RIBF standard detectors/devices

標準検出器・標準デバイスについて

2022/5/18

加速器実験等安全審査委員長

[E]

RIBF standard detectors/devices are restricted to the ones listed below. In the Accelerator-Use Planning Sheet, you are required to list the equipment other than the standard detectors/devices in the tables as “your own devices/materials” for the matters to be irradiated by the primary/secondary beam. In addition, as a reference for reviewing the safety aspects of your experiment, the standard detectors/devices should be described in the drawing of the experimental setup including the beam dump in the Accelerator-Use Planning Sheet.

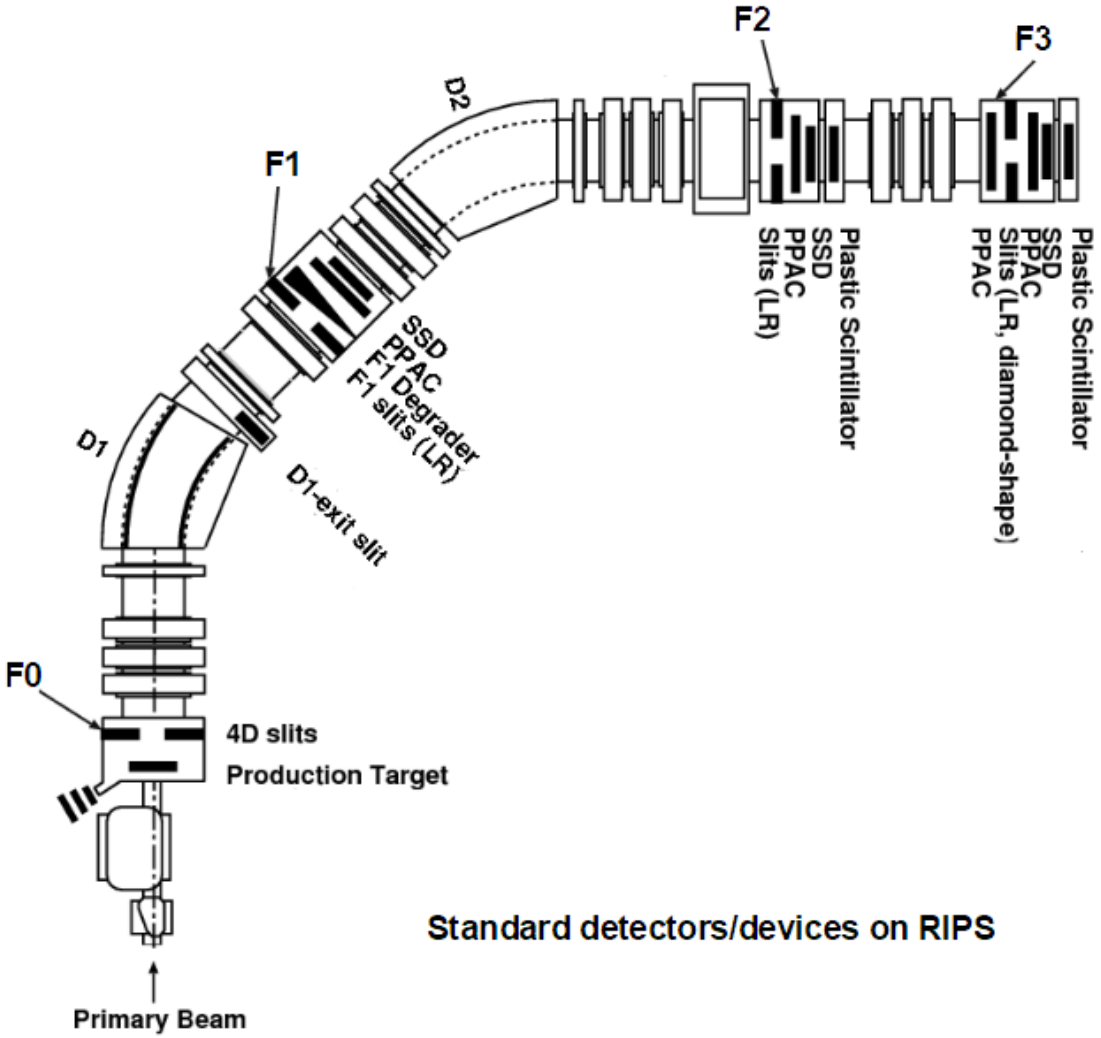
[J]

