Quark Matter 2008, Feb. 4-10, 2008 - Jaipur - India
Please select submission type: ("oral")

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

Hongyan Yang
for the BRAHMS Collaboration

Department of Physics and Technology, University of Bergen
Allegaten 55, 5007 Bergen, Norway
hongyan@ift.uib.no

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 $\pi^{\pm}$, $K^{\pm}$ 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 ($\langle N_{\rm part}\rangle$) and number of binary collisions ($\langle N_{\rm coll}\rangle$) 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 ($\pi^{\pm}$, $K^{\pm}$ 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

[1] W. Busza and R. Ledoux, *A*nu. Rev. Nucl. Part. Sci., **36**, (1988) 119;
[2] F. Videbaek and O. Hansen, *P*hys. Rev. C, **52**, (1995) 2684;
[3] R. Nouicer for the PHOBOS Collaboration, *J.* Phys. G, **30**, (2005) S1133;
[4] S. E. Vance, M. Gylassy, X.-N. Wang, *P*hys. Lett. B, **443**, (1998) 45;
[5] Z.-W. Lin and C. M. Ko, *P*hys. Rev. C, **68**, (2003) 054904;
[6] J.-P. Blaizot and F. Gelis, *N*ucl. Phys. A, **750**, (2005) 148.