



国立研究開発法人理化学研究所 仁科加速器科学研究センター
第281回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 281st RIBF Nuclear Physics Seminar

Tetrahedral deformation in nuclei

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This is an introductory seminar to exotic shapes, especially tetrahedral deformation, in nuclei. Tetrahedral symmetry has been discussed mainly as a property of certain molecules, metal clusters and fullerenes in that the interactions are electromagnetic. The nuclear tetrahedral deformation is expected to be stabilized by the strong shell gap structure due to the strong interactions. The collective rotation has purely quantum-mechanical nature, and the unique rotational spectrum is expected. However, in spite of theoretical predictions, the experimental evidences are still under discussion except for light-mass nuclei with alpha particle clustering.

In this seminar, we discuss the non-axial octupole deformations such as tetrahedral shape in 80Zr ($N=Z=40$) region with the aid of simple phenomenological models and the density functional theory calculations. The role of symmetries is emphasized to understand the shell gap structure (so-called octupole magic number) and the exotic spin-parity sequence of the excitation spectra. The discussion will be given in a helpful manner for further experimental investigations in various regions of the nuclear chart.

Oct. 15th (Tue.) 2019 13:30~
RIBF Hall, RIBF bldg., RIKEN

* The talk will be given in English language.

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