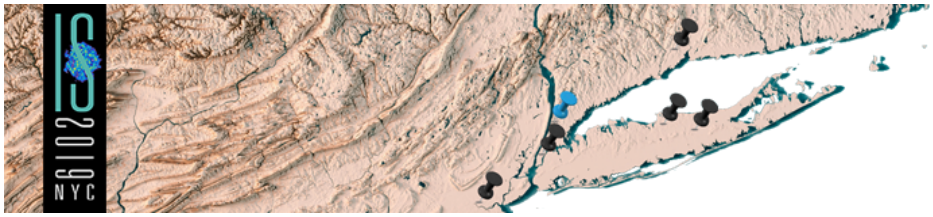

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Quarkonium production in pp and p–Pb collisions with ALICE at the LHC

Tuesday, 25 June 2019 15:00 (20 minutes)

Quarkonia, bound states of either a charm and anti-charm quark pair (e.g. J/ψ, ψ(2S)), or a beauty and anti-beauty charm pair (Υ(1S), (2S) and (3S)), are considered a prominent tool to study the properties of the Quark-Gluon Plasma (QGP) formed in high-energy heavy-ion collisions such as those delivered by the LHC. However, their production is also sensitive to so called initial state effects, such as the modifications of the parton distribution functions in the nucleus or the occurrence of gluon saturation at low Bjorken x, and thus provide some insight on the initial conditions of such collisions.

Recently, proton-proton (pp) and proton-lead (p–Pb) collisions with high charged-particle multiplicities have been found to exhibit phenomena similar to those attributed to the QGP formation. Measuring quarkonia in such collisions could contribute to a better understanding of the underlying physics processes leading to these observations and in any case provide a more detailed understanding of their production mechanism.

ALICE has measured quarkonium production in both pp collisions for collision energies $\sqrt{s}$ ranging from 2.76 to 13 TeV and p–Pb collisions at center of mass energies per nucleon-nucleon collisions $\sqrt{s_{\rm NN}} = 5.02$ and 8 TeV. These measurements have been carried out down to zero transverse momentum and at both mid and forward rapidity. Beyond quarkonium cross sections in pp collisions and nuclear modification factors in p–Pb collisions as a function of rapidity, transverse momentum and centrality, this presentation will also focus on correlations between the quarkonium and the underlying event, including recent results on the charged-particle multiplicity dependence of quarkonium relative yields and mean transverse momentum at both mid and forward rapidity, J/ψ-hadron correlations at mid rapidity and J/ψ azimuthal anisotropy in high-multiplicity p–Pb collisions.

Primary author: ANONYMOUS, submission (ALICE Collaboration)

Presenter: HAYASHI, Shinichi (CNS, the University of Tokyo)

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