

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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Gravitational waves to probe Dark Matter in Neutron Stars

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The recent direct detection of Gravitational Waves from mergers of Neutron Stars has opened up the possibility to explore the properties of dense matter in their interior. Isolated neutron stars can also emit gravitational waves when perturbed, and the wave characteristics if detected may contain signatures of their composition. It is conjectured that dark matter may also exist within neutron stars, and their presence could affect their observable properties. We present results from our recent studies on constraining dark matter models using recent astrophysical data and investigation of effects of the presence of dark matter on neutron star mode oscillations and gravitational wave emission.

Primary author: Prof. CHATTERJEE, Debarati (IUCAA)

Co-author: SAGUNSKI, Laura

Presenter: Prof. CHATTERJEE, Debarati (IUCAA)