

RIBF ULIC Symposium/mini-WS Report

* English only

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Title	[RIBF-ULIC-miniWS012] Perspectives of shape transitions and β -decay half-lives in the neutron-rich A~110 region near the r-process path		
Date	December 27, 2011		
Place	RIBF Bldg. Room 203, RIKEN Nishina Center		
Language	[☒] English [☐] Japanese		
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Contact Person(s) (Name, Affiliation)	Hiroshi Watanabe (RIKEN Nishina Center)		

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	[Breakdown] Traveling fee for 2 participants Hiroyuki Koura: 11,480 Cao Ligang : 20,472		
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Summary of discussions and its (expected) results:

The main argument in this mini-workshop was concerned with the interplay between the nuclear shape and mass in neutron-rich nuclei with the mass number around 110. We discussed the experimental results of β -decay half-lives and shape transitions observed for neutron-rich Zr, Nb, and Mo isotopes, and their possible impact on the r-process abundance distributions. It was also suggested that the accumulation of fission fragments at a late stage of the r-process can play an important role in the isotopic abundances in the A~110 region. The discussion also included the effects of tensor interaction and isoscalar giant monopole resonance on the stability of nuclear shape. We learnt greatly from comments given by Professor Peter Möller on axial and reflection asymmetry, the former which should be treated in the calculations to provide better masses for the neutron-rich A~110 nuclei. In addition, he suggested that correct values of spins and parities in odd-even nuclei are of particular importance for the prediction of β -decay half-lives and delayed-neutron emission probabilities since selection rules for the odd nucleon determine the decay strengths to low-lying states in the daughter nuclei.

The difference in nuclear shapes between the experimental results and model predictions will be checked, and new calculations will be carried out based on a new mass table. It is hoped that future experiments at RIBF with a higher detection efficiency and increased beam intensities will provide more detailed spectroscopic information on decay schemes, such as the B(GT) distributions, that will enable quantitative comparison with model calculations.

Participants list (Name, Affiliation):

P. Möller	Los Alamos National Laboratory
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Please attach other documents as needed.