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Exotic structure and dynamics in neutron-rich $A \sim 100$ nuclei

Neutron-rich $A \sim 100$ nuclei relevant for the astrophysical r-process and nuclear reactor related issues manifest sudden variations of particular nuclear properties in some isotopic chains, a more smooth transition in some others, and exotic shape isomers induced by triple shape coexistence in some nuclei. Our recent investigations represent an attempt to a comprehensive understanding of shape coexistence phenomena suggested by the experimental data at low spins and the richness of various structural effects at intermediate spins within the beyond-mean-field complex Excited Vampir variational model with symmetry projection before variation using a realistic effective interaction obtained from a nuclear matter G-matrix based on the charge-dependent Bonn CD potential and a large model space. Results will be presented concerning effects of shape coexistence and mixing on structure and electromagnetic properties as well as β -decay properties around the neutron number $N=58$.

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