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Understanding isospin transport ratio: influence of fast emissions and statistical de-excitation

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Isospin transport ratio is a powerful method to estimate the neutron-proton (n-p) equilibration in heavy-ion collisions, and extensively used to obtain information on the asy-stiffness of the nuclear Equation of State. In fact such a ratio is expected to bypass any perturbations introducing a linear
transformation of the chosen observable. In particular, it is supposed to overcome contributions due to emission, either of dynamical or statistical nature, from the primary fragments formed during the collisions. In this talk we explore the validity of this assumption, looking at the quasi-projectile n-p
ratio (N/Z) in peripheral and semi-peripheral events for Ca+Ca reactions at 35 MeV/nucleon, simulated via the Antisymmetrized Molecular Dynamics transport model, coupled to different statistical decay codes. The investigation has shown that both the statistical de-excitation of primary fragments and the ”fast dynamical” emissions can influence the observed n-p equilibration via isospin transport ratio, mainly in two distinctive ranges of centrality.

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