

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

14    We present the measurements of the production of  $\pi^\pm$ ,  $K^\pm$ , p, and  $\bar{p}$  at  
15    midrapidity  $|y| \leq 0.1$ . The results for the transverse momentum spectra, par-  
16    ticle yields  $dN/dy$ , average transverse momentum  $\langle p_T \rangle$ , and particle ratios  
17    will be presented for different centrality classes and compared with AMPT  
18    and HIJING model calculations. In addition, the extracted freeze-out pa-  
19    rameters will be compared with the results at other collision energies. The  
20    physics implications of the results will be discussed.