

Fully-heavy tetraquark states and their strong decays into di-charmonia

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In this talk, I will introduce our investigations on the fully-heavy tetraquark states, including the calculations of their mass spectra and their strong decays into di-charmonia. Our calculations of the masses for the fully-heavy tetra quarks have been done several years before the recent LHCb's observation in the di- J/ψ structure. However, our results suggest that the broad structure around 6.2-6.8 GeV in LHCb's observation can be interpreted as an S-wave $cc\bar{c}\bar{c}$ tetraquark with $J^{PC} = 0^{++}$ or 2^{++} , and the narrow structure around 6.9 GeV can be interpreted as a P-wave one with $J^{PC} = 0^{-+}$ or 1^{-+} . These conclusions are also confirmed by our recent study of the strong decays of the fully-charm tetraquarks into di-charmonia, in which we consider all possible two-body strong decays for these tetraquarks and calculate their relative branching ratios through the Fierz rearrangement.

Primary author(s) : Prof. CHEN, Wei (Sun Yat-Sen University); Prof. CHEN, Hua-Xing (Southeast University); LIU, Xiang (Lanzhou University); Prof. ZHU, Shi-Lin (Peking University); Prof. STEELE, T. G. (University of Saskatchewan)

Presenter(s) : Prof. CHEN, Wei (Sun Yat-Sen University)

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