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Kai Yi

Title: Observation of new structures in the J/ψJ/ψ mass spectrum in pp collisions at s√=13\,TeV

A search is reported for low-mass structures in the J/ψJ/ψ mass spectrum produced by proton-proton collisions at s√=13TeV. The data sample corresponds to an integrated luminosity of 135 fb−1 collected by the CMS experiment at the LHC. Modelling signals with relativistic Breit-Wigner shapes, and under the assumption of the absence of interference between signal components, and between signal and background, three structures are identified. Two structures are observed with local significances well above 5 standard deviations at masses of 6927±9 (stat)±5(syst)MeV and 6552±10(stat)±12(syst)MeV. The first one is consistent with the previously observed X (6900). Evidence for a third structure is found at a mass of 7287±19 (stat)±5(syst)MeV with a local significance of 4.1 standard deviations.