Abstract Submitted
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**Quasi-bound state in $K^-pp$ system: numerical benchmarks**[1] R. YA. KEZERASHVILI, SH. M. TSIKLAURI, The City University of New York, I. FILIKHIN, V.M. SUSLOV, B. VLAHOVIC, North Carolina Central University — Calculations for a deeply bound state and width of the kaonic three-body $K^-pp$ system are presented using realistic nucleon-nucleon potentials and the energy dependent chiral $KN$ interaction, as well as a phenomenological energy independent $KN$ potential. Two totally different methods, one the method of hyperspherical functions in momentum representation and the other solving the Faddeev equations in configuration space, are used to study the ground state energy of the system and to compare these two different approaches. The Argonne V14 and Maliet and Tjon potentials for the $NN$-interaction, and the energy dependent chiral $KN$ interaction, and an energy independent phenomenological $KN$ potential for description of the kaon-nucleon interaction were used. The results of calculations obtained by both methods are in a reasonable agreement. The ground state energy not sensitive to the $NN$ interaction, however shows very strong dependence on the kaon-nucleon potential. The energy of the ground state, as well as the width calculated for the energy independent $KN$ interaction are more than twice bigger than for the energy dependent chiral $KN$ potential. The theoretical discrepancies in the binding energy and width for the $K^-pp$ system related to the different $NN$ and $KN$ interactions are discussed.

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