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Construction of antikaon-nucleon potential based on chiral unitary approach KENTA MIYAHARA, Kyoto University, TETSUO HYODO, Yukawa Institute for Theoretical Physics, Kyoto University — We study the single-channel local potential for the antikaon-nucleon system focusing on the behavior of the scattering amplitude in the complex energy plane. In previous works, the local potential has been constructed to reproduce the scattering amplitude derived from the coupled-channel chiral unitary approach on the real energy axis. In this work, analyzing the scattering amplitude in the complex energy plane, we find that the scattering amplitude is not completely reproduced away from the real axis. Especially, the pole structure of the Lambda(1405) is qualitatively different from the original one in the chiral unitary approach. It is considered that the difference of the pole structure affects the physical observables in few-body systems. Therefore, we discuss the method to improve the local potential for a better description of the scattering amplitude in the complex energy plane.

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