

Nuclear Structure by Density Functional Theory and the Generator Coordinate Method

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Systematic surveys have now been carried out for the theory of nuclear ground states using self-consistent mean-field theory, also called density functional theory (DFT). While the performance is not as good as more phenomenological theories, this raises the question of how well systematic extensions of the theory perform on excited state properties. There are two well-known extensions, the time-dependent DFT and the generator coordinate method (GCM). I report here on the results of GCM calculations of the 2^+ excited states in the 546 even-even nuclei for which data is available.