

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) 2016. 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, from October to December 2016, and in the last week of March 2016, 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 , ^{124}Xe , and ^{18}O were provided to users, and in the autumn series, the primary beams of ^{238}U and ^{48}Ca were provided. 14 experiments approved by the RIBF Program Advisory Committees¹⁾ with the approved beam time of 79 days were conducted in total. Five 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 FY2016 is given in Fig. 1 as a bar chart. Compared to the beam time in FY2015, the user time increased, reflecting the longer total running time in FY2016. The decrease of the machine study is partly due to cancellation of 3 machine studies in spring (4.5 days in total), which was caused by an accelerator trouble.

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 FY2016, the total beam time length of the low-energy mode was almost the same as in FY2015. A long shutdown of RILAC is expected to begin in spring 2017. A lot of RILAC-use experiments were scheduled to finish prior to the shutdown.

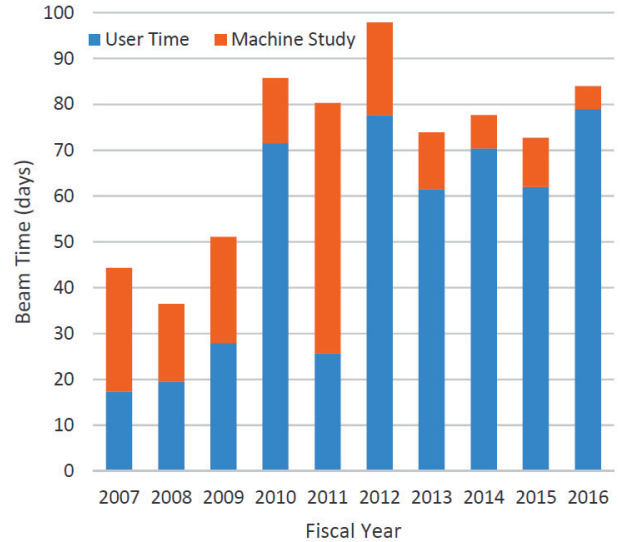


Fig. 1. Bar chart showing the BT statistics for high-energy-mode experiments from FY2007 to FY2016. The accelerator tuning time and Nishina Center mission time are not included.

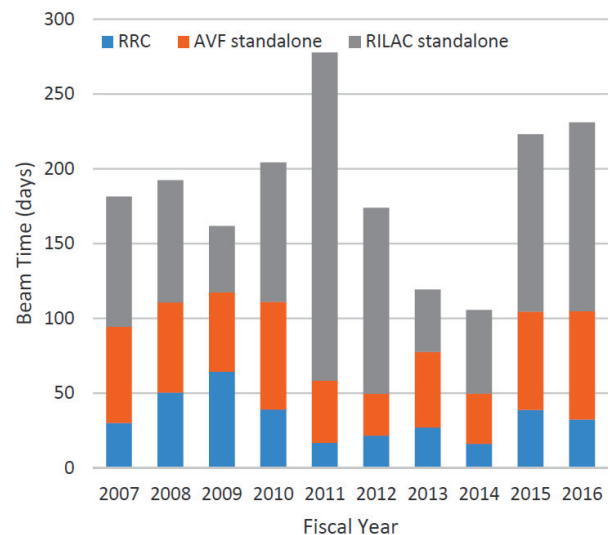


Fig. 2. Bar chart showing the BT statistics for low-energy-mode experiments from FY2007 to FY2016.

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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