

$\Lambda\Lambda$ pairing interactions and correlations in multistrange hypernuclei

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We study multistrange Ca, Sn and Pb hypernuclei with $\Lambda\Lambda$ pairing correlations by using the multidimensionally-constraint relativistic Hartree-Bogoliubov (MDC-RHB) model. The axial deformation is allowed and the $\Lambda\Lambda\omega$ -tensor coupling is included to reproduce the small spin-orbit splittings for Λ hyperon. The separable pairing force of finite-range form is used for the pp channel and the ratio of the $\Lambda\Lambda$ pairing to NN pairing strength is determined from the quark model. We find that the shell structure for Λ is very different from that in normal nuclei because of the small spin-orbit splittings in the single Λ spectrum. The pairing energy is similar with HFB calculation results. The $\Lambda\Lambda$ pairing makes the Λ density distribution more symmetric but its influence on the total density distribution can be neglected.

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