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Application of the absorbing boundary condition to the three-body problem with the rearrangement channels MASATAKA IWASAKI, REIJI OTANI, MAKOTO ITO, Department of Pure and Applied Physics, Kansai University, MASAYASU KAMIMURA, RIKEN Nishina Center for Accelerator-based Science, RIKEN — One of the current issues in nuclear physics is the structure of the borromean three-body systems, which mainly appear around Neutron-drip lines and its dynamics of continuum states above the particle decay threshold. The borromean systems in Neutron-drip line are weak binding systems and hence, they are easily excited to unbound continuum states. Therefore, it is very important to describe the structure of the borromean systems as well as its reaction dynamics in a consistent manner. The absorbing boundary condition (ABC) method, which introduces the absorbing potential outside of a total system, is one of powerful methods to handle the continuum states in three-body systems. In the previous studies, there are several applications of ABC to the reaction problems, but its applications to precise three-body calculations are still limited. In the present study, we apply the ABC method to the three-body calculation, which takes into account the rearrangement channels completely. We assume the several types of the absorbing potentials, and the resonance parameters are calculated for the assumed absorbers. In the present report, we will discuss the optimal absorber in the three-body systems. Moreover, our calculation will be compared with the complex scaling method, which is an alternative method to handle the continuum states.

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