



Department of Physics Colloquium

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3:00 PM

Neutron Rich Matter in Heaven and Earth

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Two of the overarching questions animating nuclear science today are: “How did the Universe create the chemical elements we are made of?” and “How does subatomic matter organize itself and what phenomena emerge?” Neutron stars are cosmic laboratories uniquely poised to answer these two fundamental questions. The historical detection of gravitational waves from the binary neutron star merger GW170817 by the LIGO-Virgo collaboration is providing fundamental new insights into the astrophysical site for the creation of the heaviest elements in the cosmos. In turn, electromagnetic observations of neutron stars are placing stringent constraints on the nature of dense, neutron-rich matter through the precise determination of stellar masses and radii. Finally, the study of exotic nuclei at terrestrial facilities will help elucidate the structure, dynamics, and composition of neutron stars. It is the strong synergy between heaven and earth that will be the focus of this presentation.

**This colloquium will be held in-person, at SERC 116
unless announced otherwise.**