

Abstract Submitted
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Symmetry Energy Investigation With Pion Production From Sn+Sn Systems¹ JUSTIN ESTEE, WILLIAM LYNCH, National Superconducting Cyclotron Laboratory, MSU, SPIRIT COLLABORATION — Understanding the Equation of State (EoS) of nuclear matter that supports dense objects like neutron stars (NS) against their gravitational collapse is a key scientific objective that motivates observations of neutron stars and their mergers using an array of astronomical observatories. The existence of positive charged protons in NS requires understanding of the symmetry energy, which is the penalty energy arise from imbalance of neutron and proton density in the nuclear matter. Only laboratory measurements can provide a microscopic understanding of how the nuclear EoS depends on the composition of the stellar matter. Here we focus on constraining the symmetry energy contribution to the EoS at supra-saturation densities by measuring pion production in heavy ion collisions and by varying the numbers of neutrons and protons in the region where the pions are produced.

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William Lynch
National Superconducting Cyclotron Laboratory, MSU

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