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Azimuthal anisotropy v_2 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 condition 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 Calorimeters resolution allows to further separate more central collisions within 0-1% centrality bin. Differences were observed between the multiplicity dependence of v_2^2 for most central Au+Au and U+U collisions. The observed v_2^2 slope results were compared to Monte Carlo Glauber model predictions and it was seen that this model cannot explain the present results on the multiplicity dependence of v_2^2 in central collisions.

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