

Special Issue on  
**Properties of Particle Production and System Evolution in  
BES-Wide Energy Range**

# CALL FOR PAPERS

The beam energy scan (BES) program at the Relativistic Heavy Ion Collider (RHIC) in Brookhaven and Super Proton Synchrotron (SPS) at CERN performs nucleus-nucleus collisions at high density and high temperature around the expected critical point of hadronic matter transition to quark-gluon plasma (QGP). In addition, the Facility for Antiproton and Ion Research (FAIR) in GSI also performs nucleus-nucleus collisions in the BES energy region. The features of particle production and system evolution in these types of collisions attract high interest and are extensively studied both experimentally and theoretically. It is believed that, above the critical energy of the transition point of the hadronic matter to QGP, e.g., at RHIC and Large Hadron Collider (LHC), the properties of particle production and system evolution may differ from those at the BES (RHIC-BES, SPS-BES, and FAIR). These properties are related to those of early Universe considered to go through the stages of high density and temperature.

Large amount of data obtained by high-energy experiments worldwide is being published to be scrutinized. Different signatures such as the chemical and kinetic freeze-outs temperature, effective temperature, speed of sound, tension of string between valence quarks in colliding nucleons, minimum distance between these quarks, chemical potential of different types of particles and of different quark flavors, time evolution of collision system, and ratio of viscosity to entropy density are predicted by different models and can be obtained from the measured particle spectra allowing us to study the properties of the system formation and its evolution.

In this special issue, we intend to publish and welcome original research articles as well as reviews on properties of particle production and system evolution at the BES and similar energies considering the above described points.

Potential topics include but are not limited to the following:

- ▶ Description of particle distributions and correlations, studies of statistical laws and dynamical properties of particle production
- ▶ Studies of the properties of system evolution in beam energy scan program
- ▶ Extraction of different signatures based on the particle spectra, correlations, and yield ratios in BES-wide energy range
- ▶ Searches for the softest point of the equation of state and for the critical point of the expected hadronic matter transition to QGP
- ▶ Comparison of the properties of particle production and system evolution at the BES energies with those at the RHIC and LHC energies
- ▶ Comparison of the properties of particle production and system evolution in nucleus-nucleus collisions with those of small systems formed in particle collisions

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/ahep/ppps/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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