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Doubly Heavy Tetraquarks in the Heavy-Diquark Limit with Error Bars

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In the heavy-diquark limit, the two heavy quarks in a doubly heavy baryon or a doubly heavy tetraquark are bound by their color-Coulomb potential into a compact core. The doubly heavy hadron is related by an approximate symmetry to the heavy hadron obtained by replacing the diquark core by a heavy antiquark. The masses of heavy hadrons can be expanded in inverse powers of the heavy quark mass. These expansions can be used to predict the masses of doubly heavy tetraquarks using as inputs the masses of heavy mesons and heavy baryons measured in experiments and the masses of doubly heavy baryons calculated using lattice QCD. We present the resulting predictions with error bars for the masses of the ground-state doubly heavy tetraquarks.

Summary

exotic hadrons

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