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Does the pre-equilibrium phase matter for the determination of nuclear geometry in high-energy isobar collisions?

Ultrarelativistic isobar collisions have been proposed as a useful tool for investigating nuclear structures. The complete description of these high-energy collisions involves a hydrodynamic expansion preceded by a pre-thermal equilibrium phase. Because hydrodynamic simulations are time-consuming, isobar nuclear structure has been discussed a lot in terms of geometrical estimators such as excentricities, where the pre-thermal phase was ignored. In this presentation, we study the impact of a free-streaming phase on observables and point out some for which it is relevant. The discussion in terms of geometrical estimators follows arXiv:2305.03703v3. In addition, the first results from full hydrodynamic simulations are presented to assess the geometric estimators that were used

Category

Theory

Collaboration (if applicable)

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