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Excess-proton directed flow in 19.6 GeV Au+Au collisions

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Directed flow of particles is an important feature seen in heavy-ion collisions and is a sensitive probe of the equation of state (EoS) of the matter produced in the collisions. Model calculations have also predicted that directed flow could be a sensitive probe of the softening of EOS associated with a first order phase transition. Directed flow of protons and anti-protons are of particular interest as they offer sensitivity to both the contributions from the transported quarks and also the medium generated component from the produced quarks. We will present measurements of the directed flow of protons and antiprotons from 19.6 GeV Au+Au collisions, using high statistics BES-II data from STAR. The new results have significantly reduced uncertainties and allow the study of how the two contributions vary over different centrality and transverse momentum regions.

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