

# Questions of nuclear structure: a study of $^{80}\text{Ge}$

*Friday, 14 February 2025 08:45 (30 minutes)*

The study of nuclear shapes has greatly benefited from the capabilities of the current generation of detector arrays, uncovering different phenomena in different regions of the nuclear chart. Shape coexistence, once thought to be quite rare is now observed to occur throughout the nuclear landscape. An experiment to study the structure of  $^{80}\text{Ge}$  was conducted at TRIUMF, populating excited states through the  $\beta$ -decay of its parent,  $^{80}\text{Ga}$ ; the subsequent  $\gamma$ -rays were measured using the GRIFFIN spectrometer. Though the  $6^-$  ground state and  $3^-$  excited state in  $^{80}\text{Ga}$  have very similar half-lives, 1.9 s and 1.3 s, respectively, their  $\beta$ -decay into excited states of  $^{80}\text{Ge}$  could be traced separately, allowing the expansion of the level scheme and the assignment of tentative spins to known and newly observed levels. Though the expected signal observed for shape coexistence was not found, the plethora of new levels and  $\gamma$ -rays has the potential to uncover interesting structure features. Results of these investigations will be presented.

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