Measurements of elliptic and triangular flow in forward and backward rapidity in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 19.6 GeV at RHIC-STAR

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Elliptic (v_2) and triangular (v_3) flow in the forward and backward rapidity regions, are sensitive to the equation of state of hot and dense nuclear matter as well as the initial conditions in heavy-ion collisions. According to hydrodynamic models, the rapidity dependence of v_2 and v_3 has a strong constraining power on the temperature dependence of specific shear viscosity (η/s). However, such flow data in the forward/backward regions as well as at lower collisions energies are scarce or even not available for v_3. In the second phase of the beam energy scan program (BESII) at RHIC-STAR, data from Au+Au collisions at lower collision energies were taken with the inner TPC ($|\eta| < 1.5$) and Event Plane Detector (EPD, $2.1 < |\eta| < 5.1$) upgrades. At low energy, the EPD covers both participant and spectator regions, allowing us to study the rapidity dependence of azimuthal anisotropy in detail.

In this poster, precision measurement of elliptic flow in a wide range of rapidity in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 19.6 GeV will be reported and compared to the previous result by the PHOBOS experiment. The first measurement of triangular flow will be also presented over such a wide rapidity range in 19.6 GeV Au+Au collisions. These results will be compared to theoretical models and provide important input to constrain the temperature and baryon chemical potential dependence of η/s.