標準検出器・標準デバイスは以下の通りとする。放射線発生装置使用計画書には標準検出器・標準デバイス以外のものを「実験者固有の装置・物質」として一次ビーム・二次ビームに照射される物質の表などにリストアップすること。ただし、安全審査の参考のために実験セットアップの図には標準検出器・標準デバイスも記載されていることが望ましい。特に一次ビーム・二次ビームを止めるものが標準検出器・標準デバイスの場合は、必ず図示すること。

RIBF standard detectors/devices are as follows:

- General devices (basically, fixed alongside the beam line)
  - Faraday cup
  - Beam slit
  - Beam viewer
  - Window film at the end of the beam line

- RIPS
  - Production target
  - Degrader @ F1
  - PPAC, Plastic scintillator, SSD @ F1, F2, F3

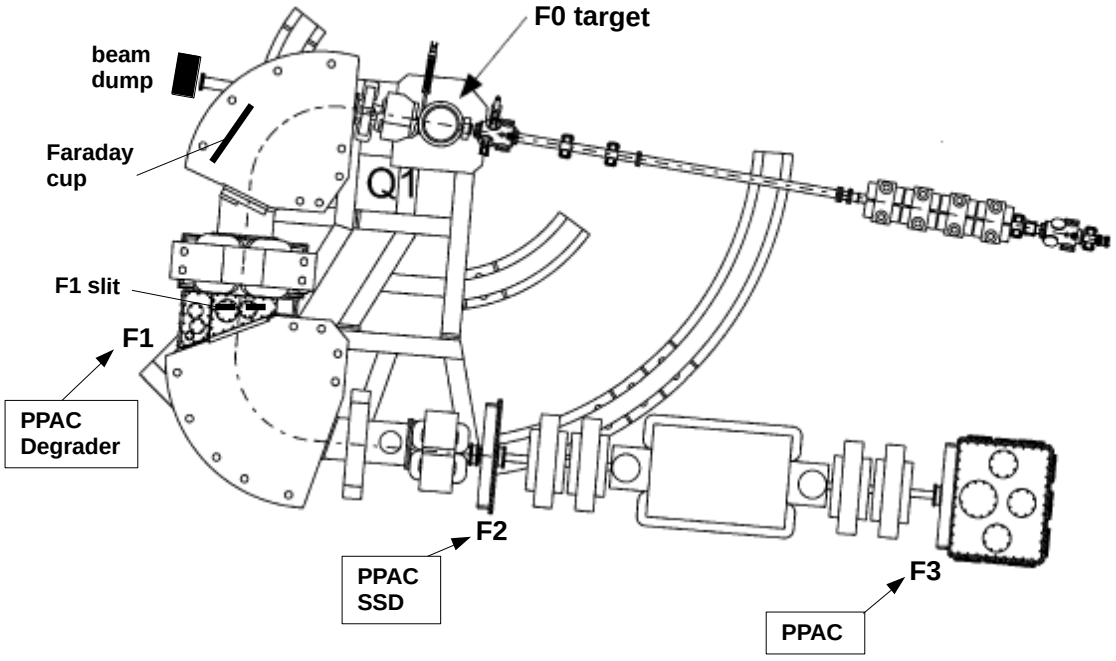


RIPS beam diagnosis devices

http://www.nishina.riken.jp/RIBF/RIPS/rips-beamdiag.html

- CRIB
  - Faraday cup in the D1 magnet
  - Beam dump (0 degree direction)
  - Standard production target (Cryogenic gas target, Water-cooled gas target, Water-cooled solid target) @ F0
  - Degrader @ F1
  - PPAC @ F1, F2, F3
  - SSD @ F2

