β-DECAY RATES AND TENSOR CORRELATIONS

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One of the successful tools for the studies of Gamow-Teller (GT) strength distributions is the quasiparticle random phase approximation (QRPA) with the self-consistent mean-field derived by the Skyrme interaction. These QRPA calculations allow one to relate the properties of the ground states and excited states through the same energy density functional. Making use of the finite rank separable approximation (FRSA) [1, 2] for the residual interaction enables one to perform Skyrme-QRPA calculations in very large two-quasiparticle spaces. The FRSA has been extended to accommodate tensor correlations to mimic the Skyrme tensor interactions [3]. In this report the tensor correlation effects on β-decay half-lives are studied within the approach. Using the wide range of the parameter space of the isoscalar and isovector tensor term [4] we concentrate on the correct amount of the integral GT strength within the properly calculated Q_β-window for the case of doubly magic nucleus ^{132}Sn.

The comparison between experimental the energies of 1^+ states of ^{132}Sb, the log ft values and those calculated with the Skyrme interactions are discussed.

Taking into account of the tensor terms results in a reduction of beta-decay half-life. The inclusion of the residual tensor interaction terms is essential.

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