Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

**Triaxial deformation and shape coexistence in Ni and Cr isotopes studied by Antisymmetirzed Molecular Dynamics + Bogoliubov method**
MASAAKI KIMURA, Hokkaido University — In this talk, I will introduce an extended version of Antisymmetrized Molecular Dynamics (AMD) and discuss the triaxial deformation and shape coexistence in Ni and Cr isotopes based on this extended framework. Recently, we have extended AMD to study the various phenomena in neutron-rich nuclei. By using localized Gaussian wave packets as the basis of quasi particle wave function, AMD is extended to include the pairing correlation (AMD+Bogoliubov). The use of Gaussian wave packets makes it easy to perform the parity and angular momentum projection and Generator Coordinate Calculation (GCM). Characteristic behavior of the $2^+$ energies and B(E2) values in Ni and Cr isotopes have been experimentally observed. Theoretically, based on the shell model and beyond mean-field calculations, their behavior has been discussed in relation to a new magic number in neutron-rich nuclei, and possible triaxial deformation in several isotopes has been pointed out. We have applied AMD+Bogoliubov to Ni and Cr isotopes and the behavior of 2+ energies and B(E2) are reproduced well. It is found that most of isotopes have the shape coexistence and some manifest triaxial deformation. By comparing with the axial calculation, the importance of the triaxial deformation to understand the zigzag behavior of 2+ energies and B(E2) will be discussed.

Masaaki Kimura
Hokkaido University

Date submitted: 01 Jul 2009 Electronic form version 1.4