

Electromagnetic Transition Systematics in Proton-Rich Aluminum Isotopes

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The shell model provides a comprehensive framework for understanding the low-energy nuclear structure and spectroscopic properties in isotopic chains. The electromagnetic transitions are a crucial test of any effective shell model interaction.

This study presents a detailed description, using our PSDPF interaction [1], of the electric and magnetic transition strengths denoted as B(EL) and B(ML), respectively, in the proton-rich aluminum isotopes. We focus in this study on the electric dipole (E1) and magnetic octupole (M3) transitions.

The results will be discussed, in our contribution, in comparison to available experimental data [2], providing a deeper understanding of the shell model's predictive power in explaining the nuclear behavior of aluminum isotopes.

References

[1] M. Bouhelal et al., *Nucl. Phys. A* **864** (2011) 113-127.

[2] <http://www.nndc.bnl.gov/>.