_6.png _6.bb _6.png height

Contribution ID: **32** Type: **Poster Presentation**

Experimental Study on Symmetry Energy of Nuclear Matter with SπRIT-TPC

Wednesday, 15 June 2016 16:30 (1h 30m)

The nuclear equation of state (EoS) is one of the most fundamental expressions that describe the basic relationship between energy, pressure, density, temperature, and isospin asymmetry δ=(ρ_n-ρ_p)/(ρ_n+ρ_p) for a nuclear system. For a neutron star, which has extreme asymmetry of its isospin, the symmetry energy term of the EoS is considered to play an important role in determining physical property, for example, its mass-radius relation. As of now, at a nuclear saturation density or less, symmetry energy is well constrained by several experiments and observations. In contrast, there remains large uncertainty of the theoretical predictions on symmetry energy at supra-saturation densities because of lack of the experimental constraints[1]. To give constraints to symmetry energy at high density region, we plan to observe the ratio of positive and negative pion or light ion fragments from several types of heavy-ion collisions. Radio Isotope Beam Factory (RIBF) at RIKEN has a capability of providing an isotope beam with wide range mass number so that we can measure the effect of symmetry energy for different isospin-asymmetric systems. We designed large acceptance TPC using with SAMURAI dipole magnet at 0.5T for particle identification (SAMURAI Pion Reconstruction and Ion-Tracker, or SπRIT-TPC[2]). In the Spring 2016, the first physics run will be held. In this poster presentation, I would like to show the analytical status of physics run of SπRIT-TPC.

[1] M. B. Tsang et al., Phys. Rev. C 86, 015803 (2012).
[2] R. Shane et al., Nucl. Instr. Meth. A 784, 513 (2015).

Primary author: Mr KANEKO, Masanori (Department of Physics, Kyoto University)

Presenter: Mr KANEKO, Masanori (Department of Physics, Kyoto University)

Session Classification: Posters