

# RIBF ULIC Symposium/mini-WS Report

\* English only

Date: Jan.12, 2012

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|-------------------|-----------------------|--------|-------------------------|
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| Title                                    | [RIBF-ULIC- 009] Physics of Rare-RI Ring  |
| Date                                     | Nov. 10 to Nov. 12  |
| Place                                    | RIKEN Nishina Center  |
| Language                                 | <input checked="" type="checkbox"/> English <input type="checkbox"/> Japanese   |
| HP address                               | <a href="http://indico.riken.jp/indico/conferenceDisplay.py?confId=527">http://indico.riken.jp/indico/conferenceDisplay.py?confId=527</a> |
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| Financial support from ULIC                                   | Total :  | 229,030              | JPY |
|   | [Breakdown]<br>Travel : 171, 980                 | Refreshment : 57,050 |     |
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## Summary of discussions and its (expected) results:

The main purpose of this symposium was to discuss about physics possibilities in Rare-RI Ring, which will be constructed soon in RIBF RI Beam Factory. The main purpose of the Rare-RI Ring is to measure masses of unstable nuclei, located very far from stability, which are related to the astrophysical r-process. Thus, in this symposium, main discussions were about the present mass measurements in ion-traps and storage rings and the present understandings for r-process. In the point of mass measurements, Multi Reflection TOF (MR-TOF) system is one of innovative system for mass measurements of unstable nuclei. The developments of MR-TOF have been reported from RIKEN and other facilities. During this symposium, it was pointed out that the rigidity measurements will be important to correct the masses of unstable nuclei with non-isochronicity for the mass measurements in the Rare-RI Ring.

Apart from the mass measurements, the Rare-RI Ring has potential capabilities to apply the reaction studies and so on. Related to this subject, in this symposium, the EXL project in GSI, where the reaction studies in the storage ring are investigated, was reported.

Another important discussion item in this symposium was technical issues in the Rare-RI Ring. In the Rare-RI Ring, two innovative systems will be introduced; one is individual injection and the other is isochronous storage ring (cyclotron-like storage ring). The present status for these systems was reported. In special, for the individual injection, it was reported that a fast response kicker has been realized in the last year developments. This success allows us to inject the Rare-RI beam with 200 A MeV to the Rare-RI Ring. For the technical issues, it was pointed out that installation of electron cooler in the storage ring will be important to tune isochronous field and that the stability of power supply for dipole magnets in the storage ring, which were made of stacked laminated steel, will be important for accurate mass measurements.

As the summary, in this symposium, there are many comments and suggestions for technical issues of the Rare-RI Ring and for possible physics programs, in special mass measurements, in the Rare-RI Ring. The comments and suggestions will be reflected to the Rare-RI Ring project.

Participants list(Name, Affiliation):

See attached.

Please attach other documents as needed.