

Abstract Submitted
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Exploring the quadrupole deformation in uranium nuclei at STAR CHUNJIAN ZHANG, Stony Brook University, STAR COLLABORATION COLLABORATION — Collective phenomena in heavy-ion collisions are very sensitive to initial geometry including nuclei deformation effects. Recent hydrodynamic model calculations suggest that such deformation effects can be probed by studying event-by-event mean p_T ($\langle p_T \rangle$) fluctuation and the correlation between the mean p_T and harmonic flow (v_n). In particular, due to prolate shape of the uranium nuclei, significant difference between Au+Au and U+U collisions is expected for these observables. Results on the high-order cumulants of $\langle p_T \rangle$ fluctuations and Pearson correlation coefficient between $\langle p_T \rangle$ and v_n as a function of centrality from Au+Au at $\sqrt{s_{NN}} = 200$ GeV and U+U at $\sqrt{s_{NN}} = 193$ GeV collisions with the STAR detector will be presented. Precise data-model comparison could be helpful to constrain the quadrupole deformation parameter β_2 of uranium nuclei.

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