Contribution ID: **369** Type: **Contributed talk**

PHENIX results on collectivity in ^{3}He+Au collisions

Monday 28 September 2015 18:40 (20 minutes)

Collisions of light with heavy ions have been considered control experiments for heavy ion collisions, but measurements of long-range azimuthal correlations of light hadrons in $p(d)$+A collisions at RHIC and LHC challenge this assumption. Hydrodynamic model calculations have been successful in describing experimental results, though alternative explanations involving initial-state Glasma diagrams have not been not ruled out. Further understanding of the origin of the observed anisotropies can be achieved in ^{3}He+Au collisions at $\sqrt{s_{NN}}$=200 GeV, which change the shape and size of the initial reaction zone compared to $p(d)$+A. We present PHENIX results for ^{3}He+Au collisions at $\sqrt{s_{NN}}$=200 GeV. Production of neutral pions is measured in a wide transverse-momentum range and is used to study centrality dependence of the cold-nuclear-matter effects. Azimuthal correlations for rapidity separated $(\Delta\eta > 3.5)$ particles are measured in a wide transverse-momentum range and compared to that in p+p collisions. Elliptic and triangular flow coefficients are measured for charged hadrons and their dependence on particle mass and rapidity is reported. The experimental results are compared theoretical predictions, including to models where three hot spots created by the impact of the three ^{3}He nucleons on the Au nucleus expand hydrodynamically to generate triangular flow. The agreement of data with these models may indicate the formation of low-viscosity quark-gluon plasma, even in these small collision systems.

On behalf of collaboration:

PHENIX

Author: HUANG, shengli (PHENIX Collaboration)

Presenter: HUANG, shengli (PHENIX Collaboration)

Session Classification: QGP in Small Systems I

Track Classification: QGP in Small Systems