Summary for the round table at the ICE meeting (19/01/2011)

Giovanni Rumolo

**Electron cloud studies:**

* Build up simulations for SPS and LHC: recently, electron cloud studies have acquired new momentum, due to last year’s observations in the LHC with 50 and 75ns bunch trains. Build up simulations in the LHC arcs and IR3 for comparison with experimental data, have revealed new interesting features of the electron cloud formation process, which are presently under investigation. For example, the sensitivity of the results to the primary electron generation mechanisms and to numerical parameters, in terms of cloud build up as well as electron distribution across the chamber, is at the centre of attention because of its implications in the characterization of the LHC chamber wall surface and scrubbing scenarios. Several simulations for the SPS at injection energy are also being run for comparison purposes (with previous results and experimental data from the electron cloud strip monitors)
* Instability simulations: the work is mainly being done by K. Li, who is investigating on the electron cloud instability limits in the LHC. The idea is to define a safe value for tolerable average electron cloud density along the ring, such that no coherent instability sets in. Incoherent effects below this threshold are for the moment not being studied in further detail, but the tune footprints are calculated in order to have an idea how far they could potentially affect the beam evolution
* A bilateral CERN-GSI workshop on electron cloud matters has been proposed and accepted in the Eucard-Accnet framework, and is planned to be held at CERN on March 7th, 2011. Expected participants from outside are:
  + From TU Darmstadt: Fedor Petrov, Fatih Yaman, Wolfgang Müller
  + From GSI: Oliver Boine-Frankenheim, Giuliano Franchetti, Vladimir Kornilov, Holger Kollmus (maybe)

GSI will contribute with the following 4 talks:

* + “Collective effects at FAIR", O. Boine-Frankenheim. The goal of this talk is to motivate the electron cloud work in the FAIR context, as well as summarize the impedance and beam dynamics activities of the accelerator physics group
  + "E-cloud simulations and measurements in SIS 18", F. Petrov. He will also present both simulation studies and the SIS18 measurements, taken with Holger Kollmus’ pickups.
  + “3D EM PIC code to study E-Cloud effects for short bunches (<50ns)”, Fatih Yaman (presenter), Erion Gjonay, Thomas Weiland, TU-Darmstadt.
  + “Incoherent effects and long term behavior of a beam interacting with an electron cloud below the coherent instability threshold”, G. Franchetti. This talk will be based on the work that Giuliano will perform with Kevin Li during his 3.5 weeks visit at CERN.

We will compile a draft program next week and then discuss it within our small electron cloud “task force” team.

**General information**

* I have been replaced by Christian Carli as responsible for the Beam Dynamics work package within the PSB Upgrade Working Group. I have become beam dynamics contact for the PS Upgrade activity (led by S. Gilardoni) and scientific secretary of the SPS Upgrade working group (led by B. Goddard), which contains the 3 subgroups of beam dynamics (E. Shaposhnikova), electron cloud mitigation (M. J. Jimenez), beam loss and collimation (M. Meddahi)
* Injector MD requests are being sent, the dead line is January 31st, 2011. This year there will be less dedicated time for MDs but significantly more floating MDs. In fact, 24h blocks will take place almost every second Wednesday. The efficiency of the floating MDs is in average lower (perhaps close to 50%, but with peaks of 100% when they were well synchronized with LHC stores), but the experience of last year has shown that, due to the close technical stops, usually also the dedicated MDs have lower efficiency.