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RIKEN RI Beam Factory (RIBF): Status and Plans

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The RI Beam Factory (RIBF) [1] at RIKEN, which became operational in March 2007, is one of the next-generation in-flight rare isotope (RI) beam facilities. At RIBF the BigRIPS in-flight separator [2] has been used to produce a variety of RI beams by using in-flight fission as well as projectile fragmentation. Its major features are two-stage structure, large ion-optical acceptances, and excellent performance in particle identification. Efficient RI-beam production has been made possible by these features of the BigRIPS separator, allowing us to significantly expand the region of accessible exotic nuclei.

Secondary reaction studies and decay studies on rare isotopes have been extensively performed using the following major research instruments at RIKEN RIBF:

- 1) BigRIPS in-flight separator: RI-beam production and also used as a spectrometer.
- 2) ZeroDegree spectrometer: a forward spectrometer fixed at 0 degrees
- 3) SAMURAI spectrometer: large acceptances and kinematically complete measurement
- 4) SHARAQ spectrometer and dispersion-matching beam line for high-resolution measurement
- 5) SLOWRI & PALIS gas catchers: combination of in-flight and ISOL schemes
- 6) **Rare RI ring: isochronous ring for TOF mass measurement**
- 7) SCRIT (Self-Confining RI target) for electron-RI scattering **
- 8) Gamma-ray array detectors for in-beam gamma ray measurement such as DALI2
- 9) Decay station using Ge array detectors such as EURICA
- 10) Others

In my talk the overview and status of the RIBF facility will be presented. The intensity-upgrade plans for the RIBF accelerators will be also outlined.

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