



Contribution ID: 192

Type: **Oral Presentation**

Light hadron production measurements with Au+Au Collisions from $\sqrt{s_{\text{NN}}} = 3.2 - 4.5 \text{ GeV}$ with STAR

Tuesday, 24 March 2026 08:45 (20 minutes)

One of the main physics goals of the Beam Energy Scan (BES) program at RHIC is to study the QCD phase diagram, especially around the phase transition between the quark-gluon plasma (QGP) and hadronic matter. BES Phase-I studied Au+Au collisions from center-of-mass energy ($\sqrt{s_{\text{NN}}}$) of 7.7 to 62.4 GeV. BES Phase-II extended these measurements in several important ways, one of which was the addition of a fixed-target program that pushed the collision energy down to 3.0 GeV (or baryon chemical potential, μ_B , up to 720 MeV). Fixed-target collisions at STAR allow for a more extensive scanning of the QCD phase diagram to an important region where the QCD critical point may lie, and to a region dominated by dense baryonic matter. One key measurement in the fixed-target program is the spectrum of the lightest hadrons [$\pi^\pm, K^\pm, p(p)$] as a function of transverse momentum, rapidity, and collision centrality. Such measurements enable the empirical determination of the colliding system's location on the phase diagram at chemical freeze-out. This talk details the latest status of the light hadron production measurements at STAR, and dN/dy measurements are shown from $\sqrt{s_{\text{NN}}} = 3.2 - 4.5 \text{ GeV}$.

Authors: LABONTE, Mathias (Univ. of California Davis); STAR COLLABORATION

Presenter: LABONTE, Mathias (Univ. of California Davis)

Session Classification: Parallel II: Bulk Properties