



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287回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 287th RIBF Nuclear Physics Seminar



Nuclear compression modes from stable to exotic nuclei

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Up to about a decade ago, studies of giant resonances were performed on targets of stable nuclei using different probes at different bombarding energies to excite preferentially different types of giant resonances with certain multipolarities, spin and isospin. We learned much from investigation of the isoscalar giant quadrupole resonance (ISGQR) as well as the isoscalar giant monopole (ISGMR) and dipole (ISGDR) resonances, the so-called compression modes important for determining key parameters of the equation of state (EOS) of nuclear matter. The studies of the ISGMR lead to some ambiguities regarding the nuclear matter incompressibility and conflicting reports regarding effect of nuclear structure in A=90 region. With the advent of radioactive ion-beam facilities, prospects for giant resonance studies in exotic nuclei become rich and promising. In pioneering experiments at GSI, the isovector giant dipole resonance (IVGDR) in neutron-rich oxygen and tin isotopes was investigated in Coulomb excitation by scattering off a Pb target at relativistic energies employing the invariant-mass method. More recently, the isoscalar giant resonances were studied in inelastic scattering off deuterium and helium targets in inverse-kinematics using two different techniques: the active-target method and storage-ring method. The most recent results for the very few cases studied will be presented and the advantages and disadvantages of both methods will be discussed.

Feb. 3rd (Mon.) 2020 13:30~
RIBF Hall, RIBF bldg., RIKEN

* The talk will be given in English language.

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