Science & Technology Facilities Council

KURRI-FFAG Experiment in 2018

JB. Lagrange

Experiments

- RF optimisation

- Identification of beam loss during acceleration

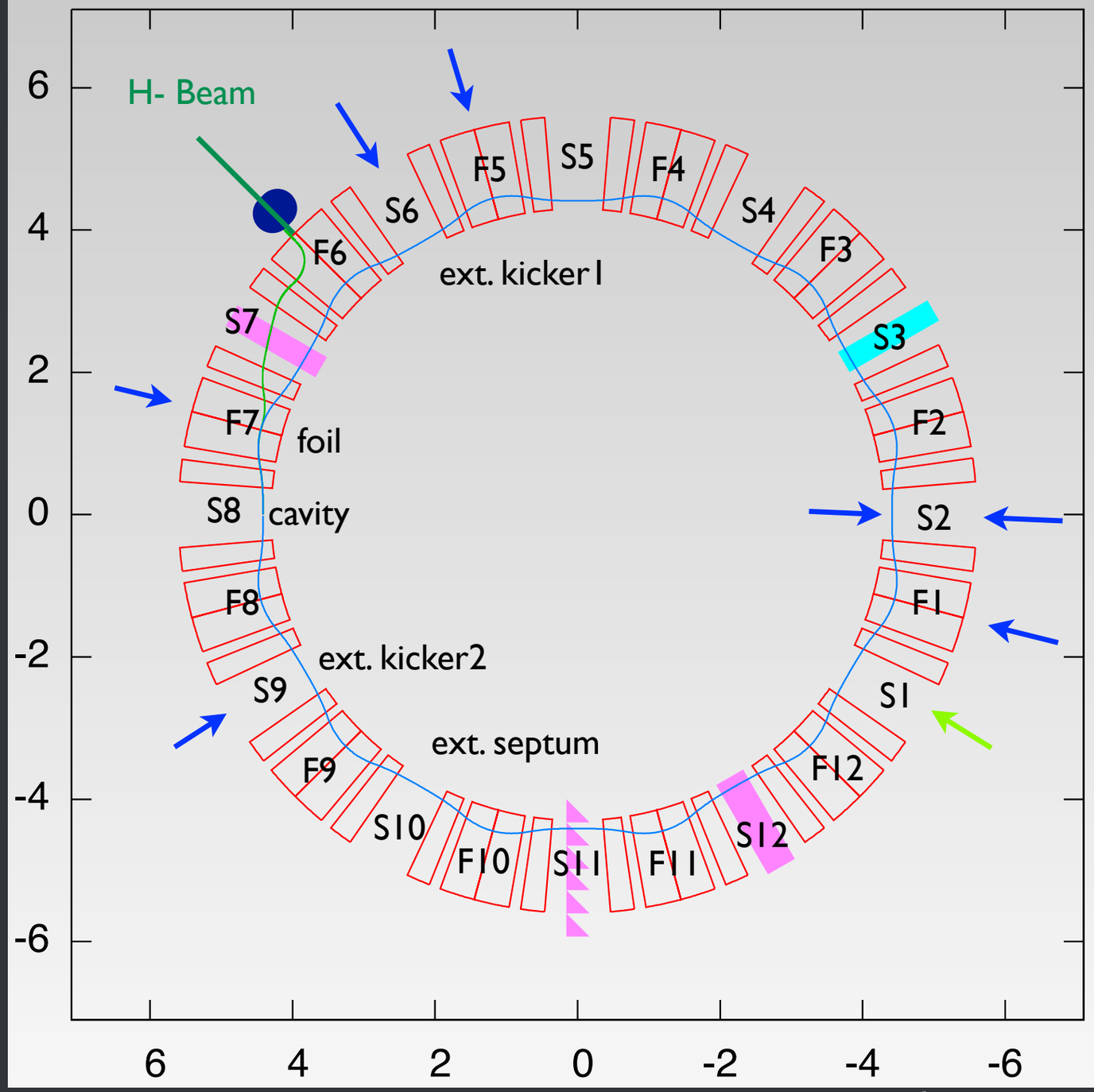
Prerequisites

- Characterisation of the beam at injection (Linac and HMBT)
  - Energy
  - Momentum spread
  - Twiss parameters at injection
  - Emittance at injection
  - Position at injection

Prerequisites (2)

29 Aug 2013 Y. Ishi

Available Monitors in ADSR-FFAG Ring



List of monitors

7 ports for radial probes (blue arrow, ICF70)
4 portable radial probes remote cntrl'd
2 portable radial probes manual cntrl'd
1 unportable radial probe (green arrow)
3 bunch monitors
1 faraday cup / 1 screen monitor
1 perturbator

S1	radial probe
F1	radial probe
S2	radial probe / hor. perturbator
S3	vert. perturbator
F5	radial probe
S6	radial probe
(F6)	Faraday cup / screen monitor
S7	bunch monitor
F7	radial probe
S9	radial probe
S11	bunch mon.(array of triangle plates)
S12	bunch monitor

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RF optimisation

Use of RF script to search for optimum phase and voltage, and scan in the longitudinal phase space

- Scan through phase and voltage parameters (more clever way?)
- Script requirements:
  - Inputs
  - Outputs
  - Language
  - Interface
- Preparation of the script (candidate? KURRI or RAL?)

Experiments

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Identification of beam loss during acceleration

Tune measurement (at flat top) with more samples

- Nothing to prepare? (RF script prepared for the RF optimisation can be used for measurement at flat top)

- Simulations with field maps are not reliable in the main ring. Try to estimate the field error by putting additional kick at the cavity to match the tune? New field map?