

Systematics study of ground-state bands in rotating even-even nuclei to reveal triaxial deformation at ground state.

This project intends to provide an empirical information on all even-even rotating nuclei, in order to determine whether they are axially symmetric or triaxial. This is a new idea which the analysis is based entirely on experimental data and is called Coriolis analysis. The Coriolis analysis is based on an analysis of the plots of the gamma ray energies (of transitions that belong to a rotational band) as a function of the angular momentum I of the nuclear states. It has no input of parameters. The information that is extracted is applicable for the band of interest, thus one can extract information on the shape analysing each band independently. Our physics motivation comes from what is believed at present that the ground state band in a triaxial nucleus is very similar to that of an axially symmetric nucleus. The presence of triaxiality at present is always linked to the observation and the features of the gamma band. We say okay the Coriolis analysis is sensitive even to the small difference in the features of the ground state band at different gamma deformations, thus it can reveal information on the nuclear triaxiality.

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Session Classification: Poster Presentations