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Shape coexistence in neutron-rich Zr beyond N = 60

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We propose to study the shape coexistence in the unstable neutron-rich system ^{102}Zr (N = 62). The shape coexistent phenomenon around N = 60 has been identified by measuring the low-lying excided 0^+ states recently. In this study, we probe the shape coexistence in ^{102}Zr by measuring the second 0^+ states using the two-neutron transfer (p,t) reaction at 40 MeV/u. The OEDO beamline at RIBF is used to degrade the energy of the radioactive ^{104}Zr beam. The emitted tritons are measured by the TiNA system. Reaction residues are identified by the SHARAQ spectrometer. Gamma rays emitted from de-excitation from the second 0^+ state are detected by DALI2. By measuring the differential cross section for (p,t), we investigate nature of the second 0^+ state and thereby study the different shapes inside the neutron-rich Zr beyond N = 60.

Authors: XU, Wenzheng (Shandong University); Prof. WANG, He (IMP); FRANCHOO, Serge (IJClab)

Presenter: XU, Wenzheng (Shandong University)