

SPS Upgrade - studies and prototyping: Activities (1/2)

Goal of the PAF-SPSU Study Team: to issue in 2010 a Design Report describing the proposed actions and their estimated cost and planning

- **Future intensity increase:**
 - beam control, transverse damper, RF power
 - SPS impedance: studies, MDs, lab measurements
 - SPS vacuum chamber upgrade (as a remedy against e-cloud): studies, MDs, measurements, tests in the lab...
 - upgrade of different equipment: beam dump, instrumentation...
 - beam loss and radiation

SPS Upgrade - studies and prototyping: Activities (2/2)

- Beam production for LHC upgrade scenario:
 - momentum slip stacking
 - new RF systems for bunch merging
- Future injection energy increase (with PS2)
 - injection kicker upgrade
 - transfer line
- Future change of FT/CNGS beam structure (with PS2)
 - MKE rise time reduction
 - RF upgrade
- Future extraction energy increase (new ring...)?

SPS Upgrade: Work packages over 2008 - 2010

| Work package | | Resources per year | | Group/ Department |
|---------------------------------|-----------------------------------|--------------------|------------------|----------------------|
| | | manpower FTE | material MCHF | |
| Beam dynamics | | | | |
| 1 | studies/tests | 1.0 | 0 | ABP,OP,RF/AB |
| 2 | machine developments | 1.0 | 0 | ABP,OP,RF/AB |
| Hardware improvement | | | | |
| 1 | Beam control, high power RF | 1.0 | 0.1 | RF/AB |
| 2 | SPS impedance | 0.5 | 0.02 | ABP,BT,RF/AB |
| 3 | Injection kicker at higher energy | 0.2 | 0.02 | BT/AB |
| | beam dump, transfer line | 0.5 | 0.05 | BT/AB |
| | extraction kicker rise time | 0.2 | 0.02 | BT/AB |
| 4 | SEY of vacuum chamber | 1.0 | 0.1 | MME/TS |
| | vacuum chamber tests | 0.2 | 0.02 | VAC/AT |
| | cleaning electrodes | 0.2 | 0.02 | RF/AB |
| 5 | Radioprotection | 0.2 | 0 | SC/RP |
| Total resources per year | | 6.0 | 0.35 | |