

Abstract Submitted
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Effective interactions in *sd*-shell from *ab-initio* shell model with a core¹ ERDAL DIKMEN, Department of Physics, Suleyman Demirel University, Isparta, Turkey, ALEXANDER F. LISETSKIY², BRUCE R. BARRETT, Department of Physics, University of Arizona, Tucson, AZ 85721, JAMES P. VARY, Department of Physics and Astronomy, Iowa State University, Ames, Iowa 50011 — We perform *ab-initio* no-core shell model calculations for $A = 18$ and 19 nuclei in a $4\hbar\Omega$ model space using JISP16 and CD-Bonn nucleon-nucleon potentials and project the many-body Hamiltonians onto the $0\hbar\Omega$ model space to construct the effective A -body Hamiltonians in the *sd*-shell. We separate the effective A -body Hamiltonians with $A = 18$ and $A = 19$ into inert core, one- and two-body pieces. Then, these core, one- and two-body pieces are used to perform a standard shell model calculations for the $A = 18$ and $A = 19$ systems. Finally, we compare the standard shell model results with the exact no-core shell model results for the $A = 18$ and $A = 19$ systems.

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