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Present Status and Perspectives of RIKEN RIBF

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I show present status and perspectives of RIBF "RI Beam Factory (RIBF)"through demonstrating recent results obtained and discussing physics programs to be promoted.
RIBF is the world-class radioactive-isotope beam (RIB) facility, which is based on a new high-power heavy-ion accelerator complex [1] and a new in-flight fragment separator BigRIPS [2]. In 2007, RIBF started to deliver radioactive isotope beams. High performances and potentialities of this facility have been demonstrated by discovery of two new isotopes [3].
The accelerator system has been upgraded since 2007. Additional beam monitors have been installed to strengthen a beam diagnostic and to improve a transmission-efficiency. In 2008 maximum intensities achieved for 48Ca and 238U beams at 345A MeV were 175pnA and 0.3pnA, respectively. Based on the powerful 48Ca beam in 2008, the first spectroscopy experiments at BigRIPS/ZDS were performed for the island-of-inversion region as a DayOne experiment campaign in December, 2008.
In 2009, light ion beams such as (polarized) deuteron and nitrogen were successfully accelerated up to 250A MeV. At a DayTwo campaign at the end of last year, an intensity of 238U beam was achieved to be 0.8 pnA due to a newly installed 28 GHz SC-ECR ion source.
Concerning experimental devices, ZeroDegree Spectrometer (ZDS) [4] and SHARAQ spectrometer [5] have been served for scientific programs since 2008 and 2009, respectively. Other devices [6], SAMURAI spectrometer and SCRIT system [7], will be ready for experiments in 2011. An rf ion-guide gas-catcher system SLOWRI [8], Rare-RI Ring dedicated for mass measurement [9], IRC-to-RIPS BT line for multi-use capability [6] are to be funded in near future.

References

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