Beam-time statistics of RIBF experiments

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This report describes the statistics of the beam times (BTs) at the RIBF facility in Fiscal Year (FY) 2014. In the following, the BTs are categorized into two groups: high-energy-mode and low-energy-mode BTs. In the former mode, the beams were delivered in the acceleration scheme of AVF, RILAC, or RILAC2 → RRC → (fRC → IRC →) SRC, where the accelerators in parentheses can be skipped in the cascade acceleration, depending on the beam species used. In the latter mode, the acceleration scheme is AVF or RILAC (→ RRC).

BTs in the high-energy mode were scheduled from April to July, from October to December 2014, and in the latter half of March 2015, considering the restriction of utility-power use, budgetary constraints, maintenance schedule of the accelerator system and co-generation system, as well as other constraints. In the series of experiments in spring, the primary beams of ^{238}U, ^{70}Zn, ^{2}H, and ^{16}O were provided to users, and in the autumn series, the primary beams of ^{238}U and ^{48}Ca were provided. The beam time in March 2015 was used only for the nuclear transmutation program which was carried out as a Nishina Center mission program, i.e. as an experiment other than what the RIBF Program Advisory Committees[1)] (PAC) was approved. 13 experiments approved by the PAC with the approved beam time of 70.4 days were conducted in total. 7.3 days were used for the facility development programs, defined as machine study (MS) experiments. Other than these, three new isotope search experiments and two transmutation experiments were conducted as the Nishina Center mission programs.

The data summary of the high-energy-mode BTs in FY2014 is given in Fig. 1 as a bar chart. Compared to the beam time in FY2013, the user time increased, as the beam time operation in FY2013 was in spring only. Including the Nishina Center mission beam time, the total amount of beam time available in FY2014 was recovered to the level of FY2012.

The data summary for the low-energy mode is shown in Fig. 2. Here the BTs are classified by the accelerator operation modes, AVF, RILAC, and RRC. In FY2014, most of the low-energy-mode experiments after December had to be cancelled, due to the restriction of the operation budget. Despite of this cancellation, the total amount was almost the same as in FY2013. The fraction of the RILAC stand-alone beam time increased, as a long experiment approved as the S grade was conducted.

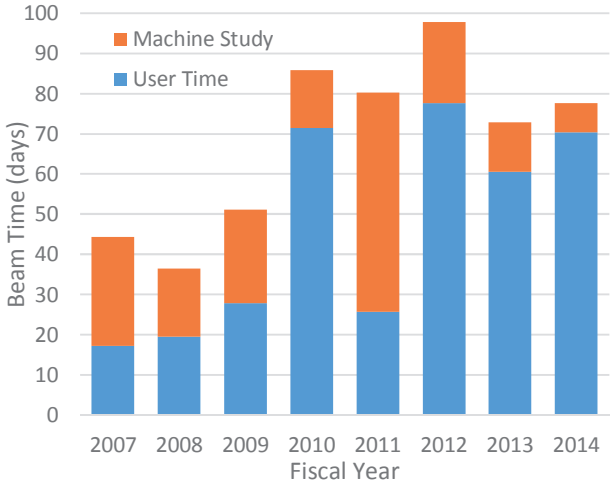

Fig. 1. Bar chart showing the BT statistics for high-energy-mode experiments from FY2007 to FY2014. The accelerator tuning time and Nishina Center mission time are not included.

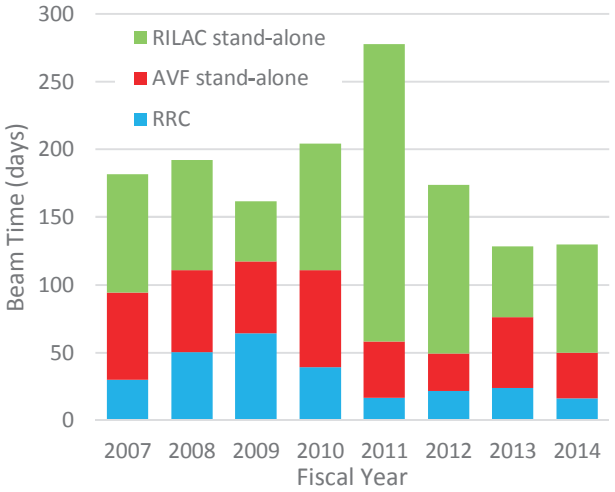

Fig. 2. Bar chart showing the BT statistics for low-energy-mode experiments from FY2007 to FY2014.

References

1) K. Yoneda, K. Ishida, H. Yamazaki, N. Imai, K. Yako, H. Ueno, and H. Sakai: In this report.

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