Prompt J/ψ and Y (nS) production in jets using proton-proton collisions at the LHC

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Quarkonia production in hadronic collisions is far from being understood as none of the existing models can correctly describe the wealth of available data. In particular, LHCb and CMS experiments at the LHC have reported that Pythia 8 cannot reproduce the prompt J/ψ production in jets in proton-proton collisions at two different center of mass energies: the event generator predicts an important amount of the prompt J/ψ to be produced isolated, opposite to the experimental data. In this presentation I will show that using the new quarkonia parton shower, available in the most recent version of Pythia 8, it is possible to correctly describe the experimental results. This agreement between data and simulation is improved when using the QCD color reconnection approach, opening the possibility to distinguish between the two CR implementations. Finally, analyzing the fragmentation of jets containing an Y (nS) I propose two methods to further test the new quarkonia shower present in the Monte Carlo event generator.

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