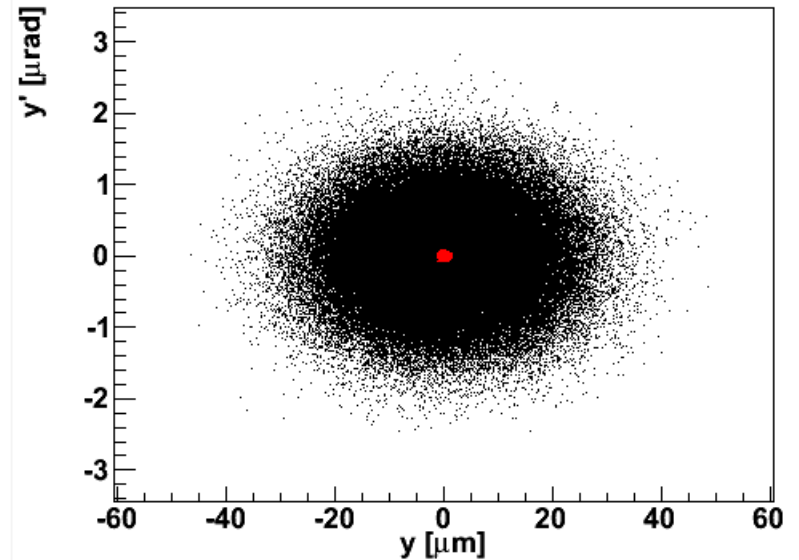
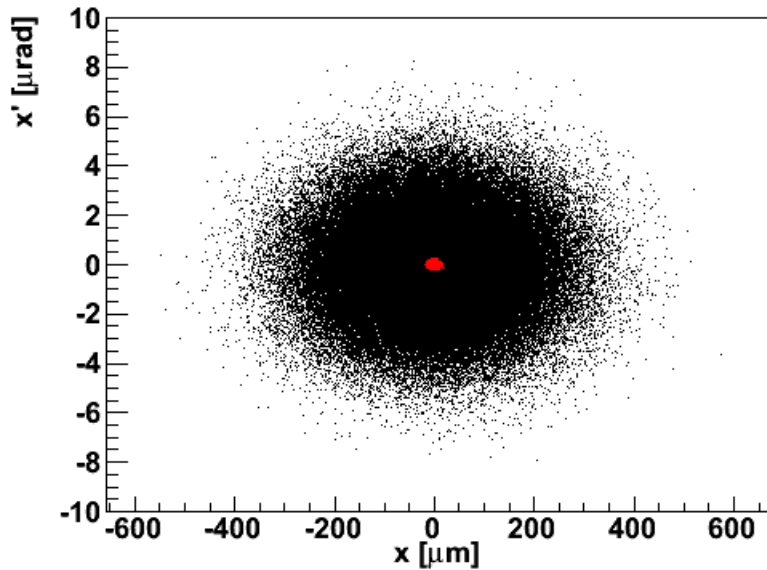
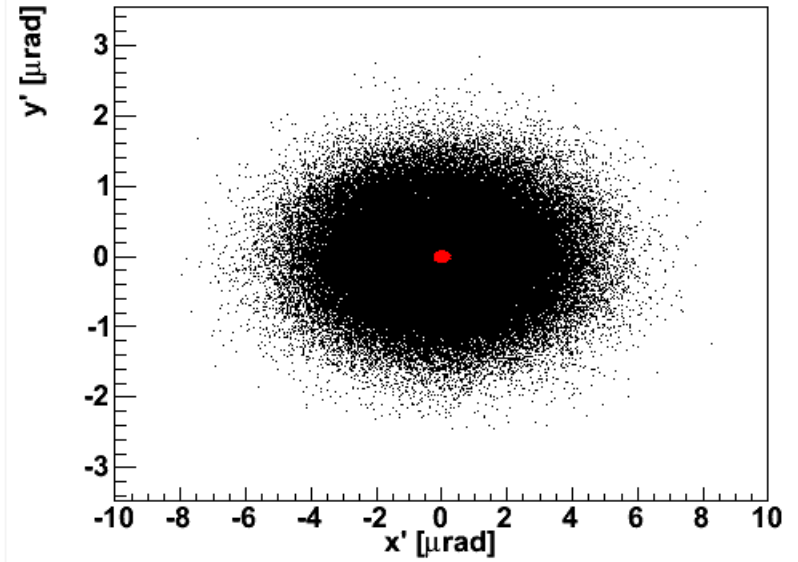
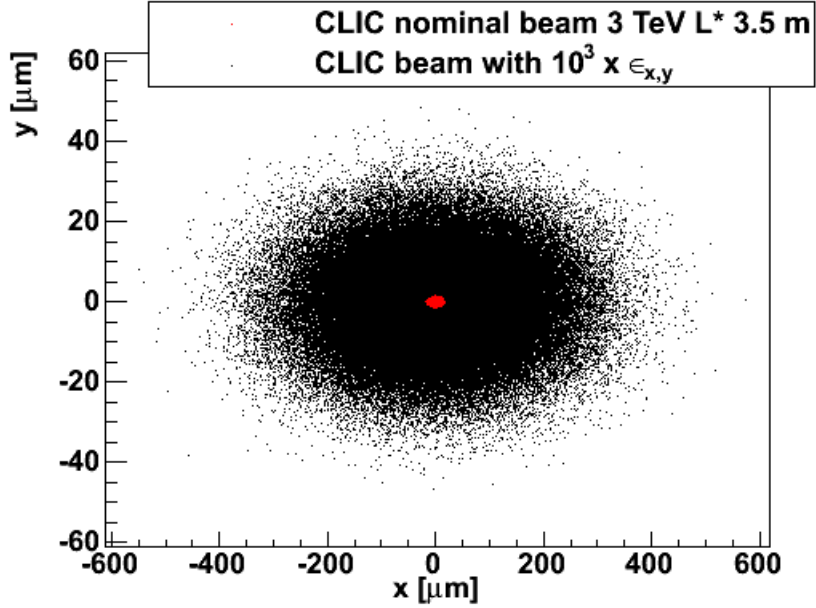


