

Rapidity distributions of π^\pm , K^\pm and p (\bar{p}) in $p+p$ and $d+Au$ collisions at 200 GeV

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The rapidity density dN/dy of produced particles is strongly related to the energy density in the collision system^[1]. Net-proton rapidity distribution are related to the baryon transfer process (stopping)^[2]. Rapidity densities of π^\pm , K^\pm and p (\bar{p}) in two collision systems, $p+p$ and $d+Au$ collisions are presented. These system can be thought of as controls for Au+Au measurements^[3]. The scaling of the rapidity density by the number of participants ($\langle N_{\text{part}} \rangle$) and number of binary collisions ($\langle N_{\text{coll}} \rangle$) involved in the collisions may reveal different physics at mid-rapidity and forward rapidities, e.g. comparison of the net-proton rapidity density in the central Au+Au collisions with smaller control systems such as $p+p$ and $d+Au$ will help us understand the baryon transport in these systems. Rapidity densities of identified charged hadrons (π^\pm , K^\pm and p (\bar{p})) and net-protons measured by the BRAHMS experiment in different systems are compared to each other and to model predictions^[4,5,6]. Finally the centrality dependence of the rapidity density in $d+Au$ collisions will be discussed.

References

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