

# Minutes of the 55th Machine-Time Committee Meeting

Date and time: May 18, 2012; 13:30–15:00

Place: RIBF Bldg., Room 203

Attendees: Sakai<sup>a</sup> (Chair), 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>, Motobayashi<sup>a, †</sup>, Nishimura<sup>a, †</sup>, Shimoura<sup>b</sup>, Suda<sup>c, †, ‡</sup>, Ueno<sup>a</sup>, Uesaka<sup>a</sup>, Wakasugi<sup>a</sup>, Yamaguchi<sup>b</sup>

Absent: Abe<sup>a</sup>, Morita<sup>a</sup>, Sakurai<sup>a</sup>, Uwamino<sup>a</sup>, Yoshida<sup>a, †</sup>

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

## Reports

### 1. Status of beam-time operation (Ueno)

A series of the BigRIPS-based experiments using <sup>48</sup>Ca beam was scheduled for a month in May. In the middle of the series however, the ion source showed a sign of <sup>48</sup>Ca rod depletion. Thus, the running beam time (BT) was suspended to have the rod replaced by a new one. The re-acceleration of the beam will start soon after baking. Due to the suspension, the BT schedule was modified as follows:

Experimental-Program-Number	previous	changed
<b><u>SRC:</u></b>		
NP1106-SAMURAI04-01 (Orr) + NP1106-SAMURAI02-01 (Kondo)	(May/14/21:00 – May/17/14:00 + ) May/17/14:00 – May/18/21:00 + May/19/9:00 – May/22/9:00	→ May/25/9:00 – May/28/9:00
NP1106-SHARAQ04-01 (Uesaka)	May/22/21:00 – May/30/9:00	→ May/24/9:00 – May/25/9:00 + May/28/21:00 – Jun/4/9:00
<b><u>IRC:</u></b>		
MS-ACC12-03 (Imao)	Jun/8/9:00 – Jun/11/9:00	→ <i>canceled</i>
<b><u>RRC:</u></b>		
ML1006-RRC24-03 (Kuboyama)	May/31/09:00 – Jun/1/21:00 (RILAC injection)	→ May/20/21:00 – May/21/9:00 (AVF injection)
MS-ACC12-02 (Imao)	Jun/1/21:00 – Jun/5/21:00	→ Jun/6/21:00 – Jun/10/21:00
IB0702-RRC01-52 (Abe)	Jun/6/9:00 – Jun/6/20:00	→ Jun/5/9:00 – Jun/5/20:00
ML0901-RRC20-16 (Izumi)	Jun/7/9:00 – Jun/7/14:00	→ Jun/6/9:00 – Jun/6/14:00
<b><u>RILAC standalone</u></b>		
NP0702-LINAC12-16 & 18 (Morita)	Jun/2/21:00 – Jun/4/21:00 Jun/9/9:00 – Jul/03/9:00	→ Jun/5/09:00 – Jun/7/9:00 Jun/12/9:00 – Jul/03/9:00
<b><u>AVF standalone</u></b>		
NP1012-AVF12-1 (Ishiyama)	May/21/9:00 – May/23/9:00	→ May/22/9:00 – May/24/9:00

### 2. RIBF operation (Fukunishi)

The status of the <sup>48</sup>Ca beam delivery to the running BigRIPS-SAMURAI/SHARAQ experiments was reported. The beam delivery started on May 3 at 21:00 as originally scheduled. As given in the above Report 1, however, the beam delivery was suspended from 14:02, May 17 to have the ion source rod replaced and baked. Prior to the suspension, 81.5 hours were spent on accelerator tuning within the scheduled BT of 329 hours, indicating that the beam was delivered for 80.1% of the BT. As for the consumption rate of <sup>48</sup>Ca rods, it is empirically known that the consumption rates can be categorized into two groups: low consumption rate group of 0.5–1.0 mg/h and high consumption rate group of 1.5–1.7

mg/h. An obtained consumption rate in the current BT series, 1.9 mg/h, can be classified in the high consumption rate group. The lowest (i.e., most efficient) rate ever achieved was 0.68 mg/h of the MUST2 BT conducted in May, 2010, and the highest rate was 4.2 mg/h of the  $^{48}\text{Ca}$  series scheduled in autumn of 2010.

