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INPP Seminar | Chemical Equilibrium in Low Density Nuclear Matter, April 5

April 1, 2016

Categories: Events

Tags: Institute of Nuclear and Particle Physics, Joseph Natowitz, NPP Seminar, physics and astronomy events

The Institute of Nuclear and Particle Physics (INPP) presents [Joseph B. Natowitz](#), of Texas A & M University, presenting “Chemical Equilibrium in Low Density Nuclear Matter,” on Tuesday, April 5, at 4 p.m. in Edwards Accelerator Lab, Roger W. Finlay Conference Room.



Joseph B. Natowitz

Abstract: Conventional theoretical calculations of nuclear matter properties based on mean-field approaches fail to give the correct low-temperature, low-density limits for composition and symmetry energy which are governed by the appearance of clusters. Data from heavy-ion collisions can be used to probe clusterization and the symmetry energy at subsaturation densities. From the data, in medium cluster binding energies and Mott points for d, t, ^3He and α clusters produced in low density nuclear matter and may be extracted. The low densities and moderate temperatures explored are comparable to those expected for the neutrinosphere, the surface of last scattering, in a supernova explosion. The neutrino flavor spectra are strongly influenced by the composition of the low density matter in the vicinity of the neutrinosphere. The observations of the matter composition from the laboratory experiments have been used to benchmark astrophysical equations of state employed in supernova modelling.