**LIU-SPS Beam Dynamics Working Group**

**Minutes of the 31/07/2014 meeting**

**Present**: T. Bohl, F. Caspers, J. Ghini, V. Kain, A. Lasheen, K. Li, G. Rumolo, B. Salvant, E. Shaposhnikova, H. Timko, J. Varela

**Agenda**:

1. J. Varela – Unshielded pumping ports simulations and measurements & longitudinal impedance model update
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More measurements and simulations were done in order to better the impedance model of the SPS, leading to an update of this model.

* RF leakage of the SPS flanges
  + The simulations and the measurements of the flanges impedance gives a good agreement concerning R/Q (for 3 simulations methods without damping resistors, and measurements with/without damping resistors)
  + The Q values though are significantly different (up to 25% difference), while it should be very close for closed structure => possible RF leakage
  + B. Salvant adds that the same kind of discrepancy are observed in UA9
  + F. Caspers objects that it could be explained by welds
  + RF leakage could be prevented with copper tape in measurements but the potential sources of leakage are not accessible easily
  + Measurements of the Q values were done with respect to the tightness of the clamp closing the flange. It showed that the Q greatly depends on the tightness.
* Unshielded pumping ports simulations and measurements
  + There is still 42 unshielded pumping ports
  + Simulations and measurements were done in order to have the impedance model for these ports
  + Their main resonance peak is around 1.5 GHz
  + Good agreement between bead-pull measurements and simulations (without damping resistors) concerning R/Q, though we also observe that the Q varies (also RF leakage ?)
  + Further work to be done in measurements (R/Q not measurable with the used setup for low impedance values)
  + Q varies also with the tightness of the clamp, for 2 modes out of 3. The one mode with unvarying Q has a zero of the longitudinal surface current on the vacuum seal discontinuity (proof of RF leakage?)
* Longitudinal impedance model update
  + QF-QF flanges have been updated with higher frequency resonances, and also at low frequency
  + QD-QD enameled flanges have been updated at low frequencies
  + Beam scrapers without arms have been added

Minutes by Alexandre Lasheen