

Charged Particle Spectra from Au+Au $\sqrt{s_{NN}} = 27$ GeV Collisions at STAR

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Abstract

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2 The RHIC beam energy scan I (BES-I) ran from 2010 to 2014 and covered a range of
3 energies from $\sqrt{s_{NN}} = 62.4$ to 7.7 GeV. Midrapidity spectra for π , K , and p have been
4 published from those data. Those and other results have justified a new beam energy scan
5 (BES-II) with high statistics and a series of detector upgrades. The first collider energy from
6 BES-II, 27 GeV, was run in 2018. For this run a single sector of the inner time projection
7 chamber (iTPC) upgrade was available. This detector upgrade extended the coverage of the
8 STAR detector to lower p_T and higher η . This talk will report the spectra and yields of π ,
9 K , and p as a function of rapidity and centrality from the 27 GeV Au+Au collisions from
10 2018 at the Relativistic Heavy Ion Collider. The relative yields of the various particle species
11 allows one to measure the chemical freeze-out temperature and baryon chemical potential. The
12 extended coverage provided by the iTPC upgrade will improve estimates of the full 4π yields.
13 The parameters extracted from the 4π yields in the current analysis are compared to previous
14 experimental results extracted from midrapidity particle yields to address the evolution of the
15 baryon chemical potential as a function of rapidity.