KURRI FFAG MEETING 20/01/2016
Google+ hangout meeting

Attendees:
C Prior, D. Kelliher, S Machida - RAL
Scott Berg, M Haj Tahar, F Meot - BNL
Y Ishi, T Uesugi, - KURRI

Minutes:

1. Ishi-san gave an update on the machine status.
   - Vac Seal seemed to work and vacuum went down to 10E-4 Pa (only one order worse than normal).
   - Switched on the water flow and put rf power, but the result was no good.
   - There is still leak along the vane.
   - They will continue further investigation, but also pursue alternative.
2. Malek gave acceleration simulation with ZGOUBI.
   - Launch 441 particles with KV distribution. Accelerate them and calculate rms emittance.
   - In longitudinal space, no matching was performed.
   - There are sudden increases of rms emittance at some tune (or energy or radius).
   - This happens in horizontal plane only.
   - In phase space, tails are developed and asymmetry of charge distribution is noticeable.
   - This may be due to fluctuation of the field index k.
   - After the talk, we discussed the invariant emittance (normalized emittance). Is the factor of \beta\gamma only approximation to convert the emittance from unnormalised one or exact.
   - Francois used to call “adiabatic invariant emittance”. He claims that adiabaticity is a required condition to calculate the invariant.
3. Shinji gave a presentation of emittance evolution without space charge.
   - Scode also shows sudden increase of rms emittance at the same location (in terms of tune) as in Zgoubi.
   - He found that the jump disappears when the vertical emittance is zero.
   - There must be a coupling between horizontal and vertical emittance which causes the emittance jump in horizontal plane.
   - However, some questions remain, such as why this happens only in horizontal, not in vertical?
   - Scott suggested to look at Jx, Jy plane with certain phase.
   - Shinji suggested Qx+6Qy=12 as a possible source, but Francois pointed out this resonance should show more increase of emittance in vertical plane because the exchange of emittance is proportional to Jx/1 and Jy/6.
   - Francois commented the modeling of AGS and tune jump around 8.75 to avoid depolarization.

- Francois suggested frequency analysis of orbit to see if there are any noticeable frequency components coming from the other plane if coupling is significant.

4. David explained his response to the PTEP (KURRI experiment) paper.
   - Some part should be included as an Appendix and some goes into the main text.
   - Shinji commented that we needed to make the conclusion clear whether our analysis (e.g. Response matrix) is applicable with the KURRI FFAG parameters.
5. Although the RFQ recovery work should be done with high priority, Ishi-san agreed to have a regular meeting next month. Exact date/time will be fixed later by doodle poll.