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Study of the second order azimuthal anisotropy for π^0 mesons in Cu+Au collisions at $\sqrt{s_{NN}} = 200$ GeV

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The study of the azimuthal anisotropy of hadron production provides the opportunity to investigate properties of nuclear matter at extreme energy densities, where quarks and gluons are deconfined. This state of matter was called quark-gluon plasma (QGP). The second order coefficient of azimuthal anisotropy, i.e. the elliptic flow (v_2), is one of the main observables measured in relativistic heavy-ion collisions. The elliptic flow for π^0 was measured by PHENIX experiment at RHIC in symmetric collision systems: Cu+Cu and Au+Au. The measurement of the v_2 values in Cu+Au asymmetric collisions and comparison of these values with those in symmetric collisions makes it possible to determine the dependence of the elliptic flow for light hadrons on the initial geometry of the system. It is also interesting to check if quark number scaling of v_2 observed in symmetric collisions is present in asymmetric Cu+Au collisions. Current report is dedicated to the measurement of π^0 mesons elliptic flow in Cu+Au collisions at $\sqrt{s_{NN}} = 200$ GeV as a function of transverse momentum and centrality.

Primary author(s) : BANNIKOV, Egor (Peter the Great St.Petersburg Polytechnic University (SPbPU))

Co-author(s) : Dr. BERDNIKOV, Alexander (Peter the Great St.Petersburg Polytechnic University); Prof. BERDNIKOV, Yaroslav (Peter the Great St.Petersburg Polytechnic University); Dr. KOTOV, Dmitry (Peter the Great St.Petersburg Polytechnic University); MITRANKOV, Iurii; MITRANKOVA, Mariia (SPbPU); LARIONOVA, Daria

Presenter(s) : BANNIKOV, Egor (Peter the Great St.Petersburg Polytechnic University (SPbPU))

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