals go to local elementary schools to do demonstrations and discussions to engage kids in science.

Gravi-tea Time Podcast 2024
Institute of Gravitation and the Cosmos (IGC), Pennsylvania State University

One of the creators of the podcast aimed towards bringing the latest breakthroughs in gravitational physics and astrophysics straight from the researchers, explained in a nuanced yet accessible way for advanced undergrads and grad students

Physics Journal Club 2021
BITS Hyderabad

Founder of this journal club in BITS Hyderabad which aims to foster collaborative learning and in-depth discussions on research in physics

AD ASTRA: Astronomy and Science Club 2019
BITS Hyderabad

As the secretary, I helped initiate various projects, including the horn antenna for plotting galaxy rotation curves, organized events during college fests, and coordinated astronomy and astrophysics trivia sessions.

Team Vulcan Racing 2019
BITS Hyderabad

Team Vulcan is the Off-roading Automobile team in BITS Pilani, Hyderabad Campus. The team consists of various sub departments like: Suspension, Powertrain, Design & Simulations, Braking, Management & Sponsorship etc. I was the team manager and a suspension design engineer.