KURRI FFAG MEETING 14/5/2015
Google+ hangout meeting

Attendees:
Y. Ishi, T. Uesugi, KURRI
D. Kelliher, S. Machida, S. Sheehy, C. Rogers, C. Prior RAL
A. Adelmann, PSI
D. Bruton, Huddersfield

Minutes:

1. Ishi-san discussed the current status of the machine.
    - The linac has been working well from this week and they have been operating with beam.
    - Cooling water problem seems OK now.
    - The main ring has been operated from Monday and after removal of additional magnetic material, a new configuration is needed for extraction. They are working on this now.
    - Suspect the tune footprint has also changed and may be running into a resonance at extraction (perhaps $2\nu_x + 2\nu_y=10$) so working point may need moving. Despite adjusting D current, still everything was lost at this point so a 'patch' plate will be added to aid extraction. This is ongoing work.
    - The corrector magnet is still being used, so not sure at present about status of COD or if it has changed – needs to be measured again.
    - The schedule was discussed with reference to other users. The shutdown is late July to End September.
    - RAL group are interested in experiment time late June/early July and possibly late October/ early November as well. To be discussed by email.
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2. Suzie presented the results of low intensity single particle benchmarking which was presented at IPAC'15 in Richmond, Virginia last week.
    - There was some discussion on the oscillatory behavior of the tune in some codes. Suspect this is due to interpolation between field map points (due to coarse field map). Question for Malek – which level of interpolation was used in ZGOUBI? Is it possible to check the oscillatory region with different field map interpolation order & see if it changes the result?
    - Discussed Shinji's result of COD and tune diagram, with reference to David's studies in December, and in Shini's slides in January.
    - The plan or timelines of simulation studies going forward needs to be discussed between the different code experts. We need to prioritise different areas of modeling.
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3. Shinji presented work on discrepancy between simulated and experimental tunes, pointing out the 'trapping' phenomenon around $Q_x=3.75$.

- He attempted to study what happens with a large injection mismatch and found that the tune footprint moves in the right direction, but with no evidence of trapping.
- He then introduced 3 identical error sources to drive 4Qx=15 and finds that there is some evidence of trapping for a high amplitude, but it is small effect.
- David suggested that the 'trapping' may actually be due to particles moving to larger amplitude and therefore detuning. This correlates with the observed beam loss point. To study this would need to include acceleration in the simulation.
- If these ideas are correct the tune measurement may depend on injection mismatch. We may be able to measure the beam size as a function of acceleration time to see if this is what is happening.
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4. Chris Rogers presented slides on code updates which allowed the tune results from OPAL/MAUS, and on work on the energy loss modeling and measurement.
   - The variable RF package needs benchmarking against SCODE and ZGOUBI
   - He has created a foil model in MAUS including the 'arms' which effectively provide the aperture
   - Presented data from the energy loss on foil measurement in summer '14. He is interpreting the oscillations around the rf bucket to determine energy loss.
   - There is some difficulty in the analysis as there is an arbitrary offset in the signal data, which means an extra free parameter.
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Other discussion:

- Shinji's GUI with RF table generation needs testing on KURRI system (Maybe Kuriyama-san could follow up?)
- Next meeting date: 11th June