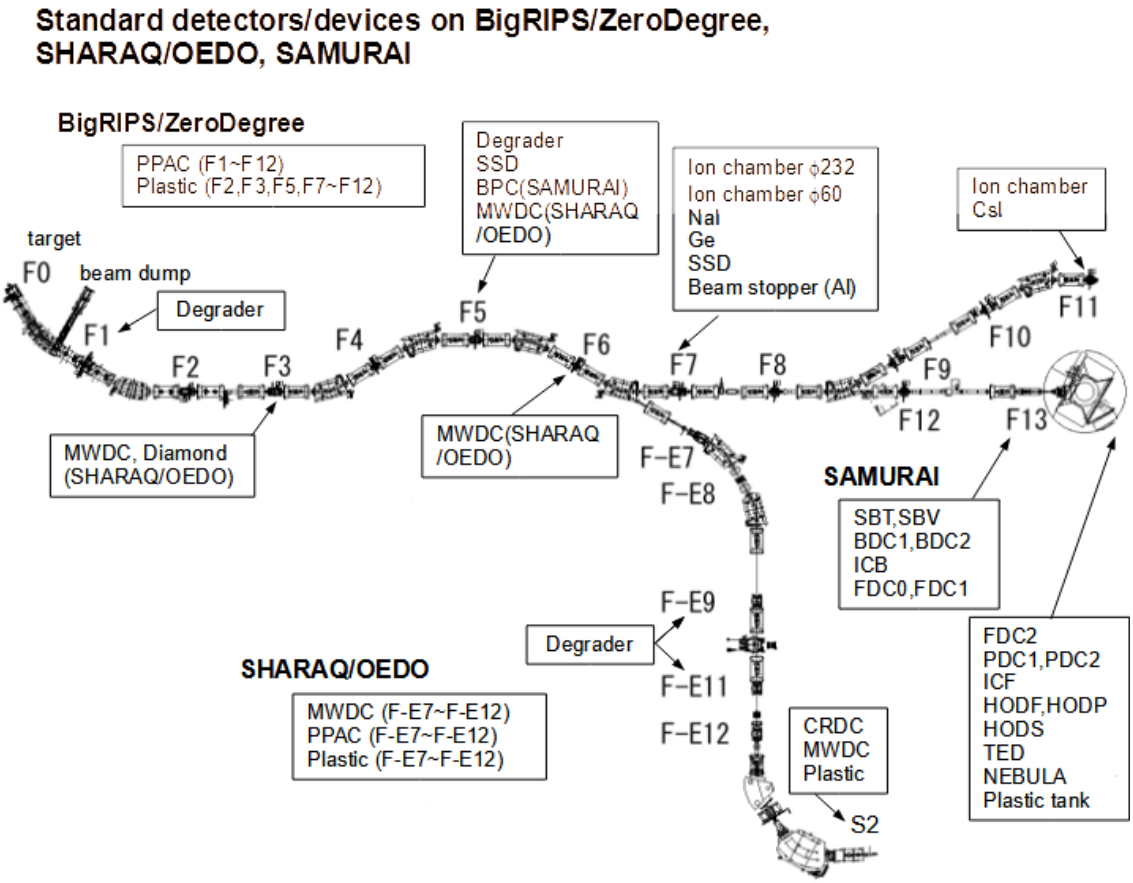
Standard detectors/devices on CRIB



CRIB

http://www.cns.s.u-tokyo.ac.jp/crib/crib-new/

- BigRIPS / ZeroDegree
  - Production target
  - Degrader @ F1, F5 (Degraders designed for your experiment are “your own devices/materials".)
  - PPAC
  - Plastic scintillator
  - Ion chamber ϕ232, Ion chamber ϕ60 @ F7
  - Ge detector @ F7
  - NaI @ F7
  - Beam stopper (aluminum) @ F7
  - CsI @ F11
  - Ion chamber @ F11
  - SSD @ F5, F7
- SAMURAI
  - BPC (Beam Proportional Chamber) @ F5
  - SBT , SBV (Plastic scintillator for Beam Trigger/Veto)
  - BDC1, BDC2 (Beam Drift Chamber)
  - FDC0, FDC1, FDC2 (Forward Drift Chamber)
  - PDC1, PDC2 (Proton Drift Chamber)
  - ICB, ICF (Ion Chamber for Beam/Fragments)
  - HODF, HODP (Hodoscope for Fragments/Protons)
  - HODS (Small Hodoscope)
  - TED (Total Energy Detector)
  - NEBULA (Neutron Detector)
  - Plastic tank of the water beam dump (WATER in the tank is “your own devices/materials”)
- SHARAQ / OEDO
  - MWDC @ F3, F5, F6 (for SHARAQ/OEDO experiments only)
  - Diamond detector @ F3 (for SHARAQ/OEDO experiments only)
  - MWDC, PPAC, Plastic Scintillator @ F-E7, F-E8, F-E9, F-E10, F-E11, F-E12
  - Degrader (t3 mm, 0~80 mr) @ F-E9, F-E11 (Degraders designed for your experiment are “your own devices/materials".)
  - CRDC, MWDC, Plastic scintillator @ S2

