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Role of the explicit tensor correlation in neutron halo nuclei

Abstract

We discuss the structures of He and Li isotopes with the tensor correlation. Based on the core+n+n model including the tensor correlation in core part, we investigate the disappearance of the N=8 shell gap in halo nuclei ^{11}Li and the neighboring nuclei. It is shown that the Pauli-blocking effects caused by the tensor and pairing correlation of ^9Li core plays an important role to enhance the s^2 probability as 50% in ^{11}Li . Our model further explains the Coulomb breakup reaction, charge radius and Q-moment of ^{11}Li and also the inversion phenomena of ^{10}Li .