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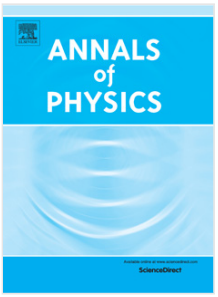

Deformation properties of the projected spherical single particle basis

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***Research Highlights**

- The proposed model describes the properties af spherical and deformed nuclei in an unified fashion.
- The single particle energies corresponding to the projected spherical basis depend on the nuclear deformation.
- The basis can be used to treat many body systems.
- Analytical expression for the k-pole density is given.
- Comparisons with the Nilsson model, projected shell model and particle-rotor model are in detail discussed.

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