Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Study of high spin states in the triaxial deformed nuclei using an angular momentum projection method MITSUHIRO SHIMADA, SHINGO TAGAMI, YOSHIFUMI SHIMIZU, Kyushu University — Although the well-known deformation in nuclei is the axially symmetric ellipsoidal deformation, the existence of triaxial deformation is suggested theoretically and experimentally. At high-spin states of the triaxially deformed nuclei, there are many interesting rotational bands such as the chiral doublet band and the wobbling band. In the odd-odd nuclei with a high-j particle and a high-j hole, the three angular-momentum vectors, those of the core, the high-j particle and the high-j hole, align along the three mutually perpendicular directions. These angular-momentum vectors give rise to a chiral geometry, which leads to the degenerate pair of bands. The chiral doublet band and the wobbling band have been first predicted by the macroscopic models. However, their microscopic understanding is necessary. We have recently developed an efficient method to perform the angular momentum projection, which is a fully microscopic approach to the nuclear rotational motion. With this approach, we investigate the high-spin rotational bands in the triaxially deformed nuclei. We will report on the results of the energy spectra and the electromagnetic transition rates, and discuss them in comparison with experimental data.

Mitsuhiro Shimada
Kyushu University

Date submitted: 27 Jun 2014 Electronic form version 1.4