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A PHENOMENOLOGICAL METHOD FOR CALCULATING THE DOUBLE BACKBENDING FOR EVEN-EVEN RARE EARTH NUCLEI

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ABSTRACT

The Yrast band energies for some even rare earth nuclei (^{156}Dy, ^{158}Er, ^{160}Er, and ^{168}Hf) showing a double backbending. The theoretical calculations for these nuclei are investigated through band mixing in which the rotational ground state band is described by the variable moment of inertia model (VMI). The s-band was described through a linear equation of the angular momentum. We proposed a new interband coupling state equation in the form of a double Gaussian potential instead of single Gaussian potential between the last two bands. Our model using the interband interaction gives reasonable good well results for the available experimental data.

KEYWORDS: Earth Nuclei, VMI Model Formula, Double Backbending