HL-LHC v1.6. E = 7.0 TeV. $N_b \simeq 2.3 \times 10^{11}$ ppb, $L_{1/5} = 2.09 \times 10^{34} \text{cm}^{-2} \text{s}^{-1}, L_2 = 1.61 \times 10^{30} \text{cm}^{-2} \text{s}^{-1}, L_8 = 1.66 \times 10^{33} \text{cm}^{-2} \text{s}^{-1}$ $\beta_{v-1}^* = 0.7 \text{ m}, \ \beta_{v-1}^* = 2.8 \text{ m}, \text{ polarity IP}_{2/8} = 1/1$ $\Phi/2_{1(H)} = 250 \,\mu\text{rad}, \,\Phi/2_{5(V)} = 250 \,\mu\text{rad}, \,\Phi/2_{2,V} = -170 \,\mu\text{rad}, \,\Phi/2_{8,V} = 170 \,\mu\text{rad}$ $\sigma_z = 7.61 \text{ cm}, \ \varepsilon_n = 2.3 \ \mu\text{m}, \ Q' = 15, \ C^- = 0.001$ 8b4e 1972b 1960_1178_1886_224bpi_12inj. Bunch 89. 62.323 --7.062.321 -62.319 -62.317 62.315 -- 5.0 $62.309 \cdot$ 150,012,55.0 37.5 0.0 37.5 75.0 112,5 150,0 187,5 225.0 262.5

 Q_x with

Octupoles Intensity (A)