

Study nucleus structure through spectator particle yield in relativistic heavy-ion collisions

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We propose a new method to study nucleus structure through forward-/backward-rapidity particle yield in relativistic heavy-ion collisions. These particles are produced from the multifragmentation process of spectator matter, so they do not experience the complicated midrapidity dynamics, and can be experimentally measured using zero-degree calorimeters. We found that the yields of spectator neutrons and protons can be probes of the neutron skin in colliding nuclei, and the scaled yields of spectator light nuclei can be probes of the alpha-cluster structure in colliding nuclei.

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