Injection losses towards nominal intensity

ABT/BTP

MD Aim and Plan

- Aim: investigation of losses when injecting up to nominal intensity (288 bunches):
  - Losses from the TL (particular interest in new LIC BLMs)
  - *Losses from longitudinal plane (depending on beam stability in the LHC)*

- Plan:
  - 25 ns Beam setup:
    - SPS: 1.05e11 ppb, ~2.5-3 μm emittance, scraping (>10%)
    - Fast setup of ADT, RF, Chromaticity (15 units)

Before MD: list from T. Bohl of most possible errors in injectors with 25 ns (splitting in PS, 800 MHz,…) ➔ check losses under these conditions.

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MD Aim and Plan

- Plan:
  - Steering with 12 bunches:
    - Extraction up to the downstream TED
    - Injection into the LHC: injection oscillations and steering for beam losses at the TCDIs if needed
      - If required, opening to +/- 5 sigma TCDIs
    - Check injection losses with 12 bunches

  - Increase intensity:
    - Inject 24b ➔ when OK inject 48b ➔ 72b ➔ 144b ➔ 288b
    - In case steering is needed ➔ go back to12 bunches injection
    - Ideally take few shots per intensity to investigate TL stability and consequent losses in the injection region
    - If possible, accumulate some batches for longitudinal losses investigation (maximum allowed intensity in the LHC?)

  - Quick re-check of latest version of the TCDI setting up tool