

LHC LONGITUDINAL BEAM DYNAMICS DURING RUN II

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Abstract

During the LHC Run II, many advances have been made on the beam dynamics in the longitudinal plane. The controlled longitudinal emittance blow-up used in the acceleration ramp was improved and bunch flattening was implemented for bunch length control during collisions. In order to minimise RF power consumption, the capture voltage was optimised and the full-detuning beam-loading compensation scheme was made operational for the ramp and at top energy. Various experimental and simulation studies have helped to improve operation and prepare for the future runs at increased intensities. Open and remaining questions are addressed as well.

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