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Study of Multiple Shape Coexistence in 110Cd

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Cd isotopes, particularly ^{110,112}Cd, have long been considered the best examples of nuclei with vibrational behaviour. However, recent studies challenge this interpretation, suggesting that Cd isotopes possess characteristics of multiple shape coexistence. To further investigate this issue, a series of β-decay experiments were conducted to improve the spectroscopic information on ^{110,112}Cd. The obtained results will be crucial for the complementary Coulomb-excitation studies that aim to determine the intrinsic shapes of low-lying 0^+ states.

The current work examines the nuclear structure of ^{110}Cd through the $\beta-$ decay of ^{110}Ag and the $\beta+$/EC decay of ^{110}In conducted at the TRIUMF-ISAC facility. The radioactive-ion beams of ^{110}Ag and ^{110}In were delivered to a mylar tape located at the centre of the GRIFFIN spectrometer, which consisted of 15 HPGe clover detectors with BGO Compton-suppression shields.

The obtained γ-γ coincidence data was used to construct a level scheme of ^{110}Cd, to confirm previously observed in-band transitions, and to seek evidence for rotational bands in ^{110}Cd. In this presentation, selected preliminary results and key findings will be discussed.

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