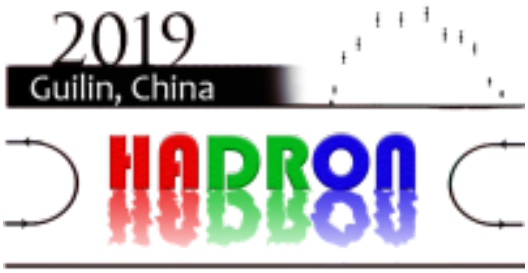

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Spectroscopy of the J/ψ family including charmoniumlike Y states

Sunday, 18 August 2019 15:25 (20 minutes)

Deciphering the complicated structure around 4.2 GeV observed by many experiments, we embed only one charmoniumlike state $Y(4220)$ into the J/ψ family, which plays a role of a scaling point when constructing higher charmonia above 4 GeV. To test this scenario, we provide the detailed decay properties of $Y(4220)$, and predict its partner as $\psi(4380)$ in a $4S$-$3D$ mixing scheme, whose evidence is found by analyzing the $e^+e^- \to \psi(3686)\pi^+\pi^-$ data from BESIII. Utilizing the similar idea, we study another charmoniumlike state $\psi(4415)$ via a $5S$-$4D$ mixing scheme, and predict its partner as $\psi(4500)$, whose detailed decay properties are provided to be checked with future experiments at BESIII and BelleII.

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