

International Workshop on Accelerator Alignment



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Preparing the SPS alignment for the future LHC runs

The Super Proton Synchrotron is the last machine in the LHC injector chain, just before the injection into the LHC. Operational since 1976 the SPS provides the LHC with a 450GeV beam and is not less demanding in terms of alignment than the LHC. At high energy the alignment is playing an even more critical role for the beam orbit due to the fact that the SPS corrector magnets are designed for only half of the operating energy. The alignment campaigns are completed by a beam based alignment campaign. Like this, the SPS can run with its natural orbit without major corrections.

Ground movements have slowly increased some aperture restrictions during the last years leading to limitations in the performance of the machine. The LHC transfer lines are known to be geologically unstable since their construction. All these are very good reasons to review the alignment of the whole complex. The LS1 gave the unique opportunity to do this in one single big campaign and to review procedures, techniques and instruments at the same time.

This paper will review all the survey activities realised in the SPS complex during LS1 and will present the results of the measurements and alignments campaign.

Primary author: Mr BESTMANN, Patrick (CERN)

Presenter: Mr BESTMANN, Patrick (CERN)