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# Investigating exotic heavy-light tetraquarks with 2+1 flavour lattice QCD

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There are a number of tetraquark channels for which some phenomenological models – already constrained by the ordinary meson and baryon spectrum – predict deep binding. We present results from our lattice calculations of doubly-charmed and bottom-charm channels where such predictions exist. Finding no evidence of deep binding, we can rule out those models, although this does not preclude the possibility of shallow binding for those states. On the other hand, a consistent picture of deeply-bound, strong-interaction stable $I = 0$, $J^P = 1^+$ $ud\bar{b}\bar{b}$ and $I = 1/2$, $J^P = 1^+$ $\ell s\bar{b}\bar{b}$ (with $\ell = u/d$) tetraquarks has emerged from lattice studies over the last few years. We discuss the current status of our calculations in each channel, outlining improvements that place our results on a firmer quantitative footing. The resulting updated versions of our earlier results for the binding energies of the two doubly-bottom channels are also presented.

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