

Sanika Khadkikar

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EDUCATION

The Pennsylvania State University, State College, PA 2022

Ph.D. in Physics

Exploring the fundamental physics of neutron stars using astrophysics and gravitational waves, advisor Bangalore Sathyaprakash

Birla Institute of Science and Technology, Pilani, India 2017 - 2022

M. Sc. (Hons) in Physics

B.E. (Hons) in Mechanical Engineering

Quasi-stationary sequences of hyper-massive neutron stars with exotic equations of state, advisor Sarmistha Banik

The Pennsylvania State University, State College, PA 2021 - 2022

BITS Pilani Master's Thesis exchange program

Binary neutron star post-merger signal analysis using wavelet transforms, advisor Bangalore Sathyaprakash and Sujith R.

SELECTED FELLOWSHIPS AND HONORS

W. Donald Miller Graduate Fellowship, *Pennsylvania State University* 2025

David C. Duncan Graduate Fellowship, *Pennsylvania State University* 2025

Division of Gravitational Physics Travel Grant, *American Physical Society* 2025

Peter Eklund Award for Scientific Communication (*Honorable mention*), *Pennsylvania State University* 2025

ACCESS Computing Grant (Co-PI), *National Science Foundation* 2024

I am STEM Award, *Pennsylvania State University* 2024

Homer F. Braddock Scholarship in Biology, Chemistry, and Physics, *Pennsylvania State University* 2022

Off-Campus International Master's Thesis Fellowship, *Birla Institute of Technology and Science* 2021

Charpak Indo-France Research Scholarship, *Government of France* 2021

LIGO Summer Undergraduate Research Fellowship (SURF), *California Institute of Technology* 2020

BITS Pilani Merit Scholarship, *Birla Institute of Technology and Science* 2018- 2021

INSPIRE Award, *Government of India* 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. arXiv. <https://arxiv.org/abs/2307.10421>
- 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>

CONTRIBUTED PRESENTATIONS

- Department Colloquium at California State University Fullerton, *Fullerton CA*
- Einstein Telescope Nuclear Astrophysics Call (Invited), *virtual*
- American Astronomical Society 245 Meeting, *Oxon Hill, MD*
- LIGO -Virgo Collaboration Meeting, *virtual*
- American Physical Society April Meeting , *Sacramento, CA*
- Penn State Primordial Universe and Gravity Seminar, *State College, PA*

TEACHING AND MENTORSHIP

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

SERVICE AND OUTREACH

GAPP Graduate Student Liaison <i>Department of Physics, Pennsylvania State University</i> Instrumental in arranging and managing the Gravity, Astrophysics and Particle Physics (GAPP) seminars at Pennstate along with faculty	2024
PAW Pals Volunteer <i>Physics and Astronomy for Women+, Pennsylvania State University</i> PAW Pals go to local elementary schools to do demonstrations and discussions to engage kids in science.	2023-2024
Gravi-tea Time Podcast <i>Institute of Gravitation and the Cosmos (IGC), Pennsylvania State</i>	2024

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