

# Minutes of the 61st Machine-Time Committee Meeting

Date and time: December 21, 2012; 13:30–15:35

Place: RIBF Bldg., Room 203

Attendees: Sakai<sup>a</sup>(Chair), Aoi<sup>d,†,‡</sup>, En'yo<sup>a,†</sup>, Fukunishi<sup>a</sup>, Haba<sup>a,†</sup>, Kamigaito<sup>a</sup>, Kase<sup>a</sup>, Kubo<sup>a</sup>, Miyatake<sup>c,†</sup>, Morita<sup>a</sup>, Motobayashi<sup>a,†</sup>, Nishimura<sup>a,†</sup>, Sakurai<sup>a</sup>, Shimoura<sup>b</sup>, Ueno<sup>a</sup>, Uesaka<sup>a</sup>, Uwamino<sup>a</sup>, Wakasugi<sup>a</sup>, Yamaguchi<sup>b</sup>, Hirayama<sup>c,†</sup>, Inabe<sup>a,†</sup>, Imao<sup>a,†</sup>, Kaji<sup>a,†</sup>, Morimoto<sup>a,†</sup>, Yako<sup>d,†</sup>, A. Yoshida<sup>a,†</sup>

Absent: Abe<sup>a</sup>, K. Yoshida<sup>a,†</sup>

<sup>a</sup>RNC / <sup>b</sup>CNS / <sup>c</sup>KEK / <sup>d</sup>RIBF-UEC / <sup>†</sup>Observer / <sup>‡</sup>TV Attendee  
(in random order)

## Reports

### 1. Changes of the beam-time schedule (Ueno)

It was reported that the schedule of the beam time (BT) of the <sup>238</sup>U beam series had been revised on November 18 and 22 due to the delays in beam delivery. It was also determined on December 5 to extend the series by 10 days from December 8, the last day as originally scheduled. Details of the modification are summarized below.

Exp.-Prog.-Num.	previous	changed
<b>RILAC:</b>		
MS-EXP12-07 (Kuboki)	Dec 8, 9:00 – Dec 10, 9:00 →	suspended
<b>SRC:</b>		
NP0802 -RIBF60&62R-01 (Watanabe)	Nov 16, 21:00 – Nov 23, 9:00 →	Nov 16, 21:00 – Nov 29, 21:00
NP1112-RIBF85-01 (Simpson)	Nov 27, 21:00 – Dec 2, 21:00 →	Nov 30, 21:00 – Dec 5, 12:00
NP0802 -RIBF60&62R-02 (Watanabe)	Dec 2, 21:00 – Dec 8, 9:00 →	Dec 5, 12:00 – Dec 9, 21:00
MS-ACC12-09 (Fukunishi)	(newly scheduled)	Dec 9, 21:00 – Dec 11, 10:50
MS-EXP12-04 (Kubo)	Nov 27, 21:00 – Dec 2, 21:00 →	Dec 11, 10:50 – Dec 12, 9:00
NP1112-RIBF90-01 (Niikura)	(newly scheduled)	Dec 12, 9:00 – Dec 18, 9:00

### 2. Report on the RIBF accelerator operation – the <sup>238</sup>U beam delivery (Fukunishi)

In the <sup>238</sup>U<sup>86+</sup> beam series of the BigRIPS-based experiments, the beam was delivered from 0:52 on November 5 to 9:03 on December 18 with only 4 hours delay from the original BT schedule including a 10 days extension. Despite a temporary suspension due to a full-scale accelerator tuning on Nov. 7, tuning of the power-supply system feeding the fRC main coil on Nov. 14, a repair of RRC-EDC melted by the beam, and the replacement of the ion-source material and the beam re-acceleration from Nov. 18 to 23, the stability and sustainability of the beam delivery increased continuously at a high level. In the beginning of the series, the reliability of the accelerator system was  $R = 71\%$  and an average beam current was  $I_{av} = 6.7$  pA, where  $R$  is defined by  $R = T_1/T_2$  with  $T_1$  being the time in which the beam can be delivered from the accelerator if requested by the users, and  $T_2$  the scheduled BT. Both the reliability and the current were increased to  $R = 86\%$  and  $I_{av} = 11$  pA following the replacement of the ion-source material and re-acceleration. It was noted that these values were as high as  $R = 94\%$  and  $I_{av} = 12.2$  pA,

