



Department of Physics and Astronomy
SPRING 2024 Colloquium Series

“From Chirps to Gold: Colliding Neutron Stars as a Laboratory for Extreme Physics”

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University of New Hampshire

Colliding neutron stars provide us with a remarkable laboratory to test the laws of physics in conditions generally inaccessible to earth-based experiments. These rare but extremely energetic events are among the few systems capable of powering gravitational waves detectable by existing ground-based observatories. The matter ejected by these mergers additionally powers a broad range of electromagnetic signals, from short gamma-ray bursts to years-long radio emission. From these gravitational wave and electromagnetic signals, we can extract information about the properties of cold matter at nuclear densities, understand the origin of heavy atomic elements such as gold and uranium, or even study the nature of gravity or the evolution of the Universe. In this talk, I will review the physics of merging neutron stars and our efforts to model these systems through numerical simulations. I will also discuss how these extreme astrophysical events are used to help us solve important open questions in astronomy and nuclear astrophysics.

Thursday, March 28, 2024

4:00 - 5:20PM

MND1015

Open & Free to all students, faculty and public