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Elliptic flow for Ξ -mesons measured by PHENIX

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The systematic study of hadronic elliptic flow in various relativistic heavy ion collisions is important for the investigation of the initial geometry influence on the quark gluon plasma characteristics. The Ξ -meson consists of strange and antistrange quarks and has a small interaction cross section with non-strange hadrons. Therefore, Ξ -mesons are barely affected by late hadronic stage and reflect detailed information about hot and dense matter properties. Additionally, the comparison of elliptic flow for Ξ -mesons to those of charged hadrons will provide additional research of the flow flavor dependence. PHENIX has measured second order azimuthal anisotropy coefficients for Ξ -mesons in Cu+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and in U+U collisions at $\sqrt{s_{NN}} = 193$ GeV at midrapidity ($|y| < 0.35$). The obtained data suggest scaling of elliptic flow for Ξ -mesons with eccentricity of participant nucleons in Cu+Au, U+U, and Au+Au collisions. For a more detailed study, the comparison of current results to azimuthal anisotropy for charged hadrons and to hydrodynamic and transport model predictions will be presented.

Collaboration

PHENIX

Author: Mr MITRANKOV, Iurii (Peter the Great St.Petersburg Polytechnic University (SPbPU))

Co-authors: Mrs MITRANKOVA, Mariia (Peter the Great St.Petersburg Polytechnic University (SPbPU)); Prof. BERDNIKOV, Yaroslav (Peter the Great St.Petersburg Polytechnic University (SPbPU)); KOTOV, Dmitry (PNPI NRC KI & SPbPU); Mr BORISOV, Vladislav (Peter the Great St.Petersburg Polytechnic University (SPbPU)); Ms LARIONOVA, Daria (Peter the Great St.Petersburg Polytechnic University (SPbPU)); Mr BERDNIKOV, Alexander (Peter the Great St.Petersburg Polytechnic University (SPbPU))

Presenter: Mr MITRANKOV, Iurii (Peter the Great St.Petersburg Polytechnic University (SPbPU))

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