

Soft equation of state from heavy ion data and implications for compact stars

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Recent results from measurements of Kaon production at subthreshold densities in heavy ion collisions imply a soft nuclear equation of state for densities below 3 saturated nuclear matter densities with compressibilities $K_0 \leq 200$ MeV [1]. We apply these results to study the implications on compact star properties. As a probe for the nuclear matter compressibility, maximum masses of neutron stars are calculated using a phenomenological equation of state as well as a Skyrme-Hartree-Fock approach. Furthermore, we explore the consequences of a soft nuclear equation of state for the highest possible mass of compact stars following the approach of Rhoades and Ruffini [2] (see also [3]). Finally, we test low mass neutron star measurements as a probe for the symmetry energy of nuclear matter.

References

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