**KURRI FFAG MEETING 11/6/2015**
**Google+ hangout meeting**

**Attendees:**
Y. Ishi, T. Uesugi, KURRI
D. Kelliher, S. Machida, S. Sheehy, C. Rogers, RAL
R. Barlow, Huddersfield (D. Bruton apologies)
M. Haj Tahar, BNL
J. B. Lagrance, Imperial

**Minutes:**

For upcoming experimental visit, dates of attendance at KURRI are:

- Suzie Sheehy (University of Oxford & STFC/RAL/ASTeC) June 22nd – July 1st
- David Bruton (University of Huddersfield), June 22nd – June 26th
- David Kelliher (STFC/RAL/ASTeC) June 29th – July 3rd

1. Shinji Machida presented an update to the current paper, including the re-worked structure
    - Contents rearranged according to type of measurement performed rather than quantity being measured
    - First complete draft due Friday 19/6/2015
    - Shinji gave an update on the vertical coherent oscillation analysis for vertical matching at injection.
    - After the corrected capacitance was included there seems to be a negative vertical offset, which may correspond to a vertical COD. Ishi-san commented that a hotspot has been seen around S2 which is also thought to come from vertical COD. From a first order estimate they think ~0.5 to 1cm vertical COD may be present, however we don't know the pattern of the COD and we are unable to measure it right now.

2. Chris Rogers presented an update on the foil energy loss measurement, which has now proceeded to the point of giving an estimated foil thickness. The result is interesting as the foil used for measurements was 20 microgram/cm^2 and the measurement seems to indicate this at the top end of the foil thickness.

3. David Kelliher presented and update analysis of the measured orbit data to extract the k-value, based on a suggestion from Shinji to make sure that the k is calculated in a model-independent manner.
    - He uses just the measured frequency and radius data and uses an iterative method to get the k value and momentum from the data (see slides). He notes that the result for a polynomial fit order of 5 is similar to Suzie's previous analysis.
    - He will now propagate through the error analysis

- A few questions arose that were answered by the KURRI team: the machine setup was the March 26th setup, which means the corrector strength used was 468A.
- Why was the measurement only done up to roughly 70 MeV? The radial probes have an extension piece in order to reach the full inner radius of the machine, however this prevents them being withdrawn fully, so that limits the maximum radius at which this measurement was performed. This should be mentioned in the paper for completeness.
- There was a suggestion that the polynomial fit method didn't appear to be producing great results regardless of the order of fit, so a simplification or rethink might be needed.

4. Malek Haj Tahar presented two topics:
   - a look (using ZGOUBI) of the oscillatory behavior of the tune which indicates that the problem lay in the granularity of the field map. This was nice work as it compared the 2D and 3D version of the field map with different order interpolation and different sized interpolation grids. The current 1cm grid size is probably too large…
   - He also presented updated work on including space charge in ZGOUBI. See his slides for details. This is good progress which the FFAG community are happy to see.

5. Ishi-san presented the machine status with regards the upcoming experiments. Cavity 1 has been rolled out and 5 radial probes installed. A wider corrector magnet is being installed on Cavity 1. A new diagnostic of a 1cm radially movable slit with fluorescent screen has also been installed. There are some hardware issues with Cavity 2 which mean it will NOT be installed for the upcoming experiments.

6. Suzie Sheehy presented the spreadsheet of experiments for the upcoming run. She requests that the radially movable BPM needs to be installed for the injection matching (horizontal) systematic measurement, and for the tune measurement with various corrector strengths. Vacuum will be broken to install cavity 1 late next week, so it should be possible to replace the radially movable slit with this radially movable BPM then. We will also need the horizontal perturbator installed for tune measurements.

7. AOB: next meeting to be during experimental run (as needed) and July meeting date will be confirmed after experimental run is over.