Beyond ^{132}Sn

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Exotic nuclei beyond the ^{132}Sn double shell-closure are influenced by both the Sn superfluity and the evolving collectivity only a few nucleons away. Toward even more neutron-rich nuclei, for example at intermediate mass number A~136, the interplay between single-particle and collective particle-hole excitations is evident. In some cases with the extreme addition of neutrons also other effects may be expected such as the formation of neutron skin, stabilization as sub-shell gap or orbital crossings [1,2].

The knowledge of nuclear ingredients is especially interesting beyond ^{132}Sn as little is known on how the excitation modes develop with the addition of both protons and neutrons. Therefore, systematic prompt and decay studies can be such sensitive probe for their structure [3,4]. Aiming to provide a more global picture and understand this barely explored neutron-rich portion of the nuclear chart, we have performed several investigations.

We have produced the nuclei of interest following fission as ^{238}U on ^{9}Be, thermal n-induced fission on ^{241}Pu and ^{235}U or fast n-induced fission on ^{238}U and ^{232}Th in recent γ-ray spectroscopy projects [2-5]. Consistent data analysis allows to access various spins and excitation energies and to provide new input to theory. Examples from these studies on isotopes with A~140 will be presented along with the possible interpretation of the new data.

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