



国立研究開発法人理化学研究所 仁科加速器研究センター
第215回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 215th RIBF Nuclear Physics Seminar

Illuminating alpha clusters in an active target and time projection chamber

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This seminar will focus on recent studies on alpha cluster states in neutron-rich ^{10}Be and ^{14}C via resonant alpha scattering. Despite the early inception of cluster studies in the 1930s, it is only recently that radioactive beam experiments, with great helps from advanced theoretical works, enabled new generations of studies, in which data with variable excess neutron numbers or decay thresholds are compared to predictions with least or no assumptions of cluster cores. Some of the predicted but elusive phenomena, such as molecular orbitals or linear chain structures, are now gradually coming to light. The Active-Target Time Projection Chamber (AT-TPC) of the National Superconducting Cyclotron Laboratory is a three-dimensional imaging device of nuclear reactions. To further alpha cluster studies, the AT-TPC collaboration developed a new measurement method of low-energy resonant scattering of radioactive beams and made first experiments using the prototype device, PAT-TPC, at the Twinsol facility of the University of Notre Dame. Alpha clustering in beryllium and carbon nuclei will be discussed from the experimental results.

* The talk will be given in English language..

Contact: Nuclear Physics Seminar Organizing Committee
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