Shape evolution and Gamow–Teller $\beta$–decay of neutron–rich $A\sim 100$ nuclei within beyond mean field approach

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Neutron–rich nuclei in the $A\sim 100$ mass region manifest drastic changes in some isotopic chains and sudden variations of particular nuclear properties. Their $\beta$–decay characteristics are relevant to the astrophysical $r$–process. Specific isotopes are of high interest as important contributors to the decay heat in reactors.

Our recent investigations represent an attempt to the self-consistent description of exotic phenomena in neutron–rich $A\sim 100$ nuclei [1, 2] within the complex Excited Vampir variational model with symmetry projection before variation using a realistic effective interaction in a large model space. The triple shape coexistence and the shape evolution in the N=58 Sr and Zr isotopes, the shape evolution in a chain of Zr nuclei as well as the Gamow–Teller $\beta$–decay properties of neutron-rich Zr and Tc nuclei will be presented.