

Abstract Submitted
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The nucleus-nucleus reaction cross section at intermediate energy as a mean to constrain nuclear properties¹ FRANCESCA SAMMARRUCA, LARZ WHITE, University of Idaho — The equation of state enters a variety of systems, all of which should be handled consistently, starting from the same microscopic nuclear interaction. Following this guideline, recently we have applied our (Dirac-Brueckner-Hartee-Fock) nuclear matter predictions to a broad spectrum of systems, ranging from neutron skins to neutron stars [1]. Presently, we are concerned with the nucleus-nucleus total reaction cross section, a fundamentally important quantity for testing nuclear models. The two main elements of the reaction input, the effective nucleon-nucleon cross sections and the density functions for the target and the projectile, are both sensitive to the equation of state. It is our plan to develop and test a set of “tools” which can then be applied to obtain information on exotic nuclei, such as their neutron distributions, or the medium dependence (including isospin- asymmetry dependence) of the nucleon-nucleon cross sections.

[1] F. Sammarruca, Int. J. Mod. Phys. E, Vol.19, 1259 (2010)

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