Advances in High Energy Physics

Hindawi

Special Issue on

Exploring the Quark-Gluon Plasma Phase with Strange, Charm, Bottom, and Other Exotic Hadrons

CALL FOR PAPERS

Shortly after the Big Bang, conditions of extremely high temperature and energy density existed in the Universe and the primordial state of matter is theorized to have been a system of Quark-Gluon Plasma (QGP). The QGP state exhibits fundamentally different properties from the normal hadronic state of matter, and understanding the QCD phase transitions poses one of the major challenges for modern science. Dedicated experiments involving heavy-ion (A-A) collisions have been studying QCD matter at the Relativistic Heavy Ion Collider (RHIC) at BNL and the Large Hadron Collider (LHC) at CERN. The future programs at the Facility for Antiproton and Ion Research (FAIR) in GSI and the Nuclotron-based Ion Collider fAcility (NICA) at Dubna have been set up to understand the properties of phase transitions in greater detail. Experimental results for pp, p-A, and A-A collisions at various colliding energies have produced a wealth of hadronic observables. With the new experiments and new upgrades, it will be possible to have high precision and differential measurements and enter into the physics of heavy quarks.

In this special issue, we invite both original research and review articles on the yield of strange hadrons, especially multistrange baryons and heavy flavors (quarkonium productions), which can shed light on the properties of hot and dense matter and help in understanding the QCD phase diagram. There are new results on bottomonium suppression at LHC. The results of charm quark ($\Lambda^{+}c$) production can provide information on charm quark hadronization, and high multiplicity p-p collisions have proved to have exciting results. Articles on the yield of other exotic hadrons like- scalar mesons K^{0*}, f^{0}, and a^{0} and baryons $\Lambda(1405)$ and Λc are also welcomed as they can guide the understanding of QCD phase transitions.

Potential topics include but are not limited to the following:

- Strange productions in pp, pA, and AA collisions (multistrange baryons at RHIC and LHC)
- Heavy flavor and quarkonium productions (new results of bottomonium suppression)
- Exotic hadron productions
- High multiplicity pp collisions
- Charm quark hadronization (Λ+c)
- Theoretical predictions and simulations of HIC for FAIR and NICA energies
- QCD phase transitions and critical point

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

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

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