

“不安定核と多体共鳴状態”

Unstable Nuclei and Many-Body Resonant States

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Most of the states in unstable nuclear systems are observed as resonant states, because the binding energies of those systems are very small. Thus, in investigation of those states, we need proper treatments of resonances and sometimes even the description of relevant reaction processes. For description of many-body resonances over a wide region of the complex energy plane and low-energy reaction processes, the complex scaling method has been used as a very powerful method. In this seminar, we would like to discuss three problems in recent developments of many-body resonances. First, we discuss four- and five-body resonances in $A=7$ (${}^7\text{He}$, ${}^7\text{B}$) and $A=8$ (${}^8\text{He}$, ${}^8\text{C}$), respectively. Second, the ${}^4\text{He}$ - d scattering is investigated using a ${}^4\text{He} + p + n$ three-body model with the complex scaling method. Finally, we discuss Coulomb breakup reactions of two-neutron halo nuclei; ${}^6\text{He}$ and ${}^{11}\text{Li}$.

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