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Demonstration of non-local crystal shadowing at the CERN SPS

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The main SPS users are the experiments installed in North experimental Area (NA) which are served with a continuous 4.8 s long spill of protons and heavy ions. A third-integer resonant slow extraction is used to provide a uniform, long spill. Such a technique comes at the cost of particles directly hitting the electrostatic septum wires and activating the surrounding of the extraction channel. In recent years, silicon bent crystals have been exploited to shadow the wires of the septum blade and reduce the beam induced activation. It was then demonstrated the experimental success of local shadowing in the SPS and a way to further reduce losses with a non-local installation of the crystal. After the last yearly stop, a new Si bent crystal was installed in LSS4 of the SPS. In this paper, the first results from measurements with beam are reported together with limitations and possible upgrades of the present installation.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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