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S-wave quarkonium production and polarization in potential NRQCD

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Based on the potential nonrelativistic QCD formalism, we compute the nonrelativistic QCD long-distance matrix elements (LDMEs) for inclusive production of S-wave heavy quarkonia. This greatly reduces the number of nonperturbative unknowns and brings in a substantial enhancement in the predictive power of the nonrelativistic QCD factorization formalism. We obtain improved determinations of the LDMEs and find cross sections and polarizations of J/ψ, $\psi(2S)$, and excited Y states that agree well with LHC data. Our results may have important implications in pinning down the heavy quarkonium production mechanism.

Declaration

I certify that I have checked that I am authorised to submit the abstract with the listed co-authors with their current affiliations

Change of Speaker

I understand that change of speaker is allowed provided that no participant gives more than one talk. Otherwise, we will ask the speaker to choose between one or the other abstract to be presented.

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