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Spectroscopy of ${}^7_{\Lambda}$ He hypernucleus in three-body model¹ BRANISLAV VLAHOVIC, VLADIMIR SUSLOV, IGOR FILIKHIN, North Carolina Central University, Durham NC — The $^{7}_{\Lambda}$ He hypernucleus is considered as three-body cluster system $^{5}_{\Lambda}$ He+N+N [1]. Configuration space Faddeev calculations are performed for the hyperon binding energy. In particular we obtained the binding energy 5.35 MeV, which agrees with preliminary theoretical predictions (5.4 MeV) [2]. Note that this value differs from the recent experimental data [3]. Discussed is the recipe for extracting hyperon binding energy from the three-body calculations. The value obtained in previous E. Hiyama's et al. [4] calculation has to be corrected. A variant of the method of analytical continuation in coupling constant is applied to calculate the energies of resonance levels of the $^{7}_{\Lambda}$ He. The second bound state of ⁷_AHe with total angular momentum $J = 3/2^+(5/2^+)$ was found. The bound states and low-lying resonances of $^{7}_{\Lambda}$ He can be classified as an analog of the 6 He ground band. 1. I. Filikhin, V. M. Suslov and B. Vlahovic, J. Phys. G31 389 2005. 2. O. Hashimoto, HYP2006 Mainz, October 11-14, 2006. 3. L. Tang, Spectroscopy of Λ -Hypernuclei by Electroproduction, HNSS/HKS Experiments at JLAB, FB18, Brazil, August 21-26 (2006); http://www.fb18.com.br 4. E. Hiyama, et al., PRC53 2078 1996.

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