$\gamma-$Rigid Triaxial Nuclei in the Presence of a Minimal Length via a Quantum Perturbation Method

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In this work, we derive a closed solution of the Shrödinger equation for Bohr Hamiltonien within the minimal length formalism. The problem is solved by means conjointly of asymptotic iteration method (AIM) and a quantum perturbation method (QPM) for transitional nuclei near the critical point symmetry Z(4) corresponding to phase transition from prolate to γ-rigid triaxial shape. A scaled Davidson potential is used as a restoring potential in order to get physical minimum. The agreement between the obtained theoretical results and the experimental data is very satisfactory.