

Study of Collectivities in Neutron-rich $N \sim 40$ Cr isotopes

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A life-time measurement of excited states in neutron-rich deformed nuclei in the mass $A \sim 60$ region is planned (NP0906-RIBF07). The recoil distance method (RDM) using the intermediate energy RI beams will be used to measure the lifetimes of $2+$ and $4+$ states in $60-64\text{Cr}$ and their neighbors. The Big RIPS fragment separator at RIBF will be used to produce the neutron-rich isotope beams in $N \sim 40$ region by impinging $345\text{A MeV } ^{70}\text{Zn}$ beams on a ^9Be target. Gamma rays from the excited states at the secondary target will be measured by CNS GRAPE and DALI-2, and the scattered ions will be identified with the Zero Degree spectrometer. The main purpose of the experiment is to study collectivities of the neutron-rich Cr isotopes in a new island of inversion by extracting $B(E2)$ values precisely through lifetime measurements.

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