



国立研究開発法人理化学研究所 仁科加速器科学研究センター
第301回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 301st RIBF Nuclear Physics Seminar

Exploring nuclear shell structure in the neutron-rich landscape

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Rare isotopes with highly asymmetric ratios of protons and neutrons bring new insight into the evolution nuclear structure. The properties of these nuclei approaching the edge of nuclear binding guide our understanding of the state of matter in extreme neutron-rich systems in our Universe. The new features in the rare isotopes challenge our understanding of the nuclear force bringing new insight.

Nuclear shells form the fundamental framework for modeling the many-body system of strongly interacting nucleons. Their manifestation reflects in observable properties of nuclei. The presentation will outline how reactions with rare isotope beams are allowing us to unveil the metamorphosis of nuclear shells. This is leading to revelation of unconventional forms of nuclei such as nuclear halo.

The discussion will present investigations on nuclear radii and momentum distribution with intermediate energy beams at the RIKEN, RIBF on neutron-rich fluorine isotopes showing the breakdown of the $N = 20$ shell gap. Inelastic scattering and transfer reactions also unveil shell evolution. Studies using the low-energy re-accelerated beams at TRIUMF on solid H_2/D_2 targets will also be presented.

* The talk will be given in English language.

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via Zoom meeting system