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Spin doublet $(1^-, 2^-)$ of ${}^{6}_{\Lambda}$He within three-body cluster model VLADIMIR SUSLOV, IGOR FILIKHIN, BRANISLAV VLAHOVIC, North Carolina Central University — The spin doublets $(1^-, 2^-)$ of ${}^{6}_{\Lambda}$He are of great interest for testing theoretical models of the hyperon-nucleon interaction. The experimental value -0.17 MeV is known for the binding energy of the state 1^- (singlet spin state) of ${}^{6}_{\Lambda}$He [1]. The experimental data for the 2^- state (triplet spin state) were not yet reported. Theoretical considerations for the state $2^-$of ${}^{6}_{\Lambda}$He have been attempted by Motoba et al. [2] and Hiyama et al. [3]. Indirect prediction for this state has been given in [4]. Results obtained in these works are quite different. Our goal is to obtain a new prediction for the hyper nucleus ${}^{6}_{\Lambda}$He, which is considered as the cluster system$\alpha n\Lambda$, by using new proposed potentials for$\alpha\Lambda$and αn interactions [5]. Our cluster calculation is based on the configuration-space Faddeev equations for a system of three non-identical particles. The energies of the (1^-2^-) spin doublets are calculated for different $n\Lambda$ and $\alpha\Lambda$ potentials [4-6]. Our results are compared with those from other calculations and experimental data.

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