### 3. Trouble of the CGS system (Kase)

- CGS

A leakage occurred in an instrument pipe for compressed air of the Co-Generation System (CGS). To repair the leak, the BT was suspended to allow CGS operation to stop at 16:00 on May 10. The leakage was caused by the corrosion of the iron part of the pipe. Immediately after the repair, CGS was restarted at 21:30. Accelerator tuning, including the tuning of SRC, was then conducted. The beam delivery was already resumed by the next morning.

- Absorption refrigerator

In the CGS, the absorption refrigerators produce cooling water for the accelerator devices and the air conditioners by utilizing exhaust heat from a gas turbine. It was reported that two of the five absorption refrigerators installed in the RIBF Accelerator Building were malfunctioning. In the present BTs series, the remaining three refrigerators are used for the RIBF operation. In this coming autumn and winter, however, four of them will be required for the RIBF operation in which  $^{238}\text{U}$  beams will be accelerated because this particular operation mode will consume larger amount of electricity.

### 4. Status of PAC meetings (Ueno)

- 11th NP-PAC (June 18–19): A data summary of the proposed experiments was shown. In total, the requested BT of BigRIPS-based experiments is 88.75 days. Prior to the PAC meeting, in-house technical review (May 9–21), the follow-up status reports on the conducted BTs (May 11–31), and the pre-review paper screening by the PAC (May 22–June 11) will be conducted.
- 9th ML-PAC: The PAC meeting schedule is being deliberated to be held sometime in September.
- 3rd In-PAC: The date of PAC meeting will most probably be fixed on July 2. Proposals to be reviewed by the In-PAC can be received at any time.

## Topics discussed

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

### 2. Outline of the BT schedule for the second half-year of FY2012 (Sakai)

- Continuing from the previous meeting, the list of primary beams and the outline of their time allocations for the second half of FY2012 were discussed for the SRC-based experiments. Discussions also took place about the total BT of the EURICA series tentatively set for the second half of FY2012.
- It was pointed out that some BTs suffered from the drift of magnetic fields of cyclotrons, in particular, RRC, which requires frequent change in the magnetic-field setting. Although sufficiently

long tuning time is required to stabilize the magnetic field, the time allocated for these experiments are not long enough. In the next BT scheduling, more careful consideration will be given to accelerator tuning time.

### **3. Tentative two-year primary beam plan for SRC-based experiments**

Including  $^{18}\text{O}$ ,  $^{48}\text{Ca}$ , and  $^{124}\text{Xe}$  beams scheduled for this spring (also  $^{70}\text{Zn}$  has been conditionally scheduled as an extra beam),

- Autumn–Winter 2012:  $^{238}\text{U}$ ,  $^{124}\text{Xe}$ , and light ions (AVF-injection)
- Spring 2013:  $^{238}\text{U}$ ,  $^{78}\text{Kr}$ , ( $^{48}\text{Ca}$ )
- Autumn–Winter 2013: (open)

were announced as a tentative two-year primary beam plan for the SRC-based experiments. Discussions took place on R&D studies required to ensure the delivery of these beams at a high current with high reliability, and on the difficulties to be solved to deliver other beams. Furthermore, the candidate primary beams to be delivered from autumn to winter 2013 were discussed. The final two-year plan will be determined by the RNC Deputy Director in charge of supervising RIBF researches.

### **4. ML-PAC meetings and RIBF BT scheduling**

Proposals to use RIBF in the field of material and life science are reviewed and approved by the ML-PAC. Since the dates of the ML-PAC meeting are determined by the availability of the RAL facility, the scheduling conflict between ML-PAC meetings and RIBF BT scheduling has become a serious problem. The issue was discussed from both short-term and medium/long-term perspectives. The issue will continue to be pursued.

### **5. Next meetings**

- The next meeting will be held on Friday, June 15, 2012, at 13:30
- The meeting after the next will be held on Friday, July 20, 2012, at 13:30