PS-LIU: Impedance studies

Need to better determine:

- Main sources of impedance already present in the machine, longitudinal and transverse. Revision also of machine aperture.
- Increase of impedance due to new elements required by the upgrade but also by MTE (dummy septum) and by BI (new BBQ PU)

In general, improve the impedance model of the machine (transverse and longitudinal) and avoid worsening the situation whenever possible…

Device		end design	Installation
KFA53	New kicker for 2 GeV	2014	2017
SMH42	New septum for 2 GeV replacing old one	2015	2017
WCM	Wall current monitor replacing old one	2013	2014
IPM	Ionisation profile monitor, new element	2014	2016
Ralentisseur	New 1-turn injection dump	2014	2016
New longitudinal Feedback cavity	New cavity	2014	2014
New 40 MHz (not decided)	New cavity (probably as existing ones)	?	?
New 80 MHz (not decided)	New cavity (probably as existing ones)	?	?
New inj. Chambers (not decided)	Replacing existing chamber	?	?

MD studies 2012 PS-LIU: draft requests

#	What	When	Mode	Priority (1=highest)
1	Establish low-loss 25 and 50 ns beams for LHC operation and SPS scrubbing	50 ns: OP setup early in year 25 ns: before ecloud and scrubbing investigations	Beam setup	N/A
2	Higher intensity (1.7e11 for 25ns, 1.9e11 for 50 ns) studies	Early part of the year, neeed for LHC?	Parallel	N/A
3	Space charge studies	Early part of the year	Parallel	1
4	Second injection h=9	As soon as injection bucket selector prototypes ready	Parallel	1
5	Batch compression (h=9->10->20->21)	First tests early part of the year with single injection	Parallel+dedicated	1
6	Batch compresson and merging (h=7->...->14->7->21)	As soon as injection bucket selector prototypes ready	Parallel	1
7	PS-SPS transfer - longitudinal and transverse	Depending on the SPS	Parallel	1
8	Longitudinal loss maps with rotation durations	Depending on the SPS	Dedicated and no ions	1
9	Repeat injection kicker tests	Early part of the year	Dedicated	1
10	Preservation of emittance for very low emittance beams	Early in year as precursor to operation	Dedicated and parallel	1
11	Tests of longitudinal feed-backs	during the year	Parallel+dedicated	1
12	Resonance compensation	during the year	Parallel	1
13	Ecloud studies	As soon as the 25 ns will be ready	Parallel	2
14	Coupled-bunch instability reference measurements	As soon as 25/50 ns beams ready	Parallel	2
15	Headtail at 2 GeV with chromaticity control	Early part of the year	Parallel	2
16	Transverse damper commissioning	Not clear, depending on the availability of the new electronics, injection damping possibly earlier?	Parallel	2
17	Tuning of working point from injection in 5 CM	during the year (early for the low energies)	Parallel	2
18	Tests of low energy elements	early in the year	Parallel	2
19	Impedance identification	Early part of the year, since M. Migliorati will remain only 6 months	Parallel	3
20	QKE16 tests at injection	early in the year	Parallel	3
21	Optics model	During the year	Parallel	3
22	Injection optics with J-Jump quads (SC limits)	Late in the year	Parallel	3
23	Acceleration-deceleration	Late in the year	Parallel	3
24	Shorter injection flat bottom	Late in the year	Parallel	3