Numerical solution of the differential Yakubovsky equations for a system including three non-identical particles[1] BRANISLAV VLA-HOVIC, North Carolina Central University, Durham NC, 27707, IGOR FILIKHIN, VLADIMIR SUSLOV, North Carolina Central University — The four-body system $\alpha\Lambda\Lambda\Xi$, having three non-identical particles, is considered. The OBE-simulating potential of the NSC97 model for the $\Lambda\Xi$ and $\Lambda\Lambda$ interactions is used [1]. Different phenomenological potentials of the $\Xi\alpha$ ($\Lambda\alpha$) interaction are applied. The differential Faddeev-Yakubovsky equations for the $\alpha\Lambda\Lambda\Xi$ system and its subsystems are numerically solved by the cluster reduction method [2] in s-wave approach. We have evaluated the binding energy of the hypothetical multi- strangeness nucleus $^{7}_{\Lambda\Lambda\Xi^0}$He. It was found that the existence of the ground state of this nucleus drastically depends on form of $\Xi\alpha$ potential. 1. I.N. Filikhin and A. Gal, Phys. Rev. **C65**, 047001 (2002). 2. S.L. Yakovlev, I.N. Filikhin, Few-Body Systems Suppl. **10**, 36 (1999).

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