

Strange hadrons production in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3 \text{ GeV}$ from STAR experiment

Yingjie Zhou (for the STAR Collaboration)

Central China Normal University

Abstract

1 Exploring the QCD phase diagram and searching for the QCD critical point are
2 among(st) the main goals of heavy-ion collision experiments. The yields and particle
3 ratios of strange hadrons provide information about the phase diagram and particle
4 production mechanisms in these collisions. The RHIC Beam Energy Scan program
5 covers a wide range of energies to explore the transition from a hadronic dominated
6 phase to a partonic dominated one. Of particular interest is the high baryon density
7 region which is accessible through the STAR fixed-target program, which has extended
8 the energy reach from $\sqrt{s_{\text{NN}}} = 7.7 \text{ GeV}$ to 3.0 GeV .

9 This presentation will report the first measurements of strange hadrons production
10 in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3 \text{ GeV}$. After correcting for the detector acceptance and
11 tracking efficiencies, invariant yields and rapidity density distributions of K_S^0 , Ξ and ϕ -
12 meson will be presented as well as the yield ratios of ϕ/K^- and ϕ/Ξ^- will be presented.
13 Those results will be compared to the thermal and transport model calculations to
14 study the strangeness production in this high baryon density region. Comparisons to
15 measurements from other experiments at similar energies will also be discussed.