

1 Directed flow of  $\phi$  mesons in Au+Au collisions at the second  
2 phase of beam energy scan (BES-II) program from STAR

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6 The  $\phi$  meson is composed of strange quarks ( $s\bar{s}$ ) and has a small hadronic  
7 interaction cross-section, which reduces the influence of late stage rescatter-  
8 ing in heavy-ion collisions [1,2]. Thus the directed flow ( $v_1$ ) of  $\phi$  mesons  
9 is sensitive to the early stages of the collisions and is an important observ-  
10 able for the study of QCD phase diagram at RHIC. In this poster, we will  
11 present measurements of directed flow of  $\phi$  mesons in Au+Au collisions  
12 at  $\sqrt{s_{NN}} = 3, 7.2, \text{ and } 19.6$  GeV from the second phase of RHIC beam  
13 energy scan (BES-II) program.  $\phi$  mesons are reconstructed through the  
14 decay channel  $\phi \rightarrow K^+ + K^-$ . We will compare our new results with the  
15 BES-I results [3,4].

16 **References**

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