

Quarkonium production in p+p collisions in the STAR experiment

Leszek Kosarzewski
for the STAR Collaboration

Abstract

Quarkonium production measurements in p+p collisions serve as a reference for measurements in A+A collisions, where the quark-gluon plasma (QGP) can be formed at very high temperature. Such high temperature QGP causes quarkonium states to dissociate, so that a suppression of the quarkonium yields with respect to the production in p+p may be observed. Furthermore, measurements of quarkonium spectra in p+p collisions allow to test quarkonium production models. In addition, by studying the dependence of quarkonium production on normalized charged particle multiplicity information about the interesting interplay between hard and soft processes can be obtained. A strong increase of quarkonium yields with charged particle multiplicity, may be an indication of a number of effects: multiple parton interactions, color string percolation or color reconnection.

This presentation will contain the latest quarkonium production measurements from the STAR experiment including some of the technical details. Both J/ψ and Υ spectra at $\sqrt{s} = 200$ GeV and $\sqrt{s} = 500$ GeV will be presented and compared to production models. STAR results on charged particle multiplicity dependence of quarkonium production will also be shown for both J/ψ and Υ at $\sqrt{s} = 200$ GeV and $\sqrt{s} = 500$ GeV, respectively.