Rapidity dependence of charged particle ratios in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV

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The BRAHMS collaboration has measured charged-particle ratios of pions, kaons, and protons, at selected rapidities from mid-rapidity ($y \approx 0$) to very forward rapidities ($y \approx 3$). At mid-rapidity all of the particle–antiparticle ratios are close to unity. However, both the K^-/K^+ and $\bar{p}/p$ ratios decrease significantly going to forward rapidities. Thermal models[1] that successfully reproduced the observed charged-particle ratios at mid-rapidity for lower energy $\sqrt{s_{NN}} = 130$ GeV also predicts the ratios observed near mid-rapidity at $\sqrt{s_{NN}} = 200$ GeV well.
In this talk we will present the rapidity dependence of the particle ratios. Current theoretical models will be compared to the experimental results. In particular, results from a multi-phase transport model (AMPT)[2] that successfully reproduces the observed charged particle multiplicity distributions will be discussed in the context of the current particle ratio data.

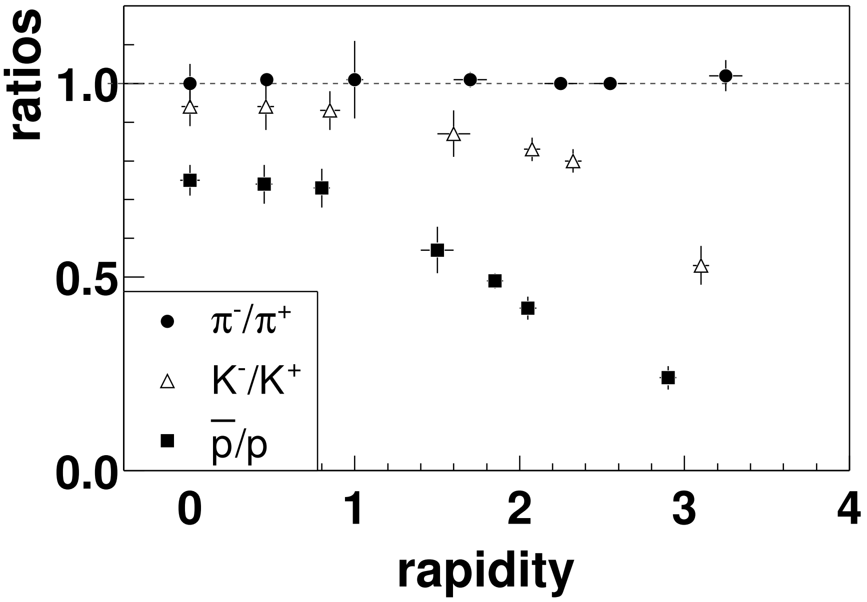

Figure 1: BRAHMS preliminary results on the rapidity dependence of anti–particle to particle ratios. In the talk also ratios between different particle species will be shown.

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[1] P. Braun-Munzinger, D. Magestro, K. Redlich, J. Stachel, Phys. Lett. B 518 (2001) 41.
[2] [4] Zi-wei Lin, Subrata Pal, C. M. Ko, Bao-An Li, and Bin Zhang, Phys. Rev. C 64 (2001) 011902.