

Parabolic Regge Trajectories for Odd-Odd Nuclei

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An analytic expression for the energies of the states of the proton-neutron multiplet $(j_p j_n) I = |j_p - j_n|, \dots, j_p + j_n$ is derived as a quadratic function of $x = I(I+1)$ owing to the exchange of the quadrupole and the spin-vibrational phonon. A discussion of this parabola, its consequences and illustrative applications are presented. This new parabolic rule is suggested to serve as a guideline on the classification and investigation of states in odd-odd nuclei. We present several illustrative applications. The curve c_2 corresponds to realistic coupling strengths.

