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[Wobbling Title]

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Abstract

Nova.

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Contents

Chapter 1

Introduction

Ground-state nuclear shapes with spherical symmetry or axial symmetry are predominant across the char of nuclides. Near closed shells, the deformation is indeed sufficient that models based on spherical symmetries can be used to describe nuclear properties (e.g., energies, quadrupole moments, and so on). Besides the spherical and axially-symmetric shapes, the existence of triaxial nuclear deformation was theoretically predicted a long time ago [1]. The rigid triaxiality of nuclei is defined by the asymmetry parameter γ, giving rise to unique quantum phenomena. The quantum mechanical properties of the rigid triaxial shapes drew a lot of attention within the nuclear community.

Chapter 2

Deformed Nuclei

2.1 Nuclear deformation

Most of the nuclei across the nuclide chart are spherical or symmetric in their ground state. Moreover, for the axially symmetric nuclei (i.e, either *oblate* or *prolate*), there is a prolate over oblate dominance.

FIGURE 2.1: Nuclear Shapes.

In Figure 2.1, the nuclear shapes are shown.

Bibliography

[1] Aage Niels Bohr and Ben R Mottelson. *Nuclear Structure (In 2 Volumes)*. World Scientific Publishing Company, 1998.