in particular, during the extended last 10 days. Furthermore, the instantaneous maximum beam current 15.1 pnA was recorded in this  $^{238}\text{U}$  series which should be compared with 3.8 pnA, the maximum current achieved last year. It was also reported that an overall  $R$  achieved in 2012 was 85.9% which shows a significant increase from  $R = 68.2\%$  in 2008.

### 3. Status of the BT scheduling for the first half of FY2013 (Ueno)

It was reported that following the decision made at the previous meeting, the BT scheduling process for the first half of FY2013, including BTs of AVF, RILAC, and RRC for February and March, 2013, started two months earlier than the regular schedule.. A tentative schedule is as follows:

Nov. 16:	60th MT Committee Meeting (screening of MS proposals and discussions on the beam plan for BigRIPS-based experiments for the first half of FY2013)
Nov. 19–Dec. 11:	Call for BT Scheduling Requests (February–March + first half of FY2013)
Dec. 11–25:	BT scheduling by the User Liaison Team (Dec. 21: 61st MT Committee Meeting)
Dec. 25–Jan. 14:	Submission of the Accelerator-Use Planning Sheets (AUPSs) in parallel with the BT scheduling
Jan. 14–Jan. 23:	Documentary review of AUPSs by the Safety Review Committee, in parallel with the final adjustment of the BT schedule
Jan. 24:	Safety Review Committee Meeting
Jan. 25:	62nd MT Committee Meeting (approval of the BT schedule)

### Topics discussed

#### 1. Approval of the minutes of the previous meeting (Sakai)

#### 2. Review of BT requests in the Machine Study and Detector Development categories (Sakai)

New BT requests for the first half of FY2013 in the Machine Study (MS) and Detector Development (DD) categories were reviewed through interviews and presentations by the representatives. After discussions, it was determined that the following requests be approved. The BT scheduling for these however, was discussed separately from this approval.

Category	Spokesperson	Device	Beam	$E/A$ (MeV)	Current (pnA)	Request (days)	Result
DD	Kim (Yamaguchi)	CRIB	$^{15}\text{N}$	7	$\geq 600$	2	Approved
MS-EXP	A. Yoshida	CRIB	$^{22}\text{Ne}$	6.1	300	1	Approved
MS-EXP	Hirayama	KISS	$^{56}\text{Fe}$	90	10	2	Conditionally Approved
						2	
MS-EXP	Kaji	GARIS-II	$^{22}\text{Ne}$	5.8	$\geq 10,000$	2	Approved
			$^{48}\text{Ca}$	5.8	$\geq 1,000$	2	Approved
MS-ACC <sup>*2</sup>	Fukunishi	SRC	$^{40}\text{Ar}$	400	1,000	7	–

<sup>\*1</sup> The proposal will be reviewed again depending on the result of the first MS is conducted.

<sup>\*2</sup> MS-ACC is the category set for the beam-acceleration tests by the Accelerator Group. The programs in this category as well as the beam acceleration in the usual accelerator operation are not required to be reviewed by the MT Committee and the Safety Committee. MS-EXP is the category for other R&D studies of a basic component regarded as a key device of the RIBF facility. These BTs are not open to users.

