

# Exploring QCD phase diagram through the scaled factorial moments in heavy-ion collisions using the PHSD model

Exploring the QCD phase diagram and searching for the critical point is one of the primary goals of relativistic heavy-ion collisions. It is believed that near the critical point, the fluctuations in conserved quantities and larger number density fluctuation near the critical point region are strong indicators of the phase transition. Under thermodynamic limits, the correlation length diverges at the critical point, making the system self-similar or scale invariant. This scale invariance of the system can be observed by intermittency or as a power-law of the scaled factorial moment in pseudorapidity phase space.

In this study, we will present scaled factorial moments (SFMs) of identified charged hadrons in Au+Au collisions at beam energy range  $E_{lab} = 6.7-35$  A GeV using the Parton Hadron String Dynamics (PHSD) model. The SFMs will be presented for different transverse momentum and pseudorapidity phase space. We will discuss scale invariance using different orders of SFMs. The extracted scaling exponent and anomalous fractal dimension parameters will be presented to explore the correlation between intermittency strength and phase transition. These results would help interpret the data from the upcoming Compressed Baryonic Matter (CBM) experiment at FAIR and the Multi-Purpose Detector (MPD) experiment at NICA.

## Details

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## Is the speaker for that presentation defined?

Yes

## Name of experiment and experimental site

N/A

## Is this an abstract from experimental collaboration?

No

## Internet talk

Yes

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