

Beam stability with separated beams at 6.5 TeV

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Abstract

In this talk we try to provide the available parameters space in terms of collimator settings, intensity, chromaticity, octupole current, transverse emittances, damper gain, damper bandwidth, bunch length and bunch spacing, in order to allow stable single-beam and flat top operation at 6.5 TeV after LS1. As a starting point we use the current knowledge of the machine in terms of observed limits in single-beam operation, or in physics operation up to the beginning of the squeeze, and rescale them thanks to HEADTAIL multibunch simulations and the impedance model obtained for the possible collimator settings scenarios. We also evaluate the possibility to mitigate instabilities thanks to the use of relaxed collimator settings up to the beginning of the squeeze or even beyond.