

Contribution ID: 151

Type: Talk

Measurement of ϕ meson and Ξ^- hyperon production in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV from STAR experiment

Monday 12 July 2021 17:35 (20 minutes)

The main goal of the STAR experiment is to study the properties of QCD matter at extreme conditions, high temperature and/or high density, by colliding heavy ions at ultra-relativistic speed. The yields and particle ratios of strange hadrons provide important information about the particle production mechanisms in these collisions. The RHIC Beam Energy Scan program covers a wide range of energies to explore the transition from a hadronic dominated phase to a partonic dominated one. Of particular interest is the high baryon density region which is accessible through the STAR fixed-target program, which has extended the energy reach from $\sqrt{s_{NN}} = 7.7$ GeV down to 3.0 GeV.

This presentation will report the first measurements of ϕ meson and Ξ^- hyperon production in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV. After correcting for the detector acceptance and tracking efficiencies, invariant yields and rapidity density distributions of ϕ and Ξ^- will be presented. The particle ratios ϕ/K^- and ϕ/Ξ^- will be shown. Those results will be compared to the thermal and transport model calculations to study the strangeness production, and particularly to test and constrain canonical ensemble calculations. Comparisons to measurements from other experiments at similar energies will also be discussed.

Preferred track

Hadron Spectroscopy

Primary author: ZHOU, yingjie (central china normal university)

Presenter: ZHOU, yingjie (central china normal university)

Session Classification: Jets & QCD / Hadron Spectroscopy and Heavy Flavour

Track Classification: High-temperature QCD