Centrality and rapidity dependence of identified charged hadrons in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV and 62.4 GeV

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Heavy-ion collisions at high energies offer a unique opportunity to probe highly excited dense nuclear matter with properties very different from that of a hadron gas or ordinary nuclear matter in the laboratory. Since hadrons contain basic information about collision dynamics, the production of hadrons is one of the important probes of QGP. Based on unique capability of BRAHMS experiment from RHIC, namelly to collect data on hadron production over the widest possible rapidity range (0-4), we present measurements of identified charged hadron production at different rapidities from Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV and 62.4 GeV. Midrapidity and forward rapidity results on particle rapidity densities (dN/dy) and average transverse momentum (mean-p$_T$) for each particle species ($\pi^{\pm}$, $K^{\pm}$, p and $\bar{p}$) are investigated as a function of collision centrality, number of participant nucleons, N$_{part}$, and center of mass energy. The rapidity densities decrease at higher rapidities for all particles except for protons. For a thermodynamic system, $<p_T>$ can be an approximate representation of the temperature of the system and dN/dy may represent its entropy. The mass and centrality dependence of $<p_T>$ reflects the radial collective expansion. The results are also compared to previous measurements at various energies. The rapidity and N$_{part}$ dependence of pion and kaon enhancement factors (the yield per mean number of participating nucleons, N$_{part}$, in heavy-ion collisions divided by the respective value in pp) are shown and discussed. An enhancement of kaon production with respect to pions may provide information about strangeness production (due to the fast and energetically favorable process of gluon-gluon fusion into strange quark-antiquark pairs, and therefore sensitive to the initial gluon density), or may be related with other physics mechanisms, for example, additional entropy production.