Minutes of HSS meeting held on 28/3/2018

Presents: A. Bloch, R. Bruce, H. Burkhardt, V. Cilento, M. Crouch, R. De Maria, L. Deniau, D. El Khechen, H. Garcia, M. Giovannozzi, G. Guillermo Canton, P. Hermes, A. Huschauer, G. Iadarola, M. Jebramcik, H. Maury Cuna, E. Métral, T. Persson, F. Plassard, P. Skowronski, R. Tomas, F. Van der Veken, F. Zimmermann.

- Report from meetings
  - General information (Massimo Giovannozzi)
    - Please, consider the deadlines for IPAC papers preparation.
  - LBS meeting (Helmut Burkhardt)
    - Nothing to report.
  - Collimation status (Roderik Bruce)
    - Preparations for run going well.
    - Settings generated.
    - Currently running test cycles without beam.
  - OMC activities (Rogelio Tomas)
    - Preparation for run: looking at arc bumps for dispersion, octupoles, chromaticity.
    - Handling of failing nonlinearity correctors will be discussed in one of the next LMCs.
    - Code verification in parallel to hardware tests.
    - Massimo asks about the MAD-X version upon which is based JMAD. It should be checked, but Laurent and Piotr say that there is lag of 1-2 years.
  - PS studies (Alexander Huschauer)
    - The recent space charge collaboration meeting featured lots of interesting discussions on emittance blow up at PS injection.
    - Estimate of the space-charge induced beta beating has been carried out and it is at level of few percent.
    - LIU C&S review is going on. The Landau cavity for the PS ring is being discussed.
    - The recent PS alignment efforts has been very effective in making the shadowing of the dummy septum much better than in 2017. The non-optimal performance of the dummy septum shadowing has been indicated also by the RP measurements.
    - The 72-bunch beam is ready for LHC.
  - MAD-X status (Laurent Deniau)
    - Testing pre-release is the current activity and, as discussed last time, the actual release is put in stand-by until the completion of the LHC commissioning.
    - Integration of space charge from F. Schmidt et al. is in the plans, to be carried out by Andrea.
    - Implementation of Helmut's fast and accurate synchrotron radiation spectrum generator is completed and it is used now by default, activated by TRACK, QUANTUM=true. The old generator still available by using option, synrad=1;
  - SixTrack status (Riccardo De Maria)

        - Tobias checked the simplecticity of the matrix element and all known issues have been fixed, only documentation remains to be updated.
        - Investigations for the wire continued. Following up issue on rotation, it was decided to implement appropriate rotations in SixTrack to be consistent with MAD-X. Massimo suggested to contact Yannis to inform him about the change.
        - James updated the ion branch and works on merge with protons.
        - Beam-beam, Two updates to improve accuracy and simplecticity of the beam-beam element also when the dynamics is not ultrarelativistic and to update correctly the 6th coordinate.
        - Veronica analysed and improved performance, related to aperture checks, and improved memory allocation.
        - The plan it to release the new version sometime in April for testing.
- Photon absorption distributions in the LHC arcs simulated by Synrad3D (Gerardo Guillermo Canton)
    - 10nm carbon over copper, with surface roughness and sawtooth, relevant for electron cloud simulations.
    - CERN code (Synrad+ by R. Kersevan) has issues with some of the surface roughness values considered.
    - Gerardo mostly uses Synrad3D from Cornell.
    - The difference between the case with nominal or inverted saw-tooth orientation is small, and both are better than the case without saw-tooth.
    - Massimo suggests to check whether the numerical results change by adding imperfections to the saw-tooth structure.
- E-cloud simulations for LHC dipole based on the computed photoemission distribution (Humberto Maury Cuna)
    - Using the photon distributions generated as discussed in the previous talk in PyECLOUD (a specially modified version of the production version).
    - Considering different surface patterns for the saw-tooth the results show a minor dependence on the orientation.