



独立行政法人理化学研究所 仁科加速器研究センター

第59回RIBF核物理セミナー

RIKEN Nishina Center for Accelerator Based Science

The 59th RIBF Nuclear Physics Seminar

Dynamic and static chirality of rotating triaxial nuclei

Prof. Stefan G. Frauendorf

(Institute for Radiation Physics, Research Center Dresden-Rossendorf and University of Notre Dame)

Chirality is a common property of complex molecules. Triaxial nuclei may attain handedness if they rotate about an axis that does not lie in one of the planes spanned by the three principal axes, which form a right-handed or left-handed system with respect to the angular momentum vector. The two chiralities give rise to two identical $\Delta \neq 1$ rotational bands of the same parity. Several candidates of such chiral doublets have been suggested. In contrast to molecules, there seems to be a substantial coupling between the left- and right-handed configurations. The consequence for observables, as energies and transition rates, will be discussed together with the available experimental information. The examples studied so far seem to point to a dynamical character of nuclear chirality, which correspond to a slow oscillation of the angular momentum vector between the left- and right-handed orientations. A microscopic description of these soft chiral vibrations in the framework of the Tilted Axis Cranking augmented with Random Phase Approximation is presented. The chiral vibrations are found to be well decoupled from shape vibrations. An effective 4th order rotor Hamiltonian is applied to the region where the partner bands are near degenerate.

Apr. 8 (Tue), 2008 15:30-
RIBF Conf. Hall, RIKEN

The seminar will be given in English

Contact: RIBF Nuclear Physics Seminar Organizer

npsoc@ribf.riken.jp

<http://ribf.riken.jp/~seminar>