

# The elliptic flow of (multi-)strange hadrons in Au + Au collisions at $\sqrt{s_{NN}} = 7.7$ and 9.2 GeV from STAR

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1 The elliptic flow ( $v_2$ ) is the second harmonic coefficient in a Fourier expansion of the  
2 azimuthal distribution of produced particles with respect to the reaction plane. Strange  
3 hadrons, especially the multi-strange hadrons, are regarded as good probes for the early  
4 stages of the collision, as they freeze-out earlier and have smaller hadronic cross sections  
5 than light hadrons. Thus, a comparative study of various strange and multi-strange  
6 hadrons can help us study the medium properties and better explore the QCD phase  
7 structure.

8 In this poster, with datasets of the second phase of the RHIC Beam Energy Scan  
9 (BES-II), we will present the measurements of  $v_2$  for  $K_S^0$ ,  $\Lambda$ ,  $\bar{\Lambda}$ ,  $\Xi^-$ ,  $\bar{\Xi}^+$ ,  $\Omega^-$ ,  $\bar{\Omega}^+$ , and  $\phi$   
10 mesons in Au + Au collisions at  $\sqrt{s_{NN}} = 7.7$  and 9.2 GeV using the STAR detector. The  
11  $v_2$  results will be shown as a function of transverse momentum and collision centrality.  
12 The number of constituent quarks (NCQ) scaling will be tested from central to peripheral  
13 collisions. The inferred information related to the QCD phase structure will be discussed.