

Abstract Submitted  
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**Longitudinal De-correlation of Anisotropic Flow in Au+Au Collisions at 27 GeV from STAR** XIAOYU LIU, the Ohio State University, STAR COLLABORATION — Studies of longitudinal de-correlation of anisotropic flow provide unique constraints on the initial conditions and dynamical evolution of the quark gluon-plasma in heavy-ion collisions. The newly installed Event Plane Detector (EPD) in both forward and backward directions provides a unique opportunity to measure the flow de-correlation at STAR/RHIC. In this study, the factorization ratio for flow harmonics,  $r_n(\eta^a, \eta^b)$  ( $n = 2, 3$ ), is obtained over a wide  $\eta$  range for 27 GeV Au+Au collisions as functions of centrality and transverse momentum. Comparing to results from LHC and 200 GeV Au+Au collision, a clear energy dependence is observed indicating a stronger longitudinal de-correlation at lower collision energies. The results may provide new insights into the three-dimensional modeling of the evolution of relativistic heavy-ion collisions and the shear viscosity of the QGP, especially their collision energy dependence.

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