Realistic shell-model calculations for proton particle-neutron hole nuclei around $^{132}$Sn

L. Coraggio

A. Covello A. Gargano N. Itaco

Dipartimento di Scienze Fisiche, Università di Napoli Federico II, and Istituto Nazionale di Fisica Nucleare, Complesso Universitario di Monte S. Angelo, Via Cintia, I-80126 Napoli, Italy

T.T.S. Kuo

Department of Physics, SUNY, Stony Brook, New York 11794

abstract

We have performed shell-model calculations for nuclei with proton particles and neutron holes around $^{132}$Sn using a realistic effective interaction derived from the CD-Bonn nucleon-nucleon potential. For the proton-neutron channel this is explicitly done in the particle-hole formalism. The calculated results are compared with the available experimental data, particular attention being focused on the proton particle-neutron hole multiplets. A very good agreement is obtained for all the four nuclei considered, $^{132}$Sb, $^{130}$Sb, $^{133}$Te and $^{131}$Sb. We predict many low-energy states which have no experimental counterpart. This may stimulate, and be helpful to, future experiments.