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Observation of a difference in v_2 between particles and anti-particles in Au+Au collisions at $\sqrt{s_{NN}} = 7.7-62.4$ GeV with STAR

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The RHIC Beam Energy Scan covers a wide range in the QCD phase diagram temperature vs. baryon chemical potential. A phase transition between the Quark Gluon Plasma and the hadron gas phase is expected in this region of the QCD phase diagram. The elliptic flow v_2 is one of the observables which is sensitive to the pressure gradients in the initial stage of heavy-ion collisions. Hence it can provide important information about the properties of the fireball in the early stage of heavy ion collisions.

Elliptic flow measurements at midrapidity from Au+Au collisions at $\sqrt{s_{NN}} = 7.7, 11.5, 19.6, 27, 39$ and 62.4 GeV for identified hadrons ($\pi^\pm, K^\pm, K_s^0, p, \bar{p}, \phi, \Lambda, \bar{\Lambda}, \Xi^-, \bar{\Xi}^+, \Omega^-, \bar{\Omega}^+$) are presented. We observe a significant difference in v_2 between particles and corresponding anti-particles at the lowest energies of the beam energy scan. Baryons show a larger difference compared to mesons. The centrality, particle species and energy dependence of the difference will be presented. Furthermore we compare the data to several models and discuss their implications.

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