

QUANTUM MONTE CARLO CALCULATIONS ON S-SHELL $\Lambda\Lambda$ HYPERNUCLEI

In our study we have performed calculations on ${}_{\Lambda\Lambda}^6\text{He}$ to determine the $\Lambda\Lambda$ interaction and then calculations on ${}_{\Lambda\Lambda}^4\text{H}$ to comment on the possibility of its existence.

We perform for the first time a many-body Variational Monte Carlo calculations for ${}_{\Lambda\Lambda}^6\text{He}$ to obtain the $\Lambda\Lambda$ interaction. Then using the same interactions we perform calculations on ${}_{\Lambda\Lambda}^4\text{H}$.

We show that the three-body ΛNN interactions and the exchange two-body ΛN interaction have large effect on the binding energy of ${}_{\Lambda\Lambda}^6\text{He}$. These factors also play important role for stability of ${}_{\Lambda\Lambda}^4\text{H}$.