



Contribution ID: 4

Type: **not specified**

Imprint of nuclear structure on identified particles in high energy heavy ion collisions

Tuesday 19 August 2025 17:15 (15 minutes)

The encoded nuclear structures related to flow fluctuations can be investigated at a fixed impact parameter in ultra-relativistic ion collisions through factorization breaking. This phenomenon is explored by analyzing momentum-dependent correlations among flow harmonics across distinct kinematic bins, specifically regarding transverse momentum (p_T) or pseudorapidity (η). The influence of various β deformations on these momentum-dependent coefficients has been observed previously. Our findings indicate a sensitivity to triaxiality for $p_T > 1.5$ GeV in ultra-central U+U collisions. Notably, we find that the imprint of deformation is evident in the behavior of identified particles. We report a significant shift in the crossing point of observable ratios, specifically $\pi^\pm/p(\bar{p})$ and π^\pm/K^\pm . This new observable reveals that the crossing point occurs at higher p_T values for quadrupole-deformed nuclei and higher ratio values for triaxiality in U+U and Au+Au collisions, as determined using the TRENTO+VISH(2+1D) framework.

Authors: Mr SAHA, Abhisek (Peking University); MEHRABPOUR, Hadi (Peking Univresity)

Presenter: MEHRABPOUR, Hadi (Peking Univresity)

Session Classification: Young researcher session