

Abstract Submitted  
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**Measurement of pion elliptic flow with BBC event planes in Au+Au collisions at  $\sqrt{s_{NN}} = 7.7, 11.5$  and  $19.6$  GeV** OLIVIA CHISMAN, North Park University and University of California Los Angeles, STAR COLLABORATION — The quark gluon plasma (QGP) formed in high-energy heavy-ion collisions at RHIC top energies is a strongly interacting medium. Elliptic flow ( $v_2$ ), which is the second-order Fourier coefficient of the azimuthal distribution of the produced particles with respect to the reaction plane, has been extensively used to study this medium's properties. Previous STAR data showed a difference in  $v_2$  of  $\pi^+$  and  $\pi^-$  that becomes more pronounced at lower collision energies such as  $\sqrt{s_{NN}} = 7.7$  GeV [1]. In this poster, we analyze  $v_2$  of  $\pi^+$  and  $\pi^-$  produced at mid-rapidity, with the event plane reconstructed from the STAR Beam Beam Counters (BBC). With the pseudo-rapidity gap ( $\Delta\eta > 2$ ) between the event plane and particles of interest, we improve our control of the systematics due to the short-range correlations that are not related to the reaction plane. The low possibility of proton registration in the BBC further suppresses the background due to weak decays. We will present pion  $v_2$  results for Au+Au collisions at 7.7, 11.5 and 19.6 GeV, and discuss the physics implications of our results in comparison with previous data whose event plane was reconstructed at mid-rapidity.

[1] L. Adamczyk *et al.*, Phys. Rev. Lett. **110** (2013) 142301.

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