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Ab initio Method for Examining the Halo Structure of ${}^{6}\text{He}{}^{1}$ MENGYAO HUANG, ROBERT BASILI, PIETER MARIS, JAMES P. VARY, Iowa State University, TOBIAS FREDERICO, Instituto Technologico de Aeronautica, Brazil, PATRICK J. FASANO, MARK A. CAPRIO, University of Notre Dame — We solve for the ground states of ⁴He and ⁶He with *ab initio* configuration interaction methods using the Daejeon16 nucleon-nucleon (NN) interaction. Using the full ground state wave functions, we evaluate pairwise correlations to characterize the structures of these two systems. First, we examine the pairwise correlations in the individual NN channels to isolate the similarities and differences of these two systems. We then evaluate and compare the coordinate-space separations of the twoproton subsystem, the neutron-proton pairs and the neutron-neutron pairs for these two systems. Finally, we use these coordinate-space pair correlations to address the halo structure of ⁶He relative to ⁴He.

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