

The β -delayed γ -transitions of neutron-rich nuclei

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One of the successful tools for nuclear structure studies is the quasiparticle random phase approximation (QRPA) with the self-consistent mean-field derived from the Skyrme energy density functional (EDF). The framework allows to relate the properties of the ground states and excited states through the EDF. There is the discrepancy between the QRPA predictions and the measurements for low-energy 1^+ spectrum of the daughter nucleus, see as an example [1].

The number of low-lying 1^+ states is naturally reproduced by the inclusion of the tensor correlations and the coupling between one- and two-phonon terms in the 1^+ wave functions [2], [3], [4]. We applied the influence of the phonon-phonon coupling on the probability of the neutron emission occurring at very small quantity of energy available in β -decay. Onset of delayed neutron emission in the chains of neutron-rich isotopes is discussed.

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References

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