

CLUSTER STRUCTURE OF P-SHELL Λ HYPERNUCLEI WITHIN FERMIONIC MOLECULAR DYNAMICS

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We report on current variational calculations of the s-shell hypernuclei ${}^4_{\Lambda}\text{H}$, ${}^4_{\Lambda}\text{He}$, ${}^5_{\Lambda}\text{He}$ and selected p-shell hypernuclei up to ${}^{13}_{\Lambda}\text{C}$ within recently developed Fermionic Molecular Dynamics code. Attention is paid mainly to the effect of the presence of Λ on the nuclear structure. We used the AV18 UCOM transformed NN interaction and several ΛN interactions to explore model dependence of our calculations. We observed a substantial difference between Λ separation energy spectra calculated using various ΛN potentials. The proper choice of the ΛN potential as well as Fermi momentum, which enters the YNG ΛN potentials as a parameter, is thus crucial. We study in detail the cluster structure of various p-shell hypernuclei, such as ${}^7_{\Lambda}\text{Li}$ ($\alpha+d+\Lambda$), ${}^8_{\Lambda}\text{Li}$ ($\alpha+t+\Lambda$), and ${}^9_{\Lambda}\text{Be}$ ($\alpha+\alpha+\Lambda$). Moreover, we compare the structure of hypernuclei with the nuclear core formed of different isotopes of Li and Be. Our results are compared with similar calculations within the no-core shell model.