Contribution ID : **28** Type : **Nuclear Structure**

Searching for Low-Energy Shape Coexistence in ^{80}Ge

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Study of nuclear structure around the magic numbers is key to understanding the chart of nuclei. The region around ^{78}Ni is of interest, not only because it is one of the heavier doubly magic nuclei, but also because it has been proposed as a portal to the fifth island of inversion [Nowacki, F. *et al.* Phys. Rev. Lett. 117, 272501]. Evidence for low-lying shape coexistence near N=40 has been observed, but, until recently, no evidence of low-lying 0^+_2 states in the Ge isotopes near N=50 had be reported. An experiment at the ALTO facility identified a 0^+_2 state at 639 keV above the 0^+ ground state in ^{80}Ge [Gottardo, A. *et al.* Phys. Rev. Lett. 116, 182501]. However, β-decay studies using the GRIFFIN facility at TRIUMF, show no evidence for this state. Furthermore, the decay of a proposed (2^+) 2403-keV state to the 0^+_2 639-keV state was not observed, nor was there other evidence for this state. Large-scale shell model calculations were performed, using two different valence spaces and interactions, for ^{78,80,82}Ge. These calculations were able to reproduce the energies of known 0^+_2, $2^+_{1,2}$ and 4^+_1 levels in these Ge isotopes. The 0^+_2 state in ^{80}Ge is predicted to be near 2 MeV and arises from the recoupling of valence particles. The search for this state, will be described, and the recently published findings [Garcia, F.H. *et al.* Phys. Rev. Lett. 125, 172501] will be presented.

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Please select: Experiment or Theory

Experiment

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