#### 3. Official BTs provided to the BigRIPS-based experiments in November–December (Sakai)

Details of the BT statistics in the experiments using a  $^{238}\text{U}$  beam conducted from November to December were reported (Ueno). After discussions, the official BTs provided from the facility to each experimental program were set as follows:

- NP0702-RIBF10 (Nishimura) : 7.5 days
- NP0802-RIBF60&62R1 (Watanabe/Lorusso) : 10 days
- NP1112-RIBF85 (Simpson) : 5 days
- NP1112-RIBF90 (Niikura) : 5.5 days

#### **4. BT schedule for January, 2013 (Sakai)**

All BTs of the BigRIPS-based experiments scheduled for FY2012 were completed in December, 2012. A modification plan of the BT schedule for January was discussed, to prepare for immediate actions to be taken if the operation of the new RIBF facilities such as BigRIPS and SRC are to become possible. The possibility of operation will mostly depend on electricity and budgetary constraints, which should be solved by discussing with the RIKEN Headquarters. Thus, the modification cannot be approved by the MT Committee only. Since this issue cannot be carried over to the next meeting due to the tight schedule, the decision on the BT modification was left to the discretion of the MT Committee Chair. In order to avoid confusion, the RRC-use experiments scheduled for the end of January were shifted to February in advance.

#### **5. BT schedule for the FY2013 first half (Sakai)**

As provided in the above Report 3, the BT scheduling for the first half of FY2013 (from February to the end of September, 2013 to be precise) is underway. The latest BT plan, shown by the User Liaison Team, was discussed. After further optimization is examined based on discussions at the meeting, a tentative BT plan will be disclosed by the end of December. Then, the following two weeks will be used for adjusting and finalizing the BT schedule. In parallel with this, the procedure to review safety aspects of the experiments by the Safety Review Committee will start. The BT plan will be fixed after the approval by the MT Committee at the next meeting in January.

#### **6. Management of new isotope data obtained with BigRIPS (Sakai)**

“Guideline for the operation of BigRIPS experiments” which stipulates the roles of experimenters, the BigRIPS Team, and the Accelerator Group has been in force since November 24, 2009. To publish the findings of new isotopes as well as cross sections of secondary beams promptly, both of which are important missions of RIBF, by setting up a close relationship between experimenters and the BigRIPS Team, the MT Committee Chair proposed to revise the guideline following the basic principles given below:

- 1) All data obtained at RIBF will belong to RNC. Therefore, the RNC director has a right to their access.
- 2) The experimenters can access the data freely. They have rights and duties to analyze and publish the data.

- 3) Based on the rights provided in 1), a part of the data concerning the findings of new isotopes obtained by experimenters will be analyzed as soon as possible by those at RNC who has expertise in the field, i.e., the BigRIPS Team in most cases.(as such, they will be considered to be in charge hereon). The results will be published in collaboration with the experimenters. However, this is not the case when
  - a spectrum showing particle identifications in a paper written by the experimenters suggests the existence of new isotopes, and
  - analysis and publication of the new isotope data by the experimenters are faster than the same done by the BigRIPS Team.
- 4) The new guideline will be put into operation according to an agreement among the experiment spokesperson, the BigRIPS Team, and the ULIC group director. Tripartite meeting will be held for each experiment.
- 5) When the BigRIPS Team is registered as collaborators independently of 3), the need for / role in the collaborative research should be made clear by setting up close relationships between experimenters and the BigRIPS Team clear.

It was suggested that this new guideline should not be extended to the new isotopes discovered in the secondary reaction studies, e.g., using the ZD spectrometer (Aoi and En'yo). Further discussions will be conducted by a WG consisting of Sakai, Ueno, Aoi, Yoshida, Inabe, Nishimura, and Kubo as members. Moreover, the UEC Chair was asked to have the original guideline confirmed by RIBF users.

#### **7. Priority of the kind of heavy ions to be developed (Sakai)**

Discussion on beams to be developed after  $^{238}\text{U}$  (1st priority) and  $^{48}\text{Ca}$  (2<sup>nd</sup> priority) carried over from the previous meeting ensued. The priorities of Ti, Ge, Cr beams were determined as 3rd, 4th, and 5th, respectively.

#### **8. Next meetings**

- The next meeting will be held on Friday, January 25, 2013, at 13:30.
- The meeting after the next will be held on Friday, February 15, 2013, at 13:30.