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RF techniques for spill quality improvement in the SPS

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The CERN Super Proton Synchrotron (SPS) aims at providing stable proton spills of several seconds to the North Area (NA) fixed target experiments via third-integer resonant slow extraction. However, low-frequency power converter ripple (primarily at 50 and 100 Hz) and high-frequency structures (mainly at harmonics of the revolution frequency) modulate the extracted intensity, which can compromise the performance of the data acquisition systems of the NA experiments. In this contribution, the implementation of Radio Frequency (RF) techniques for spill quality improvement is explored, with particular focus on empty bucket channelling. It is shown that both the main RF systems (at 200 and 800 MHz) can be successfully exploited to improve the SPS slow extraction.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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