# Collimation depths

B. Dalena, D. Schulte, R. Tomas Garcia

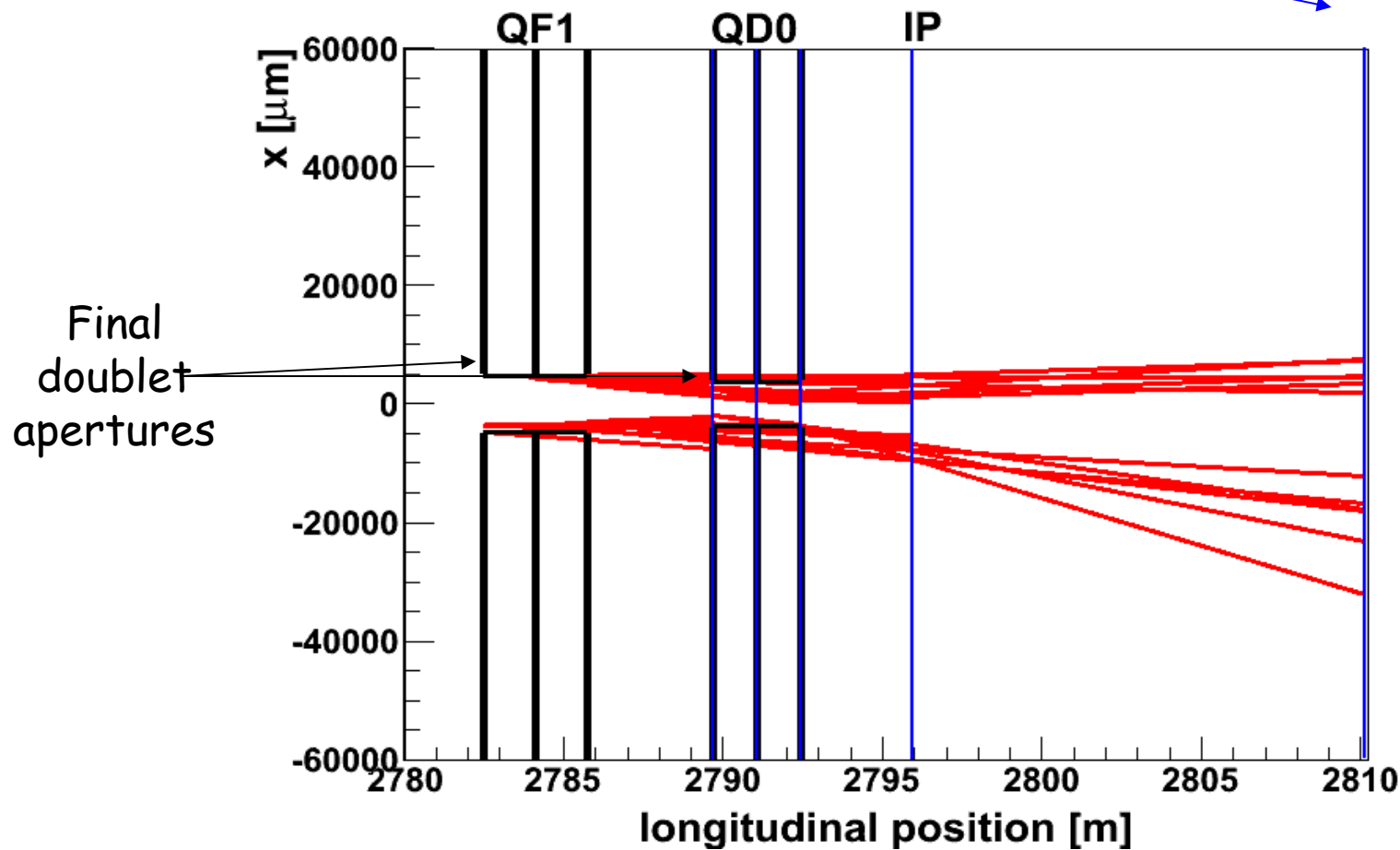
