



Contribution ID: 85

Type: Oral

## Microscopic study of non-Gaussian particle number fluctuations near the critical point

*Tuesday 8 April 2025 11:50 (20 minutes)*

We calculate non-Gaussian cumulants of particle number near the 3D-Ising critical point by means of GPU-accelerated molecular dynamics simulations. We perform ensemble averaging with large statistics, and study the equilibration of cumulants near the critical point. We find that scaled variance, skewness, and kurtosis reflect the expected critical behavior of fluctuations and equilibrate on comparable time scales. We also incorporate Bjorken-like collective flow model to study the behavior of non-Gaussian fluctuations in the rapidity space. The results are put in the context of measurements of cumulants and factorial cumulants of protons in heavy-ion collisions at RHIC.

### Category

Theory

### Collaboration (if applicable)

**Authors:** KOCH, Volker; KUZNIETSOV, Volodymyr; Dr VOVCHENKO, Volodymyr (University of Houston)

**Presenter:** KUZNIETSOV, Volodymyr

**Session Classification:** Parallel session 17

**Track Classification:** Correlations & fluctuations