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Constraining the symmetry energy with the SπRIT TPC

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The nuclear equation of state is a fundamental property of nuclear matter that describes relationships between energy, pressure, temperature, density, and isospin asymmetry in a nuclear system. The asymmetric part of EoS, which is originated by the isospin asymmetry, has not been well constrained yet above the saturation density, contrary to the symmetric part of EoS. Transport model calculations predict that pions generated by the heavy-ion collisions are sensitive probe to constrain the symmetry energy above the saturation density. The SπRIT Time Projection Chamber and ancillary trigger detectors were specifically designed and constructed to constraint the symmetry energy at above the saturation density using the radioactive isotope beams produced by the Radioactive Isotope Beam Factory (RIBF) at RIKEN by measuring pions as well as light ions. In this talk, I will present the progress of the analysis of the first experimental campaign ran in Spring 2016. Data was collected for the four collision systems: 132Sn+124Sn, 112Sn+124Sn, 124Sn+112Sn, and 108Sn+112Sn with beam energy of 270 AMeV.
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Primary author: Dr CERIZZA, Giordano (NSCL/MSU)

Presenter: Dr CERIZZA, Giordano (NSCL/MSU)

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