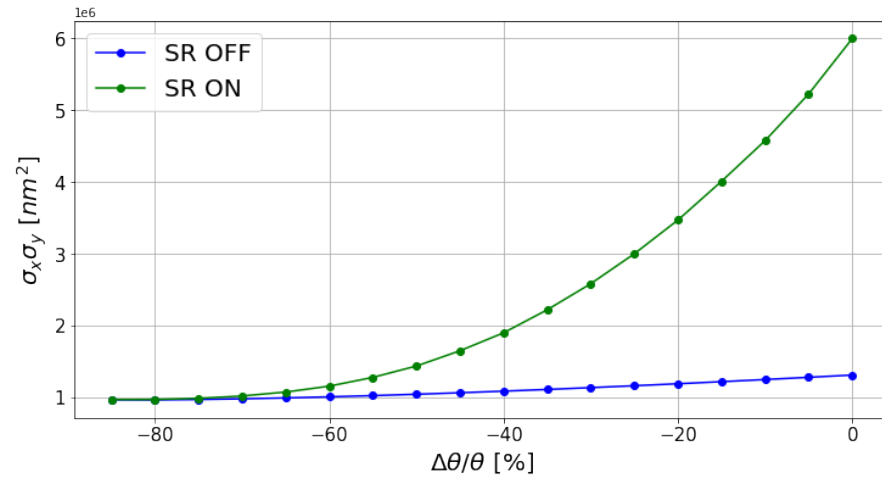
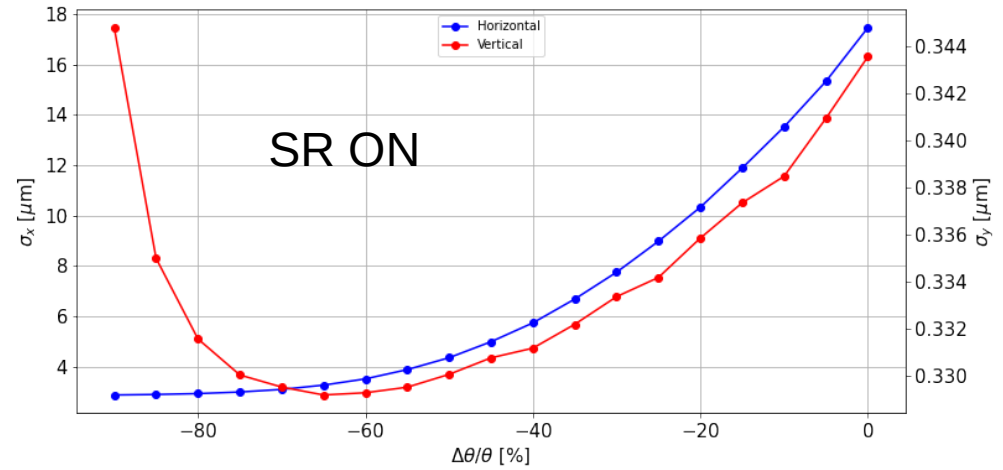
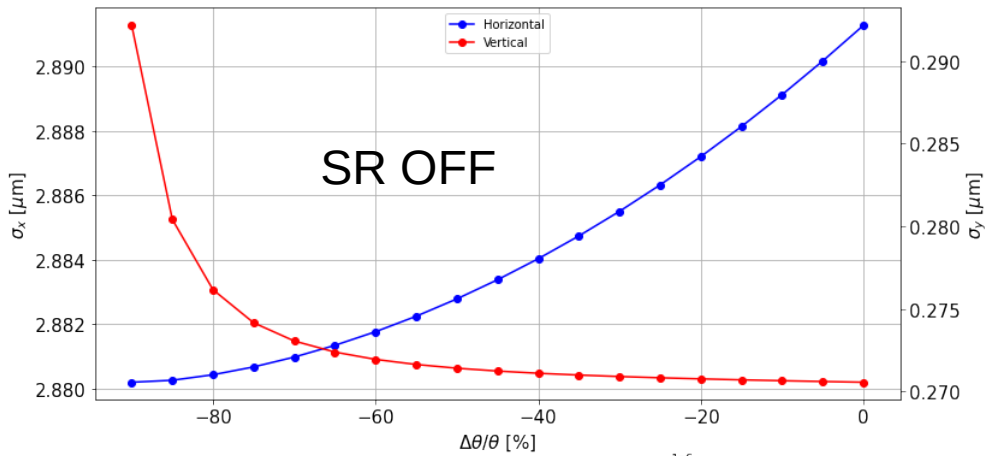


