Minutes of the HSC section

99th meeting on Monday 16/01/2017 (10:30, 6/R-012)

**HSC members:** Javier Barranco Garcia (JBG), Mario Stefan Beck (MSB), Eleonora Belli (EleoB), Olav Berrig (OB), Nicolo Biancacci (NB), Xavier Buffat (XB), Lee Robert Carver (LRC), Giovanni Iadarola (GI), Kevin Li (KL), Elias Metral (EM), Mauro Migliorati (MM), Adrian Oeftiger (AO), Tatiana Rijoff (TR), Annalisa Romano (AR), Giovanni Rumolo (GR), Benoit Salvant (BS), Michael Schenk (MS), Claudia Tambasco (CT), David Amorim (DA), Alistair Arnold (AA), Sondre Vik Furuseth (SVF), Philipp Dijkstal (PD), Giacomo Mazzacano (GM), Galina Skripka (GS).

**Present/Excused:** JBG, MSB, EB, OB, NB, XB, LRC, GI, KL, EM, MM, AO, TR, AR, GR, BS, MS, CT, DA, AA, SVF, PD, GM, GS, SergeyA, AgnieszkaC, TatianaP.

1) Newcomers / visitors

- None.

2) Comments on the minutes of the previous 98th meeting + Actions

- See last minutes/actions:

  - Instability review => I sent you the note. Many thanks for some comments that I will include.

  - Other actions to be followed up: see last minutes.

  - DEADLINE for Evian follow-up (MassimoG will organize a CT-PPS meeting on Wednesday => NicoloB and DavidA will show the impedance study) and Chamonix preparation for GA: Friday 13/01/17. Do you have the info to be sent?

3) General infos and follow-up (EliasM)

- SLM (which I could not attend last week due to the JUAS):

  - The SC workshop will take place at GSI starting on October 4th (3 days?): several people from HSC should go as the coherent aspects should also be discussed.
- Transverse emittance exchange => Could be tried to see the effect on the luminosity for both high-luminosity experiments (as mentioned at Evian). EliasM met Jamie and Christoph who seemed interested. Next question for us: when is it the best to do it: before stable beam? In stable beam? Is it fine to exchange the tunes from beam-beam point of view: 0.31/0.32 => 0.32/0.31? Etc. We should look at this in detail and we could then propose some studies:

    - MD with single bunches.
    - EOF MD when the transverse emittances are different (as discussed with Jamie).

- SPS-DQW #1 Non-conformity check => Info from RamaC and BenoitS and NicoloB are following this. This is not expected to be a problem. This nonconformity and its effects should be documented on few slides and a short note.

- FCC workshop: BenoitS will represent HSC.

- When I was in Orsay last Friday, I discussed with Christelle Bruni (supervising Alexis Gamelin) who is working on collective effects in the storage ring of the project ThomX (50 MeV) => They will come at some point at CERN to give a talk within the impedance working group to discuss their studies and issues.

- The BGI’s are now back in the lab (BGIH.5L4.B1 and BGIV.5L4.B1) => BenoitS will look at them this week.

- New Logging system NXCALS follow-up:

    • MTE -> Guido
    • LHC studies -> Riccardo
    • LHC luminosity model -> Yannis
    • LHC instabilities and heating -> Benoit

- LARP/HL-LHC meeting @ LBNL - List of participants => Any need to go there and discuss with the collaborators? The following attendance for WP2 is proposed:

    - Giovanni Iadarola (contacts with LBNL for electron cloud simulations).
    - Massimo Giovannozzi (contacts with SLAC for field quality and dynamic aperture)
    - Yannis Papaphilippou (contacts with LBNL for beam-beam and with FNAL colleagues for the preparation of the wire experiments).

- Attendance to the instability and impedance workshop in Benevento => Here is the current approved list:
1) Giovanni Rumolo
2) Hannes Bartosik
3) Xavier Buffat
4) Adrian Oeftiger
5) Benoit Salvant
6) Mario Stefan Beck
7) Giovanni Iadarola
8) Annalisa Romano
9) Nicolo Biancacci
10) Olav Berrig
11) Kevin Li
12) Elias Metral

- Linac4: moving from project to operation => I sent you the memo.

- Summer students => 1 request from the impedance team.

4) Talks for Chamonix 2017 workshop: Rehearsal

- Comments from BenoitS:

  - Beam-induced RF heating not dealt with => Could be mentioned in talk from KevinL if needed (in Appendix => BenoitS to send a short status).

  - In the talk from RoderikB, he will discuss the need or not of low-impedance collimators => We wrote a short paragraph already in the past for HL-LHC to explain the WP2 approach: “The impedance in the HL-LHC (without considering the crab cavities and possible new collimator material) is not dramatically higher than in the LHC, and the Carbon-Fibre-Carbon (CFC) collimators represent the highest contributors to the HL-LHC impedance over a wide range of frequencies. Given the higher bunch population and brightness of the beams required for HL-LHC and the fact that almost the maximum values in chromaticity and Landau octupoles current have been used since 2012, we cannot afford to increase the transverse impedance of the machine and indeed we have to reduce it to achieve better conditions for beam
stability. Among the CFC collimators, the secondary collimators (TCSGs) are the main contributors to the transverse impedance. New jaw materials for these collimators have been therefore explored, for example: Molybdenum (Mo), Molybdenum graphite (Mo-Gr, also written sometimes MoC), Titanium nitride (TiN), and Titanium di-boride (TiB2). The HL-LHC baseline includes the installation of new Mo-Gr collimators with a 5 µm Mo coating in LSS7 only as the contribution from LSS3 is marginal due to the larger gaps at which these collimators are operated”.

- No RF talk and no vacuum talks => Please contact the different experts and one could also maybe also mention the longitudinal instabilities (loss of Landau damping) and the Las Ketchup instability.

- KevinL (Beams during the cycle: Quality and behaviour):

  - XavierB (Colliding beams: Quality and behaviour)

  - GiovanniR (LIU baseline for protons) => Will be discussed tomorrow.

  - Giovannil (Are the electron clouds clearing?) => Will be discussed on Wednesday during the e-cloud meeting.

5) Miscellaneous

- The next (100th) meeting will take place on Monday 30/01/2017 (in room 6/R-012 at 10:30) => Agenda:

  1) General info and follow-up (EliasM)

  2) AOB (everybody)

- Important events and dates for HSC: [https://espace.cern.ch/be-dep/ABP/HSC/SitePages/EventsAndDates.aspx](https://espace.cern.ch/be-dep/ABP/HSC/SitePages/EventsAndDates.aspx).

- Preliminary agendas for the next meetings: [https://espace.cern.ch/be-dep/ABP/HSC/SitePages/MinutesOfMeetings.aspx](https://espace.cern.ch/be-dep/ABP/HSC/SitePages/MinutesOfMeetings.aspx).

- List of actions: [https://espace.cern.ch/be-dep/ABP/HSC/SitePages/Actions.aspx](https://espace.cern.ch/be-dep/ABP/HSC/SitePages/Actions.aspx).


Minutes by E. Metral, 19/01/2017.