



Physics Colloquium



Thursday, April 6th at 3:30 pm in SC 234

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Symmetry Energy of Neutron-Rich Matter and its Astrophysical Impacts

To pin down the Equation of State (EOS) of neutron-rich nucleonic matter and understand its transport properties has long been a major science driver for both nuclear physics and astrophysics. Nuclear symmetry energy encoding the energy cost of converting protons into neutrons in nuclear medium has been the most uncertain part of the EOS of dense neutron-rich nucleonic matter. The magnitude and density dependence of nuclear symmetry energy affect the radii and cooling rates of neutron stars as well as the strain amplitude and frequencies of gravitational waves from spiraling neutron star binaries. Nuclear reactions especially those induced by highly neutron-rich radioactive beams, provide a unique means to probe experimentally the symmetry energy of neutron-rich matter in terrestrial laboratories. In this talk, I will discuss the main issues concerning the density dependence of nuclear symmetry energy, its astrophysical impacts and examples of current efforts to constrain it experimentally in terrestrial laboratories.

Refreshments at 3:00 pm in SC 103