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CANCELLED: η_c production at the LHC and indications on the understanding of J/ψ

η_c production at the LHC and indications on the understanding of J/ψ

Summary

We present a complete evaluation for the prompt η_c production at the LHC at NLO in α_s within the framework of NRQCD factorization formula. By assuming heavy quark spin symmetry, the recently observed η_c production data by LHCb results in a very strong constraint on the upper bound of the color-octet long distance matrix element $\langle \mathcal{O}^{J/\psi}(^1S_0^{[8]}) \rangle$ of J/ψ. We find this upper bound is consistent with our previous study of the J/ψ yield and polarization and can give good descriptions for the measurements. This may provide important information for understanding the nonrelativistic QCD factorization formulism.

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