Event activity dependence of Υ production in p+p collisions at the STAR experiment

Leszek Kosarzewski
for the STAR Collaboration

Abstract

An interesting strong dependence on charged-particle multiplicity (n_{ch}) of J/ψ and Υ production at the LHC and J/ψ at RHIC has been observed. These measurements provide basic information about particle production mechanisms, especially on an interplay between hard and soft processes (multiple parton interactions, string percolations, color reconnection). In order to better understand this behavior a study of Υ production as a function of n_{ch} for different p_T ranges and collision energies has to be performed also at RHIC. Furthermore, by measuring the yield ratios between the excited to ground Υ states, $\Upsilon(nS)/\Upsilon(1S)$, as a function of n_{ch}, the $\Upsilon(nS)$-hadron interactions can be studied.

This poster will present STAR results on the self-normalized inclusive Υ production yield ($\Upsilon/\langle\Upsilon\rangle$) measured as a function of self-normalized n_{ch} in p+p collisions at $\sqrt{s} = 500$ GeV. They will be compared to results from other experiments and model calculations. The measured dependence of $\Upsilon(nS)/\Upsilon(1S)$ ratios on n_{ch} will also be presented. Finally, prospects of future measurements at STAR will be discussed.