

1 ϕ meson v_1 , v_2 in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV, 7.2
2 GeV from STAR

3 Ding Chen (for STAR collaboration)

4 University of California, Riverside

5 June 25, 2020

6 The ϕ meson is composed of strange quarks ($s\bar{s}$), and has a small cross section
7 with hadrons which reduces the influence of rescattering in the later stage of heavy-ion
8 collisions [1,2]. Thus the ϕ meson directed flow (v_1) and elliptic flow (v_2) are sensitive to
9 the early stages of the collisions and are important observables for the study of quark-
10 gluon plasma (QGP) phase diagram at RHIC. In this talk, we will present measurements
11 of the ϕ meson v_1 , v_2 in Au+Au collisions from the STAR fixed-target program (FXT).
12 The ϕ meson is reconstructed through the channel $\phi \rightarrow K^+ + K^-$. We will compare
13 our new results with STAR Beam Energy Scan I (BES-I) results [3,4].

14 **References**

- 15 [1] Asher Shor. *Phys. Rev. Lett.* **54**, 1122. (1985)
16 [2] Cheng, Y. and Liu, F. and Liu, Z. and Schweda, K. and Xu, N. *Phys. Rev. C* **68**, 034910. (2003)
17 [3] L. Adamczyk *et al.* (STAR Collaboration). *Phys. Rev. C* **88**, 014902. (2013)
18 [4] L. Adamczyk *et al.* (STAR Collaboration). *Phys. Rev. Lett.* **120**, 062301. (2018)