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Plan

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Goal of the KURRI-FFAG experiment

- Can FFAG have similar magnitude of space charge tune shift/spread as synchrotron?
  - Resonance lines are more dense in tune space.
  - Could be large ratio between horizontal and vertical beam size.
- Can we keep large ratio of beam size to accommodate more particles?
- How space charge affects ionisation cooling?

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Want to finish before doing experiments

- Modelling of capture process in longitudinal
  - maximise peak intensity to give the maximum tune shift.
- Modelling of multi-turn injection process in 3D with foil scattering.
- Modelling of space charge effects in 3D at the first few ms.
- Understanding diagnostics.
  - Beam profile measurement by scraper.

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Tools

- OPAL: Suzie and Chris R.
  - 3D field map
  - 3D space charge
  - foil scattering
- Simpsons: Machida
  - 3D space charge
  - foil scattering
- (ORBIT: David)

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Simpsons as an example

- Actively used for J-Parc and CERN-PS.
  - Simple scattering model (tested for ERIT) seems to work.
  - Simply I did not spend time for KURRI modelling.

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Plan before Cyclotron conference

- A paper about this collaboration
  - Aim
  - Present status of KURRI-FFAG
    - Intensity, beam loss, available diagnostics, etc
  - Experiment proposal
    - Procedure
  - Modelling
    - OPAL, Simpsons, (ORBIT)

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Plan after Cyclotron conference

- Decide whether we should go ahead (Mori, Prior, Meot, Machida, others at Cyclotron conference/FFAG workshop).
- A couple of weeks long beam time between October and December 2013.

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