



独立行政法人理化学研究所 仁科加速器研究センター
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RIKEN Nishina Center for Accelerator Based Science
The 181st RIBF Nuclear Physics Seminar

Two-neutron correlations in the ground and excited states of ${}^6\text{He}$

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In two-neutron halo nuclei, the importance of two-neutron correlation in their binding mechanisms has been suggested from the core+n+n three-body calculations. This two-neutron correlation is characterized as the spatially-localized n-n pair, the so-called dineutron, and has attracted much attention from both theoretical and experimental sides.

In this talk, we discuss the dineutron correlations in the ground and excited states of two-neutron halo nuclei by using two kinds of reactions.

For the excited states, we consider the nuclear breakup reaction of ${}^6\text{He}$. We investigate the decay mode of the 2^+ resonant state, which is populated by the breakup reaction by ${}^{12}\text{C}$ at 240 MeV/nucleon, and discuss the role of two-neutron correlation in decay from the 2^+ resonance.

For the ground state, we investigate the neutron knockout reaction of ${}^6\text{He}$. In quasifree knockout reactions, the knocked-out neutron is free from final-state interactions, and it is expected that we could extract the ground-state information from the observables. We discuss the possibility of direct measurement of dineutron correlation in the knockout reaction.

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