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Systematics study of octupole bands in rotating even-even nuclei to reveal rigid or soft octupole shape

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The systematic study of octupole bands in rotating even-even nuclei represents an important area of study in nuclear structure physics. Specifically, it focuses on determining the role of nuclear rotation in influencing the rigidity or softness of octupole shapes. It also investigates how experimental results from gamma-ray spectroscopy are compared with theoretical predictions of octupole deformation. Rotating even-even nuclei with octupole shapes show pairs of positive and negative parity bands at similar excitation energies. This allows them to rotate around an axis perpendicular to their symmetry axis, indicating the presence of octupole correlations.

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