A model to estimate the yields of uncorrelated double quarkonium production in PbPb collisions and pPb collisions SAEAHRAM YOO, MANUEL CALDERON DE LA BARCA SANCHEZ, University of California, Davis — We present a model to estimate the yields of uncorrelated double quarkonium production based on the multinomial distribution, the Glauber model, and single quarkonium production. The calculations focus on uncorrelated production of Υ and J/ψ in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV and pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV corresponding to $\mathcal{L}_{int} = 1.7$ nb^{-1} and $\mathcal{L}_{int} = 186$ nb^{-1}, respectively. The number of nucleon-nucleon collisions in each nucleus collision was determined based on the Glauber model. Each nucleon-nucleon collision is treated as a possible source of double quarkonium production with a probability given by multinomial distribution. To obtain the probability of generating Υ and J/ψ in a nucleon-nucleon collision, the cross-sections of Υ and J/ψ were obtained from previously published calculations as well as Pythia 8.306 for comparison. We calculated the acceptance using the transverse momentum, while the pseudorapidity of the daughter muons was obtained via Pythia and the efficiency was directly found from the single muon CMS results. The model can be utilized to predict the yields of double quarkonium production in future experiments.

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