

Measuring the density dependence of the symmetry energy through emitted tritons and ${}^3\text{He}$.

Michael Youngs

NSCL, Michigan State University, east-Lansing, MI

ANSTRACT

The nuclear symmetry energy affects many different aspects of nuclear structure, astrophysics and reactions. The spectral ratio of neutrons to protons from central heavy ion collisions is an observable that is sensitive to the symmetry energy at subsaturation densities, but is difficult to measure experimentally. A similar ratio using the mirror nuclei $t/{}^3\text{He}$ should display a similar sensitivity to the symmetry energy. Results of $t/{}^3\text{He}$ ratios from symmetric collisions of ${}^{112,124}\text{Sn}+{}^{112,124}\text{Sn}$ at $E=50$ and 120 MeV/nucleon will be discussed. These results will also be compared to theoretical predictions in order to constrain the density dependence of the symmetry energy.