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The H-dibaryon in two flavor lattice QCD

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We present preliminary results from a lattice QCD calculation of the H-dibaryon using two flavours of $O(a)$ improved Wilson fermions. We employ six-quark interpolating operators with the appropriate quantum numbers of the H-dibaryon and also explore its couplings to two-baryon channels. To improve the overlap to the ground state two smearings are employed and a generalised eigenvalue problem is solved in the aforementioned operator basis. With the application of Lüscher's finite volume formalism, we explore the nature of the infinite volume interaction of the two baryons. The relevant correlators are projected to three moving frames further enabling the isolation of the infinite volume bound/scattering state. Preliminary results on pion mass of 1 GeV indicate the H-dibaryon is bound in the infinite volume. Results at a lower pion mass of 451 MeV will also be presented.

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