## 4th International Conference on the Initial Stages in High-Energy Nuclear Collisions



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## Isolating Initial State Fluctuations from Medium Effects

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Elliptical and triangular flow,  $v_n$ , are approximately linear correlated with the initial eccentricities  $\varepsilon_n$ 's. Traditional single-harmonic measurements such as ratios of multi-particle cumulants  $v_n\{m\}$  can, therefore, provide unique information about the initial state. In this talk, the skewness of the initial eccentricity fluctuations, the fluctuations of  $v_2$  vs.  $v_3$  on an event-by-event basis, and the magnitude of flow fluctuations are explored using relativistic viscous hydrodynamics, which naturally reproduces experimental data in large systems. The same techniques are then applied to small systems to investigate if one could differentiate between a hydrodynamic vs. partonic picture of multi-particle correlations.

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