Contribution ID: **355** Type: **Poster**

Measurements of quarkonium production in pp, p–Pb and Pb–Pb collisions with ALICE at the LHC

Tuesday 7 September 2021 18:34 (1 minute)

Lattice Quantum Chromodynamics predicts the existence of dense and hot nuclear matter at high temperature that behaves as a deconfined medium of quarks and gluons, known as Quark-Gluon-Plasma (QGP). Such conditions are created by colliding heavy-ions (Pb–Pb) at ultra-relativistic energies which are then studied by ALICE at LHC. The properties of QGP can be studied by measuring the production of J/ψ, Υ(1S) and Υ(2S) in Pb–Pb collisions with respect to the yield in pp collisions scaled by the number of binary collisions. A suppression of J/ψ, Υ(1S) and Υ(2S) has been observed in Pb–Pb collisions at √s_{NN} = 2.76 TeV and 5.02 TeV mainly due to color Debye screening of quark-antiquark binding in QGP. However, for J/ψ the magnitude of the suppression at LHC energies is smaller than that observed at lower energies at SPS and RHIC, indicating that charmonium (re)generation via the (re)combination of charm and anti-charm quarks plays an important role. The measurement of elliptic flow of J/ψ may further constrain the inter-play between charmonium suppression and (re)generation mechanisms.

In addition to the medium modification of quarkonium resonances, a contribution from cold nuclear matter effects such as shadowing or nuclear breakup in addition to the QGP effects can be present. Such a contribution is evaluated by studying proton-nucleus collisions.

In this presentation, we will report the recent ALICE measurements of quarkonia at mid- and forward rapidity for various energies and colliding systems (pp, p–Pb, Pb–Pb and Xe–Xe). All the measurements are compared to various theoretical predictions.

Author: HUSHNUD, Hushnud (Aligarh Muslim University)

Presenter: HUSHNUD, Hushnud (Aligarh Muslim University)

Session Classification: Poster Session II

Track Classification: Hot and dense matter physics - QGP and heavy ion collisions