Run III

- The current optics with positive polarity offers enough margin for $1.8 \cdot 10^{11}$ in 1.8 μm
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To enable the potential of beam-beam compensation with the octupole (negative polarity), a tele-index is required to maintain the tune spread.

Develop a (anti-)telescopic ramp, featuring enough margins for both polarities (see N. Karastathis).

- \(r_{ATS}\) or \(1/r_{ATS}\) \(~2.5\) would be sufficient for \(1.8 \cdot 10^{11}\) in 1.8 \(\mu m\). \(r_{ATS}=3.1\) was tested during ATS MDs with BCMS bunch trains (both polarities).
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- Drawback with \( I_{\text{oct}} < 0 \): The stability with offset collisions is more critical
  → Head-on collision in at least one IP for special tests
  → Offset levelling range for physics (i.e. both IP1 and IP5) limited to \( 1\sigma \) (\( L/L_0 \sim 20\% \))
  → Polarity reversal in stable beam could be envisaged if the quality of non-colliding bunches is not a concern (tested in 2018)