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Υ production in p+p collisions at STAR

Tuesday 11 June 2019 18:45 (2 hours)

Suppression of the production yield of Υ states in heavy-ion collisions relative to expectation from p+p collisions is a tool for studying the properties of quark-gluon plasma. Such suppression is expected to be caused by Debye-like screening of color charges happening at a high temperature in the plasma. In order to correctly interpret this effect, the Υ production mechanism itself has to be well understood. This is still an open question which can be studied in p+p collisions. Recently, an interesting strong dependence of normalized quarkonium production yields on normalized charged particle multiplicity has been observed. By studying such a dependence for Υ an insight can be gained into the interplay of hard and soft QCD processes affecting the quarkonium production.

This poster will present the results of Υ production measurements in p+p collisions from the STAR experiment. The Υ rapidity distributions will be shown both at $\sqrt{s} = 200$ GeV and $\sqrt{s} = 500$ GeV. The data at $\sqrt{s} = 500$ GeV allowed the separation of $\Upsilon(1S)$ and $\Upsilon(2S + 3S)$ and to obtain the corresponding transverse momentum spectra. The cross section ratios will be presented. Finally the normalized $\Upsilon(1S)$ yield is studied as a function of normalized charged particle multiplicity. All the presented results will be compared to theoretical production models.

Collaboration name

STAR

Track

Heavy Flavour

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