Contribution ID: **815** Type: **Poster**

# Tracking the dynamics of system geometry using an hybrid-hydrodynamic simulation

*Tuesday 5 September 2023 17:30 (2h 10m)*

In 2018, RHIC conducted isobar collisions of $^{96}_{44}$Ru and $^{96}_{40}$Zr nuclei in search for the chiral magnetic effect. As a byproduct, anisotropic flow data were taken, revealing differences between the two systems associated to the nuclear structure of the colliding nuclei. This observation offers an opportunity to bridge low-energy nuclear physics and high-energy collisions. Many recent works have concentrated on using the initial geometry to predict final flow data and see if nuclear shape differences would be visible. In this work, we build upon the results in [1] and actually run hydrodynamics and study how each phase (free streaming, Landau matching, expansion, hadronic transport) are related to the initial nuclear shapes seen in data. The simulations were performed using the public available X-SCAPE framework, which allows for the integration of different stages of the collision dynamics. We consider five different nuclear configurations, where we continuously change the nuclear shape from the $^{96}_{44}$Ru to $^{96}_{40}$Zr. We also include an additional case to study triaxility effects.

[1] W. M. Serenone, F. G. Gardim, A. V. Giannini, F. Grassi and K. P. Pala, "Nuclear geometry and pre-equilibrium phase effects on high-energy isobar collisions," [arXiv:2305.03703 [nucl-th]].

## Category

Theory

## Collaboration (if applicable)

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**Presenter:** PALA, Kevin

**Session Classification:** Poster Session

**Track Classification:** Initial state