

BOUND-STATE  
CALCULATIONS IN THE FRAMEWORK  
OF STOCHASTIC VARIATIONAL  
APPROACH WITH NON-SYMMETRIZED BASES

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S u m m a r y

In the framework of stochastic variational calculations and making no preliminary symmetrization of the wave functions with respect to identical particle coordinate permutations, the possibility of determining the symmetry properties of three- and four-particle energy states with zero angular momentum has been studied. The stochastic variational calculations revealed that the energy spectra obtained for the systems under consideration include the levels with all possible symmetries, provided that it is allowed by the superposition of applied bases. Local and integral schemes for the determination of permutation symmetry using the results of bound-state calculations have been proposed. It was found that the permutation symmetries (the Young tableaux) of energy states below the lowest breakup threshold can be determined with a high precision for a few-particle system. At the same time, the states above that threshold, even if the latter is prohibited, can be studied only using properly symmetrized bases.