

Determine the neutron skin thickness of Pb208 by relativistic semi-isobaric collisions

Thursday, 15 August 2024 17:00 (15 minutes)

The neutron skin thickness of the benchmark nuclei ^{208}Pb is crucial for our understanding of the equation of state of nuclear matter. Several observables in relativistic heavy ion collisions are found to be sensitive to the neutron skin, and the uncertainties from the bulk evolution can be canceled out by the collision of its isobaric partner. In this talk, we discuss the effect of the neutron skin on the ratio observables in semi-isobaric collisions, i.e., $^{208}\text{Pb} + ^{208}\text{Pb}$ collisions and $^{197}\text{Au} + ^{197}\text{Au}$ collisions. Our results indicate that the ^{208}Pb and ^{197}Au have similar magnitude of neutron skin thickness, as the two isobaric collision systems follow the same scaling behavior. Our results can shed light on the determinations of neutron skin and nuclear symmetry energy in relativistic heavy ion collisions.

Primary author: 刘, 琦 (北京大学物理学院)

Presenter: 刘, 琦 (北京大学物理学院)

Session Classification: 分会场三

Track Classification: 重离子物理