Tejas Prasanna

Graduate Student in Physics
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Webpage

Research Interests

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

Education

Ohio State University, Columbus, Ohio, USA — 2021 - 2024 (expected)
Ph.D. in Physics, Advisor: Todd A. Thompson

Ohio State University, Columbus, Ohio, USA — 2019 - 2021
M.S. in Physics

Indian Institute of Technology Hyderabad, Hyderabad, India — 2015 - 2019
Bachelor of Technology in Engineering Physics
Bachelor of Technology (Second Major) in Electrical Engineering

Publications

5. ***Favorable nucleosynthesis conditions in proto-magnetar winds***
   Tejas Prasanna, Matthew S B Coleman, and Todd A Thompson
   In preparation

4. ***Prospects for detecting proto-neutron star rotation and spindown using supernova neutrinos***
   Tejas Prasanna, Todd A Thompson and Christopher Hirata
   To be submitted very soon

3. ***The early evolution of magnetar rotation - II. Rapidly rotating magnetars: Implications for Gamma-Ray Bursts and Super Luminous 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

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

1. ***Generalized Lomb-Scargle analysis of*** ^{90}Sr/ ^{90}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

Awards and Achievements

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$^{\text{th}}$ 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

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

Contributed/Invited Talks

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

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

- Helped Michael K. Plummer (a graduate student in the OSU Astronomy department) at the start of his project 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.