Contribution ID: **71** Type: **Parallel**

Overview of Experimental Data on the Neutron-Matter Equation of State and the Neutron Skins of ^{48}Ca and ^{208}Pb

Tuesday, 29 May 2018 14:20 (20 minutes)

The equation of state for asymmetric nuclear systems is a critical input for modeling a broad range of systems spanning from asymmetric nuclei to extremes such as neutron stars. Now, with the advent of gravitational wave astronomy there are new and exciting opportunities to test how these nuclei, measured on earth, connect to their astrophysical counterparts. Within nuclei, several observables are available that are sensitive to this information including the size of the neutron skins, the isovector electric dipole polarizabilities, and heavy ion isospin transport. Neutron skins in particular are notoriously difficult to observe with high precision: the standard tool of electromagnetic interactions that has been used to map out the nuclear charge distributions is simply insensitive to neutrons. Fortunately, nature provides a novel way to image this side of the nucleus: through fundamental weak force interactions, which interact primarily to neutrons rather than protons. In this talk I will review the status of the data that constrains the neutron matter equation of state and in particular discuss neutron densities, how one measures them with electron beams, and the recent and upcoming experimental efforts for such measurements.

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Funding source

U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under contract number DE-AC02-06CH11357.

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Session Classification: Nuclear Forces and Structure, NN Correlations, and Medium Effects

Track Classification: NFS