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Impact of Vibration to HL-LHC Performance During the FPF Facility Construction

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The Forward Physics Facility (FPF) is a proposed experimental facility to be installed several hundred meters downstream from the ATLAS interaction point to intercept long-lived particles and neutrinos produced along the beam collision axis and which are therefore outside of the acceptance of the ATLAS detector. The construction of this facility, and in particular the excavation of the associated shaft and cavern, could take place in parallel to beam operation in the CERN accelerator complex.

It is therefore important to verify that the ground motion caused by these works does not perturb the standard operation of the SPS and LHC. In this work, the sensitivity to vibration and misalignments of the SPS and LHC rings in the vicinity of the affected area will be presented, together with the expected perturbations on beam operation following the experience gathered during the construction of the HL-LHC infrastructure around the ATLAS experiment.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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