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# Tetrahedral and Octahedral Shape Coexistence in $^{152}$Sm

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## Abstract

In recent years, there is an increasing interest in exotic nuclear shapes and corresponding symmetries in low energy subatomic physics, both from theory and experimental points of view, specially on tetrahedral and octahedral symmetries. Their significance relies on the fact that they present unprecedented degeneracies in both individual-nucleonic and collective-rotation excitations, new forms of behaviour and unprecedented hindrance factors, Ref. [1].

Following two recent publications of the discovery of the simultaneous presence and competition of the *octahedral and tetrahedral symmetries* in $^{152}$Sm, Ref. [2, 3], we wish to present how these symmetries present themselves in theoretical calculations by combining the Nuclear Mean Field with Group Theory, and establish the criteria for experimental identification. Moreover, the concept of *spontaneous symmetry breaking* will be addressed.

## References

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