

Energy and centrality dependence of particle production at very low transverse momenta in Au+Au collisions

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The PHOBOS experiment at RHIC has a unique capability of measuring particle production at very low transverse momenta. New results on low-transverse momentum invariant yields of pions, kaons, protons and antiprotons produced in 200 GeV Au+Au collisions will be presented as a function of the collisions centrality for the 50% most central events. A comparison to the yields measured at 62.4 GeV will be shown. We will show that at the two energies similar trends are observed in low transverse momentum particle production. The low transverse momentum yields agree with extrapolations from intermediate transverse momentum measurements. For all collision centralities a flattening of the transverse momentum spectra is observed and this effect depends on the particle mass, being stronger for heavier particles. This observation is consistent with a rapid transverse expansion of the system and does not confirm the hypothesis of transverse mass scaling postulated by the saturation models [1,2]. In contrast, in the environment of d+Au collisions, transverse mass scaling is confirmed.

References

- [1] M.A. Braun, F.del Moral, C. Pajares, *Nucl. Phys. A*, **715**, (2003) 791c.
- [2] J. Shaffner-Bielich, D. Kharzeev, L. McLerran, R. Venugopalan *Nucl. Phys. A*, **705**, (2002) 494.