

## Spectroscopy of $A=100$ nuclei with GRIFFIN

A sudden ground-state shape transition is known to occur sharply at  $N = 60$ , accompanied by equally dramatic changes in the low-energy spectra of the nuclei with  $A \approx 100$ . Detailed spectroscopic data on the  $\gamma$  decay of  $^{100}\text{Zr}$  are essential for understanding this phase transition and the emergence of shape coexistence, predicted by recent Monte Carlo Shell Model (MCSM) calculations.

Studying  $^{100}\text{Zr}$  via  $\gamma$ -ray spectroscopy following  $\beta$  decay presents an experimental challenge due to the refractory nature of  $^{100}\text{Y}$ , which prevents its direct extraction at Isotope Separator On-Line (ISOL) facilities. To overcome this, a beam mixture of  $^{100}\text{Rb}$  and  $^{100}\text{Sr}$  was delivered to a tape in the center of the powerful Gamma Ray Infrastructure For Fundamental Investigations of Nuclei (GRIFFIN) spectrometer at the TRIUMF facility.

The use of a tape station facilitated the selective separation of short-lived activity, permitting the disentanglement of the complex  $\gamma$ -ray spectra. The collected  $\gamma - \gamma$  coincidence data allowed for vastly extending the previously known level scheme of  $^{100}\text{Zr}$  and to unambiguously assign the spins of key states via  $\gamma - \gamma$  angular correlations.

Selected results will be presented, including evidence for the recently found  $0_4^+$  state in  $^{100}\text{Zr}$ , which was predicted by MCSM to possess a spherical shape. Candidates for a spin-2 member of a band presumably built on the  $0_4^+$  state will be discussed. Branching and mixing ratios will be used to test the existing structural interpretations.

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