

## EXPLORE 2022 Workshop: Astrophysical Laboratories of Fundamental Physics



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### Invited talk on "Neutron Stars: Astrophysical Probes of Extreme Matter"

*Tuesday 29 March 2022 14:45 (45 minutes)*

Chair: Laura Sagunski

Neutron stars are among the most fascinating and intriguing objects in the Universe. These compact objects contain matter in the densest and coldest form, possess ultrastrong magnetic fields and display ultrahigh velocities. These astrophysical laboratories effectively allow us to investigate properties of matter under the most extreme conditions, far beyond the reach of terrestrial experiments. While multi-wavelength astronomical observations provide us a wealth of data about them, the recent detection of gravitational waves emitted by neutron stars is allowing us for the first time to probe their interior composition directly. Together, these tools of multi-messenger astronomy of neutron stars have opened up a window to an unforeseen Universe.

**Presenter:** CHATTERJEE, Debarati (IUCAA, Pune, India & Chair LIGO-India EPO)