

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) 2015. 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 \rightarrow RRC \rightarrow (fRC \rightarrow IRC \rightarrow) 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 (\rightarrow RRC).

BTs in the high-energy mode were scheduled from April to June, and from October to December 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 , ^2H , and ^{78}Kr were provided to users, and in the autumn series, the primary beams of ^{238}U and ^{48}Ca were provided. 11 experiments approved by the RIBF Program Advisory Committees¹⁾ with the approved beam time of 62 days were conducted in total. 10.7 days were used for the facility development programs, defined as machine study (MS) experiments. Other than these, a new isotope search experiment and two nuclear transmutation experiments were conducted as the Nishina Center mission programs.

The summary of the high-energy-mode BTs in FY2015 is given in Fig. 1 as a bar chart. Compared to the beam time in FY2014, the user time decreased, reflecting the shorter total running time in FY2015. The increase of the machine study is mainly due to the commissioning experiments of the Rare RI Ring, which were conducted twice, 3 days in spring and 2 days in autumn.

The summary for the low-energy mode is shown in Fig. 2. Here the BTs are classified by the accelerator operation modes, AVF standalone, RILAC standalone, and RRC. In FY2015, the use of the low-energy mode increased compared to FY2014. This is because most of the low-energy-mode experiments after December 2014 had to be postponed due to lack of the operation budget, and BTs were assigned to those experiments with a higher priority in FY2015. The shorter operation in the high-energy mode also allowed the relatively long BT assignments to the low-energy-mode experiments.

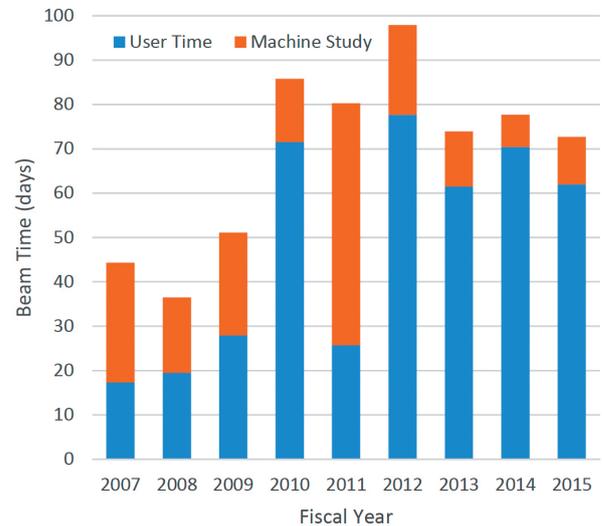


Fig. 1. Bar chart showing the BT statistics for high-energy-mode experiments from FY2007 to FY2015. The accelerator tuning time and Nishina Center mission time are not included.

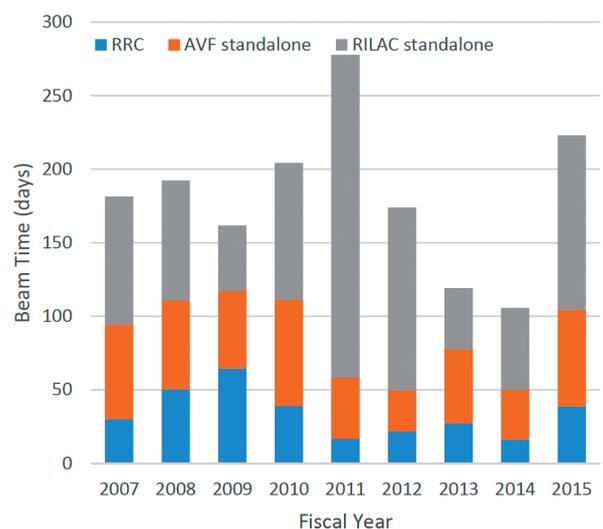


Fig. 2. Bar chart showing the BT statistics for low-energy-mode experiments from FY2007 to FY2015.

Reference

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

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