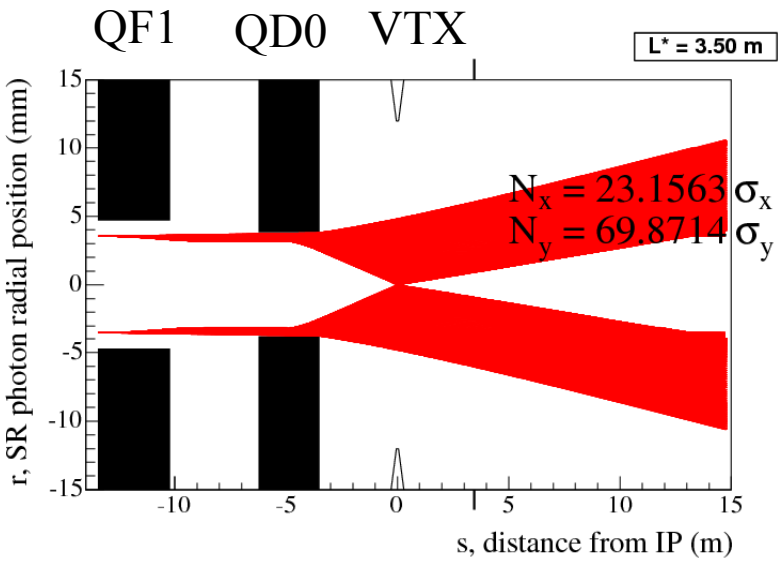
CLIC Collimation Depths



$\beta^*_{x,y}$= 6.9, 0.07 mm
$\varepsilon_{x,y}$ = 660, 20×10-9 m.rad
E_{beam} = 1.5 TeV
Constraining aperture is QD0 (3.8 mm)
Fan remains < 10 mm at 15 m from IP
Correction for dispersion →16 σ_x, 70 σ_y

- Nothing new since CLIC'08
- Have collimation depth for compact perm. mag. FD.
- Need to tighten collimation for machine protection role?
- Superconducting FD option likely to have significantly different (looser) collimation depths.
- Investigate non-linear collimation depth
  - Suggest full tracking simulation like BDSIM or equivalent
- Difficult to rely 100% on these simulations
  - Don't get too obsessed with trying to find the exact collimation depth.
- Try to estimate worst case scenarios, and compare different designs. But unrealistic to aim for absolute predictions.

Background Info

- Current estimation before my calculation
  $10\sigma_x$, $44\sigma_y$