

QPT 2019

Enshi, China

Contribution ID: 40

Type: **not specified**

Beam energy dependence of directed flow of deuteron in Au+Au collisions at RHIC

Summary

The directed flow v_1 is considered to be sensitive to the equation of state (EoS) of QCD matter in heavy ion collisions.

From the measurement by STAR experiment at RHIC, the v_1 slope (dv_1/dy) distribution of net-proton as well as net-Lambda has shown a minimum at 14.5 GeV, implying the softening of EOS. In RHIC beam energy scan, abundant of light nuclei are produced especially at the lower collision energies. Due to heavier mass, light nuclei v_1 may have more sensitivity on collision energy and EoS.

In this talk, we will present the direct flow v_1 of deuterons from Au+Au collisions at 7.7, 11.5, 14.5, 19.6, 27 and 39 GeV measured with the STAR experiment at RHIC. The deuteron v_1 rapidity slope (dv_1/dy) from mid-central collisions (10-40%) are extracted. Results of the collision energy dependence will be presented and discussed by comparing with model calculations

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