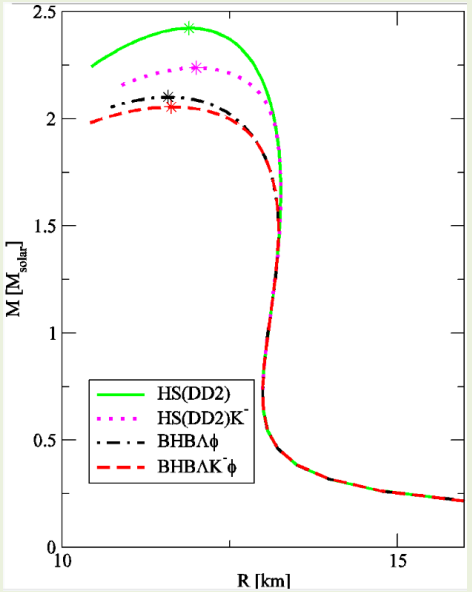
Neutron Stars and Gravitational Waves

Neutron stars (NS) are born in the aftermath of the supernova collapse of massive stars. They are natural laboratories for cold and dense matter with densities a few times that of ordinary nuclear matter. The study of this super-dense matter connects Einstein's General Relativity to Nuclear Physics. Our group attempts to formulate theories to explain the recent astrophysical observations of LIGO, VIRGO, NICER, to mention a few.



Here are some of the key research areas to understand the interior of compact stars:

- **Equation of State (EoS)**
- **Quasinormal Modes**
- **Gravitational Wave (GW) emission from binary NS merger**
- **Constraining modified theories of gravity**

We are also part of the Indian Pulsar Timing Array (InPTA), which in collaboration with International Pulsar Timing Array (IPTA) aims to detect stochastic nanoHertz gravitational waves.

Faculty:
Prof. Sarmistha Banik*
Dr. Swastik Bhattacharya

PhD:
Nobleson K*
Debanjan Guha Roy
Anagh Venneti

*Active members of InPTA Indian Pulsar Timing Array

Former group members:
PhD Students:
Dr. Smruti Smita Lenka
Dr. Krishna Prakash Nunna

Postdocs:
Dr. Neelam Dhanda Batra*
Dr. Somnath Mukhopadhyay
Dr. Tuhin Mallik