

**PHYSICS AND ASTRONOMY
COLLOQUIUM**

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**“Rare Isotope Physics in the Era of
Multimessenger Astronomy”**

Abstract

The Joint Institute for Nuclear Astrophysics Center for the Evolution of the Elements is to connect research in experimental nuclear physics, observational astronomy, theory, and computational modeling to address major open questions related to the origin of the elements and the properties of dense matter in neutron stars. Rare isotopes play a key role in this endeavor. They govern the creation of the elements in extreme stages of stellar evolution, supernova explosions, and neutron star phenomena such as mergers, X-ray bursts, and hot crusts. While these isotopes only exist for fractions of seconds, their properties shape the resulting cosmic distribution of elements and the astronomical observables including spectra,