

1 Study the production of identified charged
2 hadrons in Au+Au collisions at $\sqrt{s_{NN}} = 54.4$
3 GeV using the STAR detector

4 Arushi Dhamija (for the STAR Collaboration)

5 Panjab University, Chandigarh, India

6 Exploring the QCD phase diagram and searching for the QCD critical
7 point are some of the main goals of the Beam Energy Scan program at
8 RHIC. In 2017, the STAR experiment collected a large dataset of Au+Au
9 collisions at $\sqrt{s_{NN}} = 54.4$ GeV. The identified particle spectra and yields
10 provide information about the bulk properties of the hot medium created
11 in these collisions. The centrality dependence of the freeze-out parameters
12 explores a wide (T, μ_B) region in the phase diagram facilitating the search
13 for the QCD critical point.

14 We present the measurements of the production of π^\pm , K^\pm , p, and \bar{p} .
15 The results for the transverse momentum spectra, particle yields, average
16 transverse momentum $\langle p_T \rangle$, and particle ratios will be presented for different
17 centrality classes and compared with AMPT and HIJING model calculations.
18 In addition, the extracted freeze-out parameters will be compared with the
19 results at other collision energies. The physics implications of the results will
20 be discussed.