

# Anisotropic flow of (multi-)strange hadrons in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 7.7\text{-}19.6$ GeV from STAR

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(for the STAR Collaboration)

1 Directed and elliptic flow,  $v_1$  and  $v_2$ , are sensitive to the dynamics of heavy-ion collisions at the early stages of the system evolution and equation of state of the medium. The  
2 hadronic interaction cross sections of multi-strange hadrons are expected to be small and  
3 their freeze-out temperatures are close to the transition temperature between quark-gluon  
4 plasma and hadronic matter. Hence, these hadrons may provide information primarily  
5 from the early stages of the high energy collisions and are important for the study of  
6 QCD phase diagram at RHIC.  
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8 In this poster, with the enhanced statistics datasets from the second phase of the  
9 RHIC beam energy scan (BES-II) program, we will present precise measurements of  $v_1$   
10 and  $v_2$  for  $K^\pm$ ,  $K_S^0$ ,  $\Lambda$ ,  $\bar{\Lambda}$ ,  $\phi$ ,  $\Xi$ ,  $\bar{\Xi}^+$ ,  $\Omega$ , and  $\bar{\Omega}^+$  at  $\sqrt{s_{\text{NN}}} = 7.7, 9.2, 11.5, 14.6,$  and  
11  $19.6$  GeV at STAR. The centrality dependence of  $v_1$  and  $v_2$  and the test of number of  
12 constituent quark (NCQ) scaling will be discussed for all the particles and corresponding  
13 anti-particles. Also the energy dependence of  $v_1$  slope with rapidity and integrated  $v_2$  at  
14 these energies will be shown. Implications of these measurements in the context of QCD  
15 phase structure will be discussed.