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[CONTRIBUTION WITHDRAWN] Associated production of J/ψ and Υ mesons and prospects to observe a new hypothetical tetraquark state

We propose a new mechanism for prompt simultaneous production of J/ψ and Υ mesons in high energy hadronic collisions. The process is considered as a perturbative production of $B_c^{(*)}$ mesons $g+g \rightarrow B_c^{(*)} + \bar{B}_c^{(*)}$ followed by a long-distance final state interaction that rearranges the quarks to form J/ψ and Υ mesons. Passing from $B_c^{(*)} + \bar{B}_c^{(*)}$ configuration to $J/\psi + \Upsilon$ configuration may proceed via a hypothetical resonance state, the tetraquark. The goal of this work is to examine whether the respective cross section is large enough to encourage a direct detection of the tetraquark at the LHC conditions (the conclusion is yes), and whether this hypothesis can help to explain recent D0 data without assigning an unusually low value to σ_{eff} in the double parton scattering mechanism (the conclusion is no).

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