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New Structures in the J/ψ J/ψ Mass Spectrum at CMS

Thursday 30 May 2024 14:15 (15 minutes)

The speaker will discuss the new structures reported by the CMS collaboration recently. Three structures are found in the J/ψJ/ψ mass spectrum in proton-proton collisions at 13 TeV, and a model with quantum interference among these structures provides a good description of the data. Among them, a new structure with mass around 6.6 GeV is observed with a local significance > 5 sigma. Another structure with even higher significance is consistent with the X(6900) resonance reported by the LHCb experiment and confirmed by the ATLAS experiment. Evidence for another new structure, with a local significance of 4.7 sigma, is found at a mass around 7.1 GeV. Results will also be reported for a model without interference, which does not fit the data as well and shows mass shifts relative to the model with interference.

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