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## Directed flow of identified particles in Au+Au collisions at $\sqrt{s_{NN}} = 19.6$ and 14.6 GeV

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Determination of equation of state for nuclear matter at high baryon density region is one of the most important motivations for RHIC Beam Energy Scan program. Directed flow ( $v_1$ ), which is the first harmonic coefficient in the Fourier expansion of the final state azimuthal distribution of produced particles relative to the collision reaction plane, is one of good probes to early stage of collision dynamics for its high sensitivity.

STAR Beam Energy Scan program phase I (BES I) covers collision energies from  $\sqrt{s_{NN}} = 7.7$  GeV to 200 GeV. We observed that  $v_1$  slopes ( $dv_1/dy|_{y=0}$ ) at mid-rapidity region for net-proton and net- $\Lambda$  show a minimum value when collision energy is around  $\sqrt{s_{NN}} = 10$ -20 GeV. The slope of  $\phi$  mesons has a hint of sign change between 11.5 and 14.5 GeV. With large statistics from BES II, we will present  $v_1$  results of pions, kaons, protons, and  $\phi$  mesons. The corresponding  $v_1$  slopes will be studied as a function of centrality. The data will constrain the model calculations and offer information about possible first order QCD phase transition.

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