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## Production of pions, kaons, and (anti-)protons in Au+Au collisions at $\sqrt{s_{NN}} = 54.4$ GeV at RHIC

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Quantum Chromodynamics (QCD) predicts the existence of a deconfined state of matter called Quark-Gluon Plasma (QGP) at sufficiently high-temperature and/or high-energy density. In order to investigate the phase diagram of QCD matter, the first phase of the Beam Energy Scan (BES-I) program started at the Relativistic Heavy Ion Collider (RHIC) in the year 2010. In continuation of BES-I, a high statistics dataset from Au+Au collisions at  $\sqrt{s_{NN}} = 54.4$  GeV was recorded by the STAR experiment at RHIC in the year 2017. The transverse momentum ( $p_T$ ) spectra of identified hadrons are essential to study the bulk properties such as integrated yield ( $dN/dy$ ), average transverse momenta ( $\langle p_T \rangle$ ), particle ratios, and freeze-out parameters of the medium produced. The systematic study of bulk properties can shed light on the particle production mechanism in heavy-ion collisions.

In this talk, we will present the  $p_T$ -spectra of hadrons ( $\pi^\pm$ ,  $K^\pm$ , p, and  $\bar{p}$ ) at mid-rapidity ( $|y| < 0.1$ ) in Au+Au collisions at  $\sqrt{s_{NN}} = 54.4$  GeV. The centrality dependence of  $dN/dy$ ,  $\langle p_T \rangle$ , particle ratios, chemical freeze-out and kinetic freeze-out parameters will also be presented and compared with the measurements at other beam energies.

### Present via

Online

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