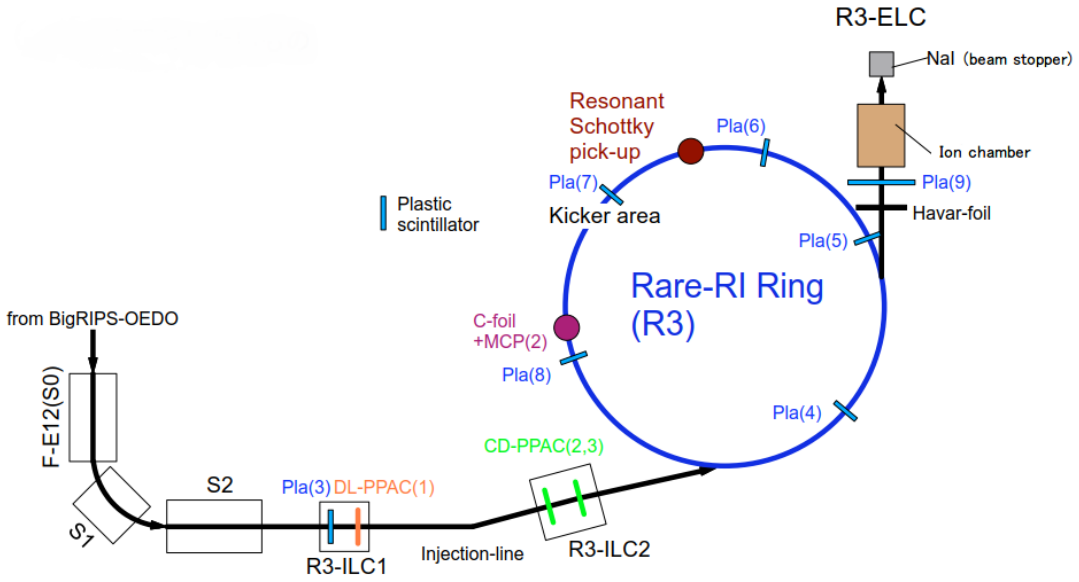


Technical Information of BigRIPS, ZeroDegree, SAMURAI, and OEDO Beamline
http://ribf.riken.jp/BigRIPSInfo/

SAMURAI standard detectors
http://ribf.riken.jp/SAMURAI/index.php?ChargedParticleDetector

OEDO
http://www.cns.s.u-tokyo.ac.jp/oedo/

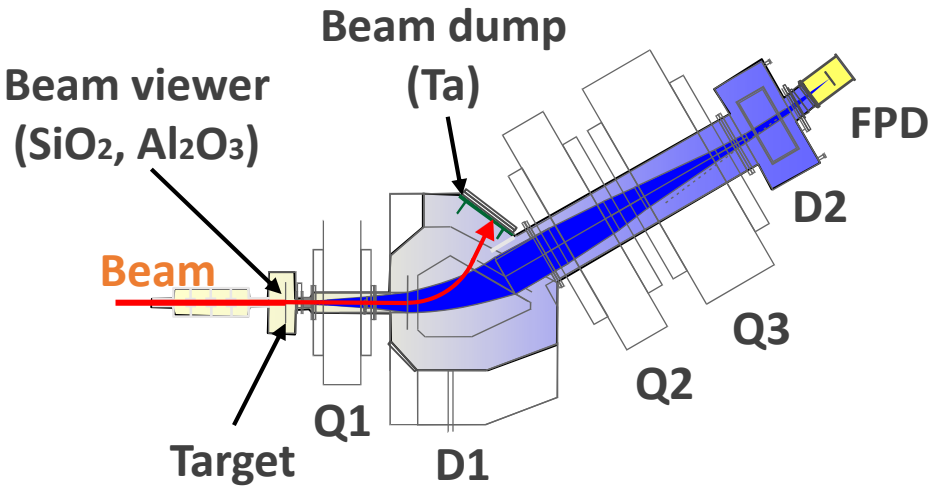
- Rare-RI Ring (R3)
  - Plastic scintillator @ R3-ILC1, R3, R3-ELC
  - PPAC @ R3-ILC1, R3- ILC2
  - C-foil+MCP @ R3
  - Havar foil @ R3-ELC
  - Ion chamber @ R3-ELC
  - NaI @ R3-ELC



Rare-RI Ring (R3) Configuration

http://www.nishina.riken.jp/RIBF/R3/config.html

- GARIS, GARIS-II, GARIS-III
  - Beam viewer (SiO_2, Al_2O_3) @ target chamber
  - Beam dump (Ta) @ D1 magnet



GARIS Configuration

http://www.nishina.riken.jp/RIBF/GARIS/config.html

- PALIS / SLOWLI
  - To be determined after the commissioning.

----- Change Log -----

- 2022/5/18 Update “BigRIPS/ZeroDegree”
  - Add Ion chamber ϕ60 @ F7 (Current IC is renamed as Ion chamber ϕ232)
  - Add Beam stopper (aluminum) @ F7
- 2019/12/24 Add GARIS, GARIS-II, GARIS-III
- 2019/8/23 Correction at "BigRIPS/ZeroDegree"
  - CsI@F7 → NaI@F7
  - NaI@F11 → CsI@F11