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## Production of pions, kaons, (anti-) protons and (multi-) strange hadrons production in Au+Au collisions at $\sqrt{s_{NN}} = 54.4$ GeV using the STAR detector

*Tuesday, May 18, 2021 9:30 AM (20 minutes)*

Exploring the QCD phase diagram and searching for the QCD critical point are some of the main goals of heavy-ion collision experiments. The yields of identified hadrons and (multi-) strange hadrons provide information about the phase diagram and particle production in these collisions. In 2017 the STAR experiment collected large dataset of Au+Au collisions at 54.4 GeV.

The production of identified hadrons ( $\pi^\pm$ ,  $K^\pm$ ,  $p$ ,  $\bar{p}$ ) and strange hadrons ( $K_S^0$ ,  $\Lambda$ ,  $\Xi$ ,  $\Omega$ ,  $\phi$ ) at mid-rapidity is presented. The results for the transverse momentum spectra, particle yields  $dN/dy$ , average transverse momentum  $\langle p_T \rangle$  and particle ratios are presented for different centrality classes. The energy dependence of all these observables will be discussed. The freeze-out conditions in these collisions are obtained using the statistical thermal model. In particular, the strange-to-pion ratios versus charged hadron multiplicity are studied and will be compared to the measurements in heavy-ion collisions at other energies from the BES-I program at RHIC and the ALICE experiment at the LHC.

### Collaboration

STAR Collaboration

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**Session Classification:** Strangeness (Yields)