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## Interplay of y-rigid and y-stable collective motion in the phase transition from spherical to deformed nuclear shapes

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A simple exactly separable model for the competition between the  $\gamma$ -rigid and  $\gamma$ -stable collective motion in the phase transition between spherical and deformed shapes is proposed. The coupling of the two types of  $\beta$  vibration is achieved by introducing a control parameter measuring the degree of the system's  $\gamma$ -rigidity in an Ising type Hamiltonian. The separation of variables is achieved by considering a potential of the form  $u(\beta)+u(\gamma)/\beta^2$  adapted to the current problem. Matching the two competing excitations, the  $\gamma$  potential is chosen to be a harmonic oscillator centered in  $\gamma$ =0, which is consistent with the prolate  $\gamma$ -rigid part of the problem. While for the  $\beta$  potential an infinite square well is considered. The resulting energy spectrum and E2 transition probabilities depend on two parameters excepting the scale, namely the rigidity and the stiffness of the  $\gamma$  vibrations. Their separate influence on the model's characteristics is investigated through numerical applications. The experimental realization of the model is found in few transitional rare earth nuclei around N=96.

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