Spectrum of non-strange-baryons resonances by using a new mass formula under the octic potential

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In this paper we study the spin and flavor dependent SU(6) violations in the nonstrange baryons spectrum using a simple approach based on the new mass formula. The energy eigenvalue of each baryon is obtained using the anzast method with the octic potential. The results of our model (the combination of our proposed solution method, hypercentralpotentialand generalized Gürsey Radicati mass formula to description of the spectrum) show that the nonstrange baryons spectrum are in general fairly well reproduced. The overall good description of the spectrum which we obtain shows that our model can also be used to give a fair description of the energies of the excited multiplets at least up to 3GeV and negative-parity resonance. Moreover, we have shown our model reproduces the position of the Roper resonances of the nucleon.

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