

# Tejas Prasanna

Graduate Student in Physics  
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## Research Interests

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Massive star supernovae, neutron star formation and spindown, magnetars, gamma-ray bursts (GRBs), heavy element nucleosynthesis, numerical magneto-hydrodynamics (MHD).

## Education

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| <b>Ohio State University</b> , Columbus, Ohio, USA<br>Ph.D. in Physics, Advisor: Todd A. Thompson  | 2021 - 2024 (expected in July) |
| <b>Ohio State University</b> , Columbus, Ohio, USA<br>M.S. in Physics  | 2019 - 2021                    |
| <b>Indian Institute of Technology Hyderabad</b> , Hyderabad, India<br>Bachelor of Technology in Engineering Physics<br>Bachelor of Technology (Second Major) in Electrical Engineering | 2015 - 2019                    |

## Publications

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5. *Favorable nucleosynthesis conditions in proto-magnetar winds*  
Tejas Prasanna, Matthew S B Coleman, and Todd A Thompson  
*To be submitted*
4. *Prospects for detecting proto-neutron star rotation and spindown using supernova neutrinos*  
Tejas Prasanna, Todd A Thompson, and Christopher Hirata  
*Under review*, [ads:2023arXiv231013763P](https://arxiv.org/abs/2023arXiv231013763P)
3. *The early evolution of magnetar rotation - II. Rapidly rotating magnetars: implications for gamma-ray bursts and superluminous supernovae*  
Tejas Prasanna, Matthew S B Coleman, Matthias J Raives, and Todd A Thompson  
Monthly Notices of the Royal Astronomical Society (2023), 526, 2, [ads:2023MNRAS.526.3141P](https://arxiv.org/abs/2023MNRAS.526.3141P)
2. *The early evolution of magnetar rotation I. Slowly rotating ‘normal’ magnetars*  
Tejas Prasanna, Matthew S B Coleman, Matthias J Raives, and Todd A Thompson  
Monthly Notices of the Royal Astronomical Society (2022), 517, 2, [ads:2022MNRAS.517.3008P](https://arxiv.org/abs/2022MNRAS.517.3008P)
1. *Generalized Lomb-Scargle analysis of  $^{90}\text{Sr}/^{90}\text{Y}$  decay rate measurements from the Physikalisch-Technische Bundesanstalt*  
Tejas Prasanna and Shantanu Desai  
The European Physical Journal C (2018), 78, 554, [ads:2018EPJC...78..554T](https://arxiv.org/abs/2018EPJC...78..554T)

## Awards and Achievements

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1. *2023*: Honorable mention, OSU Graduate School three minute thesis (3MT) contest.
2. *2019*: Silver medal for highest GPA in the class, Indian Institute of Technology (IIT) Hyderabad.
3. *2018, 2016*: Academic excellence award, IIT Hyderabad.
4. *2018*: Selected to present a poster at 36<sup>th</sup> meeting of the Astronomical Society of India (ASI).
5. *2018*: Selected for the Visiting Students' Research Program (VSRP) at the National Center for Radio Astrophysics (NCRA), India.
6. *2017*: Prize of INR 200,000 by the Karnataka state government for clearing the Indian Institute of Technology Joint Entrance Exam (IIT - JEE), in which about 1.5 million students compete for 10000 seats.

## Technical Skills

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1. Programming languages : Python, C, C++
2. Tools and Software : Athena++ (MHD code), LaTeX, Matlab, Mathematica

## Contributed/Invited Talks

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1. *2023*: Athena++ conference, Flatiron Institute (*contributed*)
2. *2023*: Frontiers in Nuclear Astrophysics conference, Michigan State University (*contributed*)
3. *2022*: Princeton University Astro-coffee (*invited*)
4. *2022*: Indian Institute of Technology (IIT) Hyderabad (*invited*)

## Undergraduate Research and Projects

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1. *2018*: Studied pulsar glitches at the National Center for Radio Astrophysics (NCRA), India.
2. *2017*: Developed a Python code to automatically detect and extract the properties of Sunspots from the images of the Sun at the Indian Institute of Astrophysics.
3. *2016*: Built a heart rate monitoring system to measure a person's heart rate and send a message to pre-selected contacts in case of an abnormal heart rate.
4. *2015*: Designed and built a robot to clean rooms.

## Advising and Outreach

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- Advised Michael K. Plummer (graduate student in the OSU Astronomy department) and David Pochik (graduate student in the OSU Physics department) in their projects in computational astrophysics.
- Conducted a career guidance seminar for college students in India.
- Conducted Physics and Mathematics classes for school students in India. I continue to teach Physics to school students in India via Zoom.