

Recent results on the charmonium and X(6900) productions in pp collisions from the PACIAE model

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In this work we simulate the J/ψ and the exotic hadron X(6900) productions in proton-proton collisions at the LHC energies with the parton and hadron cascade model PACIAE. This model is based on PYTHIA but extended considering the partonic and hadronic rescatterings before and after hadronization, respectively. The relative contributions from the NRQCD channels, the cluster collapse and the weak decay of B hadrons to the total J/ψ yield as a function of p_T at mid- and forward-rapidity are analyzed. Moreover, we explore the contributions from different production mechanisms to the self-normalized yields of J/ψ as a function of the charged-particle multiplicity. Finally, we investigate the difference between the yields, rapidity distributions and transverse momentum spectra of X(6900) composed of $c\bar{c}\bar{c}\bar{c}$ or $J/\psi J/\psi$ for providing criteria of different configurations and give the possible quantum numbers J^{PC} for X(6900).

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