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Lattice QCD study of heavy-heavy-light-light tetraquark candidates

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We study $\bar{b}b\bar{u}d$ and $\bar{b}b\bar{u}\bar{d}$ four-quark systems using lattice QCD. The heavy b quarks are treated either in the static approximation or by using NRQCD. Both for $\bar{b}b\bar{u}d$ (quantum numbers $I(J^P) = 0(1^+)$) and for $\bar{b}b\bar{u}\bar{d}$ (quantum numbers of Z_b , $I(J^P) = 1(1^+)$) our results indicate the existence of a four-quark bound state, i.e. a tetraquark.

Authors: Ms PETERS, Antje (Goethe-Universität Frankfurt am Main); Dr CICHY, Krzysztof (Goethe-University Frankfurt am Main); Dr LESKOVEC, Luka (University of Arizona); Prof. WAGNER, Marc (Goethe University Frankfurt); Prof. BICUDO, Pedro (Universidade de Lisboa); Prof. MEINEL, Stefan (University of Arizona)

Presenter: Ms PETERS, Antje (Goethe-Universität Frankfurt am Main)

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