

# In-beam gamma-ray spectroscopy of knockout reaction from nuclei around the island of inversion

*Monday, 15 September 2014 14:40 (20 minutes)*

An in-beam gamma-ray spectroscopy via one-neutron knockout reaction of  $^{36}\text{Mg}$  and one- or two-proton knockout reaction of  $^{34}\text{Mg}$  was performed.

Nuclei around  $^{32}\text{Mg}$ , so-called “island of inversion”, are known to have a large collectivity.

In the more neutron-rich region the deformation persists toward the shell-model magic number  $N = 28$ .

The large collectivity in the island of inversion is well explained with two-particle-two-hole neutron configuration across the  $N = 20$  shell gap.

Knockout reactions are sensitive to the nucleon single-particle configuration, and may therefore reveal the microscopic driving force for the large collectivity in this region.

The experiments were performed at RIBF.

$^{36}\text{Mg}$  and  $^{34}\text{Mg}$  secondary beams were made in BigRIPS with the  $^{48}\text{Ca}$  primary beam.

Secondary targets were C for  $^{36}\text{Mg}$  secondary beam and Be for  $^{34}\text{Mg}$  respectively.

The NaI(Tl) gamma-ray detector array DALI2 was placed around the secondary target.

Knockout residues were separated and identified by the ZeroDegree Spectrometer.

The status of data analysis of these experiments will be presented in this workshop.

**Primary author:** MOMIYAMA, Satoru (Department of Physics, University of Tokyo)

**Presenter:** MOMIYAMA, Satoru (Department of Physics, University of Tokyo)

**Session Classification:** Session 3