

Abstract Submitted
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All-Charm Tetraquarks JAMES VARY, Iowa State University, RICHARD LLOYD, Arkansas State University, JOHN SPENCE, Iowa State University — We report on the possibility of all-charm tetraquark states bound with respect to breakup threshold into mesons with the same quark and total angular momentum content. We use a set of Hamiltonians tuned to fit the charmonia spectroscopy and employ recently developed many-body methods that are free of spurious center-of-mass motion effects. Global color symmetry is guaranteed for all solutions. We extend results reported recently (1) by using more realistic Hamiltonians (2) and carrying out renormalization procedures to reduce truncation effects. The renormalization procedures are adapted from the successful ab-initio no-core shell model (3). This work was supported in part by a USDOE grant DE-FG02-87ER-40371.

1. R. Lloyd and J.P. Vary, Phys. Rev. D 70, 014009 (2004).
2. J.R. Spence and J.P. Vary, Phys. Rev. C 59, 1762 (1999); and to be published.
3. P. Navratil, J. P. Vary and B.R. Barrett, Phys. Rev. Lett. 84, 5728 (2000); Phys. Rev. C 62, 054311 (2000).

James Vary
Iowa State University

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