HL-LHC v1.5. Flat optics. End of levelling. CC ON. Bunch 1963. $N_b \simeq 1.4 \times 10^{11} \text{ppb}, \ \beta_{v \text{ IP1}}^* = 7.5 \text{ cm}, \ \beta_{x \text{ IP1}}^* = 18 \text{ cm}, \ \Phi/2_{\text{IP1(H)/5(V)}} = 250 \mu \text{rad}$ $\sigma_z = 7.61 \text{ cm}, \Phi/2_{IP8, V} = 170 \text{ }\mu\text{rad}, \epsilon_p = 2.5 \text{ }\mu\text{m}, Q' = 15, I_{MO} = 60.0 \text{ A}, C^- = 0.001$ F. Scheme: 8b4e_1972b_1960_1178_1886_224bpi_12inj 65.302 65.302 65.312 65.312 65.312 65.312 65.35 60.329 -60.327 -- 7.5 - 7.0 60.323 - 4.2 4.0 4.0 60.321 -- 6.0 60.319 -- 5.5 60.317 -60.315 -- 4.5 - 4.0 60.313 -60.311 -60.309 -

Vertical tune Q_v

Horizontal tune Q_x