

Flow Measurements and selection of body-body and tip-tip enhanced samples in U+U collisions at STAR

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The azimuthal anisotropy of particle production is commonly used in high-energy nuclear collisions to study the early evolution of the expanding system. The prolate shape of uranium nuclei provides the possibility to study how the initial geometry of the nuclei affects the azimuthal distributions. It also provides a unique opportunity to understand the initial conditions for particle production at mid-rapidity in heavy ion collisions.

In this talk, the two- and four- particle cumulant, $v_2(v_2^2$ and $v_2^4)$, from U+U collisions at $\sqrt{s_{NN}} = 193$ GeV and Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV for inclusive charged hadrons will be presented. The STAR Zero Degree Calorimeter is used to subdivide the 0-1% centrality bin into even finer centralities. Differences were observed between the multiplicity dependence of v_2^2 for most central Au+Au and U+U collisions. Data was compared with both Monte Carlo Glauber and IP-Glasma models and it was seen that IP-Glasma model does a better job of describing data. It has also been demonstrated that ZDC and multiplicity in combination provide a way to select body-body or tip-tip enhanced samples of central U+U collisions. We will also present preliminary v_3^2 results for inclusive charged hadrons from Au+Au and U+U collisions.

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