

## Minutes of HSS meeting held on 7/3/2018

Presents: A. Bloch, R. Bruce, H. Burkhardt, R. De Maria, N. Fuster, H. Garcia, M. Giovannozzi, A. Huschauer, M. Jebramcik, J. Jowett, A. Mereghetti, J. Molson, T. Persson, F. Plassard, F. Van der Veken.

- Report from meetings
  - General information (Massimo Giovannozzi)
    - IPAC paper approval procedure has started as announced by email.
    - All are reminded to inform direct supervisor and Alessia in case of absence.
    - All are reminded that the French and Swiss cards are work permit and they should be kept valid during the whole duration of the CERN contract.
    - This afternoon there will be the summary of the Chamonix Workshop instead of the LMC.
    - Stopping analog phones moving to Microsoft for the moment stopped.
    - More generally efforts to understand and remove Microsoft dependence, studied by controls group.
    - Next meeting next Wednesday will include presentations by Stephane on the 2018 optics configurations (protons and ions). Two weeks later, the meeting will include a presentation on the outcome of the Q'' MD.
  - LBS meeting (Helmut Burkhardt)
    - There was a meeting this Monday, with reports from LHCb, CMS, ATLAS, all happy about low background, with various interesting details, see <https://indico.cern.ch/event/709879/>.
  - Collimation status (Roderik Bruce)
    - The current main activities are
      - Finalize settings for TCTs for this year, depending on final betas and levelling details. If stopping at 30cm could stay as 2017, if squeezing further have to change.
      - Preparing ECRs for LS2.
  - OMC activities (Rogelio Tomas)
    - The organisation of the software developments for upcoming LHC run is one of the current focus activities.
    - In some areas, the plans were a bit too ambitious and the hoped speed up of the software tools might not be within reach for this year's LHC beam commissioning.
  - PS studies (Alexander Huschauer)
    - Beam is currently in the PS Booster, this Friday is should be injected in the PS. No major problems have been observed so far.
    - Next week there will the space charge meeting, and the LIU MD day, together with rehearsals for cost and schedule review LIU.
    - The optics measurements and corrections activities for PSB and PS are being organised, thanks to the new contribution by Piotr.

- John Jowett reports about the HL-LHC workshop on ions, which took place on 6<sup>th</sup> of March:
  - Now lots of discussions on changing ion species, during HL-LHC and possible extension of ion runs to the end of the HL-LHC era.
  - Possible ion species are: oxygen, calcium, argon, xenon.
- MAD-X status (Tobias Persson)
  - Pre-release (MAD-X 5.04) is currently available for checks: please look at it and provide feedback.
  - Changes are listed under the official MAD-X web site, many were reported before and there are also extensions and bug fixes.
  - s-rotation in survey now changes with respect to the past and this is the right behaviour.
- SixTrack status (Riccardo De Maria)
  - Meeting few days ago, discussing simplecticity check and fixes.
  - Closed orbit calculation in special cases like with beam-beam or wire needs more work.
  - Update for electron lense. Will have strong solenoid, to be addressed.
  - Discussions are on-going on next development version with new features.
  - Alessio mentions that the BOINC is stable, recently also running for FCC.
  - New website for SIXTRACK by Veronica, <http://sixtrack.web.cern.ch>.
- Moving Long-Range Beam-Beam Encounters in Heavy-Ion Colliders (Marc Andre Jebramcik)
  - Two different approaches are possible: Same energy and different magnet rigidity (RHIC) or same rigidity and unequal revolution frequency/energy (LHC).
  - Results in moving beam-beam encounters have been produced for injection energy. The modelling is based on weak-strong beam-beam, p-beam as strong beam, Pb beam as weak beam.
  - Linear model with matrices. Compared tune footprint with non-linear model. Predictions for emittance growth.
  - The model is able to show why RHIC was problematic (kicks are much stronger) and why LHC is manageable.
  - LHC growth times of order 100 h, much larger than IBS growth time of 6.5h, for LHC all at injection energy.
  - Using the novel capabilities in SixTrack (DYNK) one could try and simulate the moving beam-beam encounters with time-dependent beam-beam kicks. This would require defining all possible beam-beam encounters and switch them on selectively on a turn-by-turn basis.