

## Shape coexistence in $^{60}\text{Ti}$ and $^{64}\text{Cr}$

*jueves, 27 de marzo de 2025 17:20 (20)*

The island of inversion, where the ground and excited states exchange their nuclear deformation, is one of the cornerstones to investigate nuclear shell evolution in nuclei with the extreme neutron-proton ratios.  $^{64}\text{Cr}$  is the key nucleus for this island of inversion at  $N = 40$  with multi particle and multi hole (np-nh) configurations. Recently, the in-beam  $\gamma$ -ray spectroscopy carried out at FRIB measured the  $0_2^+$  state in  $^{62}\text{Cr}$  with angular momentum distribution [A. Gade et al., Nat. Phys. 21, 37 (2025)]. From this measurement, the ground state was suggested to be formed by the 4p-4h configuration while the excited  $0^+$  state originated from the 2p-2h configuration by comparing with theoretical predictions. These findings opened a portal to the island of inversion and shape coexistence in this  $N = 40$  region.

In this presentation, we propose to measure the excited states in even-even Ti and Cr isotopes other than ground band structures to thoroughly investigate the np-nh configurations through the  $\beta$ -delayed  $\gamma$ -ray spectroscopy. Particularly, we point out that  $^{60}\text{Ti}$  and  $^{64}\text{Cr}$  nuclei, the isotone and isotope of  $^{62}\text{Cr}$ , respectively, play important roles in this island of inversion and shape coexistence.

**Primary author(s) :** MOON, Byul (CENS, IBS)

**Co-author(s) :** Dr. BAE, Sunghan (CNS, U. Tokyo)

**Presenter(s) :** MOON, Byul (CENS, IBS)

**Clasificación de la sesión :** Neutron-Rich Nuclei towards  $^{78}\text{Ni}$