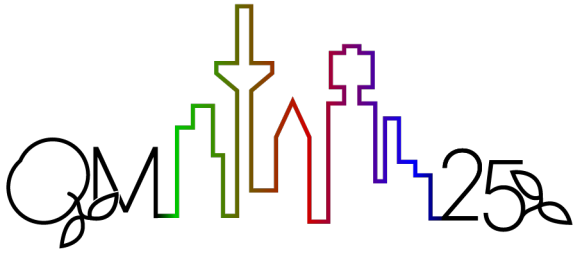

Contribution ID: **205** Type: **Poster**

Restore baryon number fluctuations from light nuclei number fluctuations

A key physical target of relativistic heavy-ion collision experiments is to understand the phase structure of Quantum Chromodynamics (QCD) and search for the critical endpoint (CEP). The primary experimental approach to locating the CEP is measuring the baryon number fluctuations. In the energy region currently being studied, the baryon number is primarily carried by protons and neutrons. Due to experimental limitations, we cannot measure the uncharged neutrons directly. Thus, in experiments, baryon number fluctuations are approximated by measuring proton number fluctuations. We have discovered a method to extract the missing neutron information from the bound states of protons and neutrons, i.e., from light nuclei. This allows us to accurately reconstruct baryon number fluctuations by measuring light nuclei and protons. We analytically calculated the relationship between light nuclei number fluctuations and baryon number fluctuations. Furthermore, we validated it using transport models. This result is vital in the search for CEP. Additionally, it inspires us how to reconstruct the losing neutron information through light nuclei.

Category

Theory

Collaboration (if applicable)

Author: FENG, Yi Heng

Co-authors: Dr SUN, KaiJia (Institute of Modern Physics, Fudan University, Shanghai, China); ZHANG, Song (Fudan University (CN)); Prof. LUO, Xiaofeng; MA, Yugang (Fudan Univeristy)

Presenter: FENG, Yi Heng

Session Classification: Poster session 1

Track Classification: Correlations & fluctuations