Minutes of the 46th Machine-Time Committee Meeting

Date and time: July 15, 2011; 13:30–16:00

Place: RIBF Bldg., Room 203

Attendees: Sakai[a] (Chair), Abe[a], En'yo[a, †], Fukunishi[a], Haba[a, †], Kamigaito[a], Kase[a], Kubo[a], Kubono[b], Motobayashi[a, †], Shimoura[b], Sumikama[c, †], Ueno[a], Uesaka[a], Uwamino[a], Wakasugi[a], Inabe[a, †], Fukuda[a, †]

Absent: Morita[a], Sakurai[a], Yoshida[a, †]

[a] RNC / [b] CNS / [c] RIBF-UEC / [†] Observer

(in random order)

Reports

1. **Beam-time schedule changes** (Sakai)

   RILAC-SHE experiment:

   In consultation with divisions concerned, it was determined to conduct the SHE beam time (BT) for July–September supplying a maximum electric power of 2.2 MW additionally from the CGS system, i.e., RNC will supply 0.8 MW with CGS to the Wako campus. The BT will be suspended from August 18 to September 1 due to the maintenance during the above period. The SHE group now conducts a test to reproduce atoms of the Z = 112 element for the check of detection and other systems, where 1 event has been observed so far.

2. **Status of RIBF operation**

   - Machine studies (MSs) on the ^{238}U beam acceleration (Kamigaito)

     The following R&D studies on the ^{238}U beam acceleration were conducted with RILAC2 through fRC.

     – The new ion source equipped with RILAC2 (28-GHz SC-ECRIS): The device showed good performance in terms of the voltage endurance and the stability. The beam emittance was, however, twice as large as a designed value.

     – Carbon-foil type first-stage charge stripper: As a first-state charge stripper, placed downstream of RRC, a carbon-foil type stripper was tested with a ^{238}U beam at an energy E/A=11 MeV (This test was originally scheduled for last May but delayed). This charge-stripper system will be operated in the coming autumn in BigRIPS-based experiments.

     – He-gas type first-stage charge stripper: The performance of a He-gas type charge stripper, which has been developed as a successor of the above first-stage stripper, was investigated with a constructed prototype system at E/A=11 MeV. In the MS, ^{238}U ions in the charge state q=65^{+} were successfully produced as designed. The operation model will be constructed and installed at the A02 site downstream of RRC on January.

     – Gas type second-stage charge stripper: For the development of a second-stage charge stripper, placed downstream of fRC (E1 room), charge-state distributions were measured with various gases at E/A = 50 MeV. Their properties were discussed in comparison with data obtained with

the carbon foils.

The stability of the RRC magnetic field for the U beam acceleration was higher than that for Xe. Analyses are in progress.

- Problem with RILAC (Kase)
  - The 18-GHz Klystron amplifier has broken down. The same amplifier is not available for purchase. The SHE experiment started again by temporary replacement with Klystron equipped with Super-ECR ion source of AVF.
  - Accelerator Group is making arrangements to purchase a TWTA (Travelling Wave Tube Amplifier) as an alternative. The Klystron amplifier will be put back to AVF in this fiscal year, after the new TWTA is delivered; meanwhile, only Hyper-ECR ion source is available for AVF.

3. **Notification of the result of the RIBF performance tests** (Sakai)

   It was announced from the MT Committee Chair to RIBF users on June 13 that no serious problem was found in the performance tests of the RIBF facility conducted during April–June after the earthquake. A plan for the primary beams and a schedule for BigRIPS-based experiments in the coming autumn were also shown.

4. **Acceptance of a JAEA beam time to RIBF** (Sakai)

   En'yo, the RNC director, received a petition from the spokesperson of a JAEA experiment, in which JAEA beam time for RIBF (RILAC) was requested. In accordance with the decision made by the 44th MT Committee regarding support for facilities damaged by the disaster-affected institutes, the NP-PAC chair, Tribble, was requested to review the proposal (June 10). Since the NP-PAC chair endorsed the acceptance (June 12), the experiment will be scheduled for the second half of this fiscal year.

5. **Status of the PAC meetings** (Ueno)
   - 9th NP-PAC: The PAC was held on June 24-25 as scheduled. The PAC report was submitted to both the RNC & CNS directors.
   - 8th ML-PAC: The schedule of the PAC meeting was fixed to September 5-6. The call-for-proposal announcement is under preparation.
   - 3rd In-PAC: The PAC meeting will be held after September.

<u>Topics discussed</u>

1. **Approval of the minutes of the previous meeting** (Sakai)
2. **RI production cross-section measurements (RNC project BT) to be scheduled for October**
   - The BT length for this study was discussed based on the reduction in the production cross sections of the previously discovered new isotopes, and expected beam current. (Kubo, Fukuda)
   - A meeting to discuss the detail will be arranged separately. (Sakai)
3. **FY2011 second half-year BT schedule** (Ueno)
   - Second half-year beam-time scheduling was discussed taking into account electric-power restrictions of the Wako Campus and plans of maintenance and improvement works of the RIBF facility. The mid-July call to spokespersons was also discussed. (Sakai)

- Tentative schedule of the beam-time scheduling process is the following (Ueno).
  - Mid to late Jul: Call for BT scheduling & detector development BT requests
  - Late Jul to mid Aug: Planning of the BT schedule
  - End of Aug: Deadline of Accelerator Use Planning Sheet submission
  - Early to mid Sep: Pre-review by the in-house Safety Review Committee
  - Mid Sep: In-house Safety Review Committee meeting
  - Sep 22: Approval of the BT schedule by the MT Committee.

4. **Extension of currently running BTs** (Sakai)

   It was confirmed that the MT Committee Chair is responsible for the extension of BTs that are already running. The decision should be reported both to the RNC and CNS directors after the fact.

5. **Disclosure of proposals approved by NP-PAC** (Ueno)
   - In accordance with the decision of the 3rd MT Committee meeting, the title and the approved BT length of the proposals approved by NP-PAC have been disclosed to the public, unless the representative requests nondisclosure. Since a new grading scale, S, A, and B, was introduced at the 7th NP-PAC, disclosure details were discussed.
   - After discussion, public disclosure of the title and the BT length for all grades of proposals was approved, but the grades given to the proposals will not be disclosed.

6. **EURICA project** (Sakai)

   The EURICA (Euroball RIKEN Cluster Array) project will be conducted as a full-scale operation in the next fiscal year. The full amount of BT allocation for this project was discussed. Discussion will be continued.

7. **Conditionally approved BT** (Ueno)

   The BT of NP0802-RIBF54 (Itahashi *et al.*) was conditionally approved, with 6 days of BT suspended until conditions indicated in the PAC report are met. The 9th NP-PAC recognized in the PAC report that NP0802-RIBF54 met the required conditions. After discussion, the MT Committee approved the suspended 6-day BT.

8. **Next meeting**
   - The next MT Committee meeting will be held on Thursday, September 22, 2011, at 13:30.
   - The meeting after the next will be held on Friday, October 21, 2011, at 13:30.