

Lessons from SPS studies in 2010

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The experimental studies done in the SPS in 2010 were devoted both to a validation of some already proposed upgrades (such as chamber coating) and to uncovering new limitations by pushing up the injected bunch intensity.

The first results obtained for higher than nominal intensity LHC beam with 25 ns and 50 ns bunch spacing, each beam available during only one MD session in the SPS, will be presented together with results for a single high intensity bunch.

The limitations encountered during these MD studies will be discussed together with other SPS bottlenecks. Possible cures and mitigations will be revisited as well as present achievements.

An option for improving the beam stability in the SPS, opened up again by the successful demonstration of reducing the SPS transition energy, will also be discussed.

The potential for delivering bunches with small transverse emittances now and after upgrades will be analyzed. An attempt will be made at summarizing the accessible range of beam parameters (intensity per bunch as a function of distance between bunches and emittance).

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