

Study of multiplicity-dependent charmonia production in $p + p$ collisions with PHENIX

Tuesday 25 April 2023 17:40 (20 minutes)

The production of quarkonia in high-energy heavy-ion collisions has been studied extensively to understand their production mechanisms and properties of QGP. Recent PHENIX studies show that the increasing J/ψ yields versus multiplicity in $p+p$ collisions are similar to results in different J/ψ acceptance and collision energy, implying that MPI contributes to J/ψ production at RHIC energy. The $\psi(2S)$ has the same quark contents as J/ψ but different binding energy, so they are expected to be modified differently due to the final-state effect, like interaction with nuclear mediums or co-moving particles. Such effects would be significant even in small systems like $p+A$ collisions; thus, understanding the modification mechanism is crucial to describing quarkonia production in different multiplicity ranges. This talk will present the analysis status and recent PHENIX measurements. We will also discuss comparisons with other experimental results and PYTHIA8.

Theory / experiment

Experiment

Group or collaboration name

Primary author: OH, Jongho (Pusan National University (KR))

Presenter: OH, Jongho (Pusan National University (KR))

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