

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

A. Petrovici¹

¹*Horia Hulubei National Institute for Physics and Nuclear Engineering, R-077125 Bucharest, Romania*

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 β –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 β –decay properties of neutron-rich Zr and Tc nuclei will be presented.

[1] A. Petrovici, K.W. Schmid, and A. Faessler, Prog. Part. Nucl. Phys. **66**, 287 (2011).

[2] A. Petrovici, Phys. Rev. C **85**, 034337 (2012).