New BDS design with 5 km length

Table of Contents

- Collimation scaling
- Limits of the Collimation Section
- FFS scaling

Collimation Section



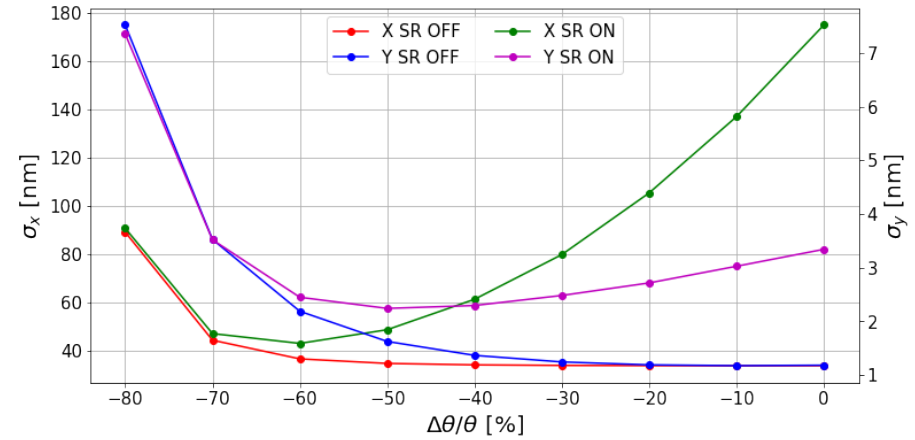
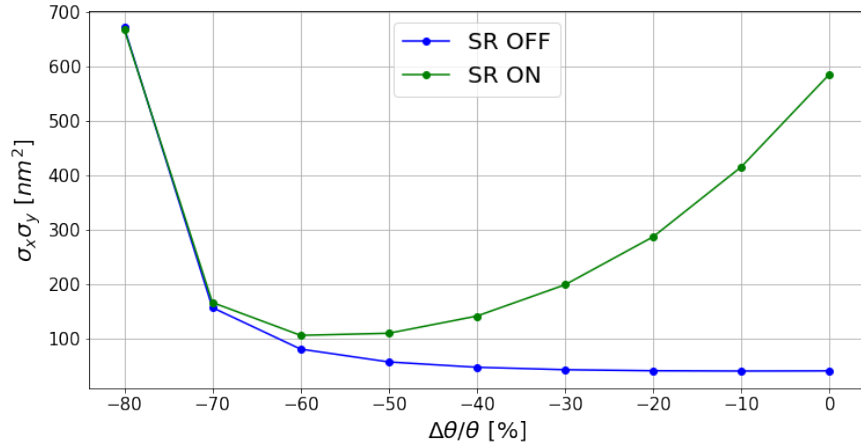
Limitations of Collimation

High wakefield $\sim 1/(\text{Energy} * \text{Gap}^3)$

Keeping the same wakefield at 3 TeV with 3.51 mm of gap size

- Big gap size at the spoiler (2.6 cm)
- Big minimum dispersion required at the spoiler for the collimation (0.2 m)

Scaling angles at Final Focus



Minimum beam size at -55% of the bending angles

$$\sigma_x / \sigma_y \text{ [nm]} = 34 / 0.75 \text{ SR OFF}$$

$$\sigma_x / \sigma_y \text{ [nm]} = 44 / 2.2 \text{ SR ON}$$

$$\text{Luminosity} = 8 \cdot 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$$

Final Focus

