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Recent measurements and analyses of the beam-halo dynamics at the CERN LHC using collimator scans

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Controlling beam losses is of paramount importance in superconducting particle accelerators, mainly for ensuring optimal machine performance and an efficient operation. Models based on global diffusion processes, in which the form of the diffusion coefficient is the stability-time estimate of the Nekhoroshev theorem, have been studied and proposed to investigate the beam-halo dynamics. Recent measurements with collimator scans were carried out at the CERN Large Hadron Collider (LHC) with the aim of reconstructing the form of the diffusion coefficient. The results of the analyses performed are presented and discussed in detail.

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Footnotes

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