XIIIth Quark Confinement and the Hadron Spectrum



Contribution ID: 244

Type: Invited talk

Do we produce quark-gluon plasma in all hadronic colliding systems?

Wednesday 1 August 2018 16:00 (30 minutes)

The formation of a QGP in heavy ion collisions and the collective/hydrodynamic expansion of the created medium are well established and reasonably well understood. In particular, looking at anisotropy of the final-state distribution of particles produced in A-A collisions, it is now established that the QGP behaves like a nearly perfect fluid with a shear viscosity close to the KSS bound. This state of nuclear matter was not expected to be produced in reactions involving smaller colliding systems, such as the proton-nucleus (p-A) and proton-proton (p-p) collisions. Nevertheless, a wealth of experimental evidence in recent years has suggested the presence of collective phenomena and a possible QGP medium being formed also in high-multiplicity p-A and p-p collisions. A detailed investigation is needed to establish the cause of the observed collective behavior and to determine if, indeed, a QGP medium is being created or if another mechanism is at play. Over the past year, LHC and RHIC experiments have recorded a large amount of A-A, p-A, d-A and p-p collisions, opening new opportunities in the understanding of collective phenomena in high-multiplicity hadronic final state. Upon reviewing the experimental data and confronting them with theoretical models, a unified paradigm in describing the observed collectivity accross all hadronic collision system is emerging. Potential future paths toward addressing key open questions, especially on collectivity in small colliding systems (p-A and p-p) and new opportunities to study emergent Quantum Chromodynamics phenomena under extreme conditions, will be discussed

Author: Dr GUILBAUD, Maxime (CERN) Presenter: Dr GUILBAUD, Maxime (CERN) Session Classification: Deconfinement

Track Classification: D: Deconfinement