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Configuration space Faddeev formalism for system of non-identical particles: three-body model for ${}^{6}_{\Lambda}$He[1] IGOR FILIKHIN, VLADIMIR SUSLOV, BRANISLAV VLAHOVIC, North Carolina Central University — We study structure of energy spectrum of light hyprnucleus ${}^{6}_{\Lambda}$He using cluster α+Λ+n model. In particular, the spin doublet (1^-,2^-) of ${}^{6}_{\Lambda}$He is of interest for the testing the spin dependence of hyperon-nucleon potentials. Experimental value for 1^- ground state energy of ${}^{6}_{\Lambda}$He has been reported to be -0.17 MeV below the threshold ${}^{5}_{\Lambda}$He+n. Our study is based on the configuration-space Faddeev equations for a system of three non-identical particles. The analytical continuation method in a coupling constant is applied for calculation of resonance parameters. The results of calculations for low-lying spectra of the system α+Λ+n are presented. Within our model, the α-n potential is constructed to reproduce the results of R-matrix analysis for α-n scattering data. This potential simulates the Pauli exception for αn in the s-state with repulsive core. We use phenomenological α-Λ potential and for the Λ-n interaction the s-wave potential simulating model NSC97f. We calculated energies of the low-lying 1^-, 2^-, 2^+, 0^- states. Obtained results are discussed and compared with other calculations (T. Motoba et al. Prog. Theor. Phys. 70, 189 (1983)).

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