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# Structure of $^{188}$Hg From Gamma-ray Spectroscopy With GRIFFIN (G)*

*Monday 11 June 2018 14:00 (15 minutes)*

Shape coexistence is associated with nuclear deformations at low excitation energies and has been a topic of extensive research in nuclear physics over the past 60 years. Shape coexistence is driven by two opposing forces. One is the stabilizing effect of closed shells causing the nucleus to have a spherical shape, while the other is the residual interaction between proton and neutrons, the correlation energy gain, in which the proton-neutron interaction energy is a major contribution [1]. A region of particular interest is the neutron deficient Hg isotopes, which is a well-known region of shape coexistence. A large isotope shift in the neutron deficient Hg isotopes was reported in the 1970's and is interpreted as differently shaped potentials along the isotopic chain causing differences in deformation [2]. Using the high efficiency GRIFFIN spectrometer, a detailed study of the excited states populated in $^{188}$Hg following the $\beta^+$/EC decay of $^{188}$Tl was preformed as part of an experimental campaign to help further a comprehensive understanding of nuclear structure evolution in this region.

[1] Kris Heyde and John L. Wood. Shape coexistence in atomic nuclei. Rev. Mod. Phys., 83, 1467-1521, Nov 2011.
[2] J. Bohn et. al.. Sudden change in the nuclear charge distribution of very light mercury isotopes. Physics Letters B, 38, 308 –311, 1972.

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