

## Study the Target Effect in Pseudorapidity Distribution of Shower Particles at Relativistic Energy

In relativistic heavy-ion collisions, pseudorapidity is an important kinematic characteristic because it directly reveals the angular emission pattern, longitudinal dynamics, and multiparticle creation mechanisms of secondary particles. Because pseudorapidity simply depends on the emission angle and roughly resembles rapidity at relativistic energies, it is important in nuclear emulsion studies when momentum information is not immediately available. Thus, pseudorapidity distributions' shape, width, and target dependency function as sensitive probes of the space-time evolution of the participant region created during the collision. The pseudorapidity distributions of shower particles released in krypton-emulsion interactions with an incidence energy of 1 A GeV are thoroughly examined in this publication. In order to investigate target-mass effects, the analysis compares interactions with heavy (AgBr) and light (CNO) target nuclei incorporated in the emulsion. The observation shows that Gaussian functions properly clarify the pseudorapidity distributions, suggesting that particle emission is collective in nature. A pronounced enhancement in particle density is observed for AgBr targets relative to CNO targets, highlighting the significant influence of target size on particle production.

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