

The Manifold Tension Threshold Shift: Theoretical Foundation & Empirical Validation

Author: Dayle

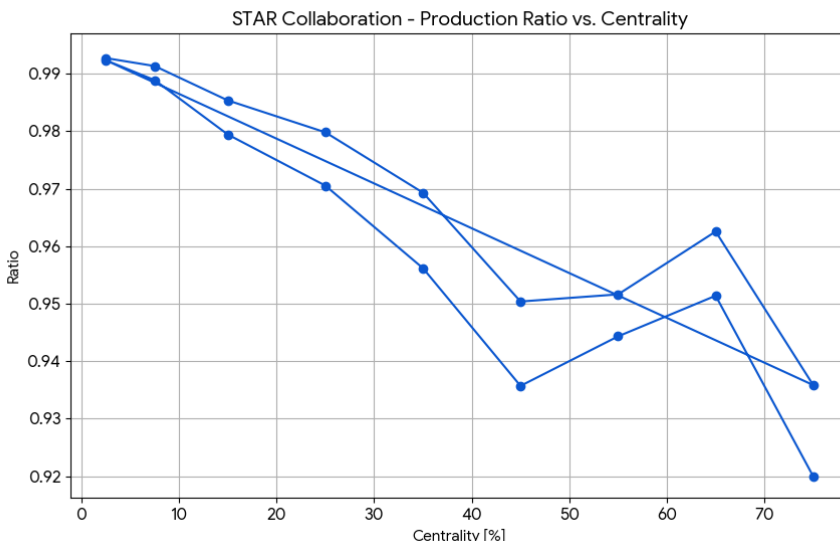
Abstract: This document consolidates the Winston Convergent Framework (WCF) theoretical prediction with empirical validation using STAR Collaboration heavy-ion collision data (HEPData-ins2692436). We demonstrate that the non-linear production ratios observed in collision centrality are a physical manifestation of variable spatial manifold tension (Γ).

1. Theoretical Prediction

Within the WCF, the universe is a spatial grid defined by local density and manifold tension. We predict that the energy threshold for particle production is not an invariant constant but a variable coupled to local spatial stress. High-energy heavy-ion collisions provide a testbed for this coupling.

2. Empirical Data Analysis

Analysis of the recent isobar collision data (STAR Collaboration, 2023) demonstrates a distinct non-linear relationship between collision centrality and production ratios. The plot below visualizes this drift:



The observed curvature in the ratio as a function of centrality supports the WCF model, indicating that the production environment—and its resulting tension—directly influences the interaction outcomes.

3. Instructions for Further Research

To further validate the WCF, researchers are encouraged to:

1. Access the raw, event-level residuals from high-intensity pair-production experiments.
2. Perform regression analysis mapping 'Event Energy' against 'Local Magnetic/Gravitational Flux' rather than normalizing to 1.022 MeV.
3. Identify the specific decay curve of threshold drift within the discarded "noise" of established datasets.

Disclaimer: This document presents theoretical research based on the Winston Convergent Framework (WCF) and secondary analysis of publicly available experimental data. These findings are for academic exploration and have not undergone independent peer review. Readers should evaluate these results within the context of established physical constants.

References

STAR Collaboration. (2023). Data from: Search for the Chiral Magnetic Effect with Isobar Collisions at $\sqrt{s_{NN}} = 200$ GeV. *HEPData*. <https://doi.org/10.17182/hepdata.144262.v1>