# Beam at BDS entrance



# Photons fan (x)

Incoming beam

Target position

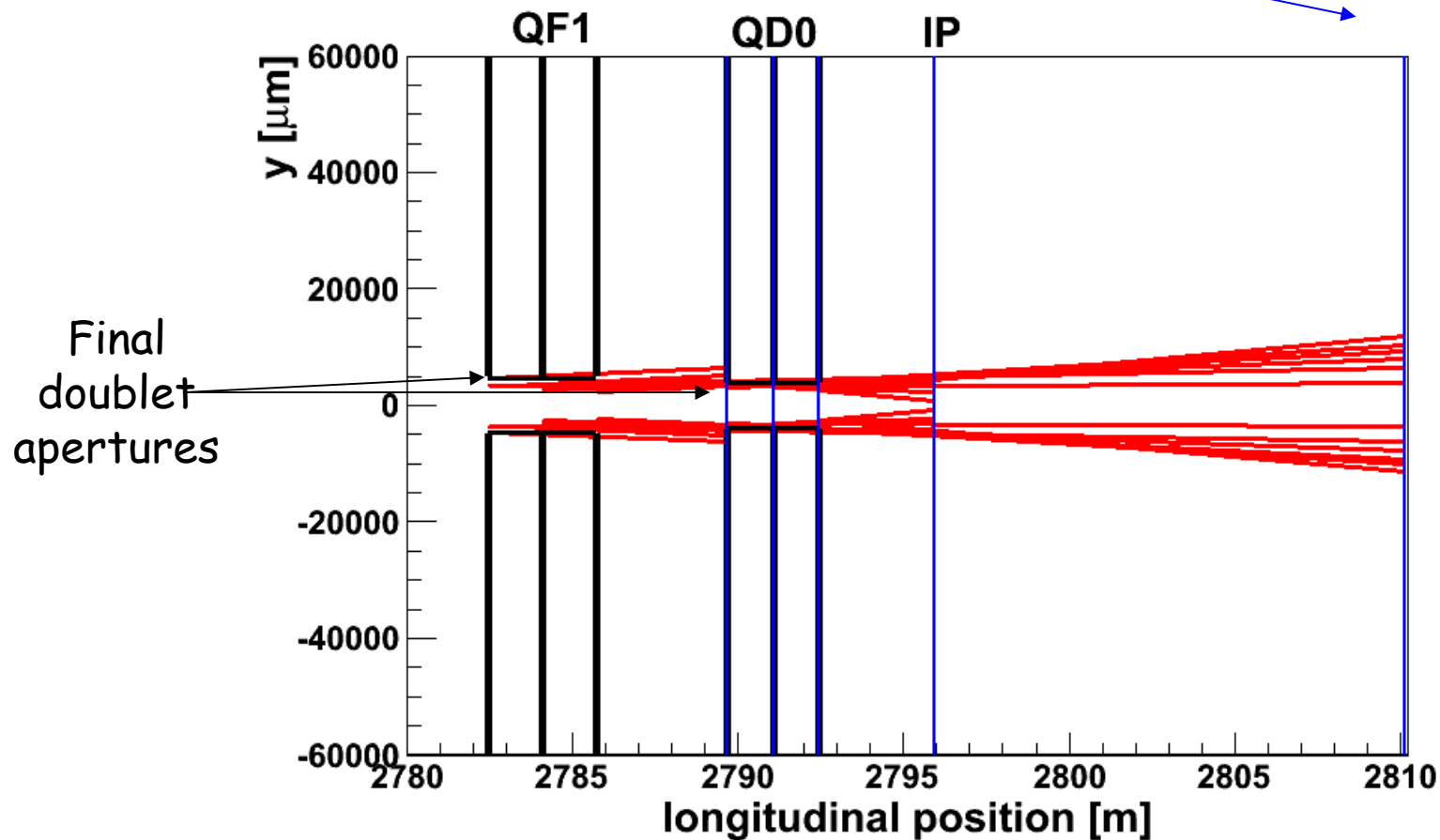


# Photons fan (y)

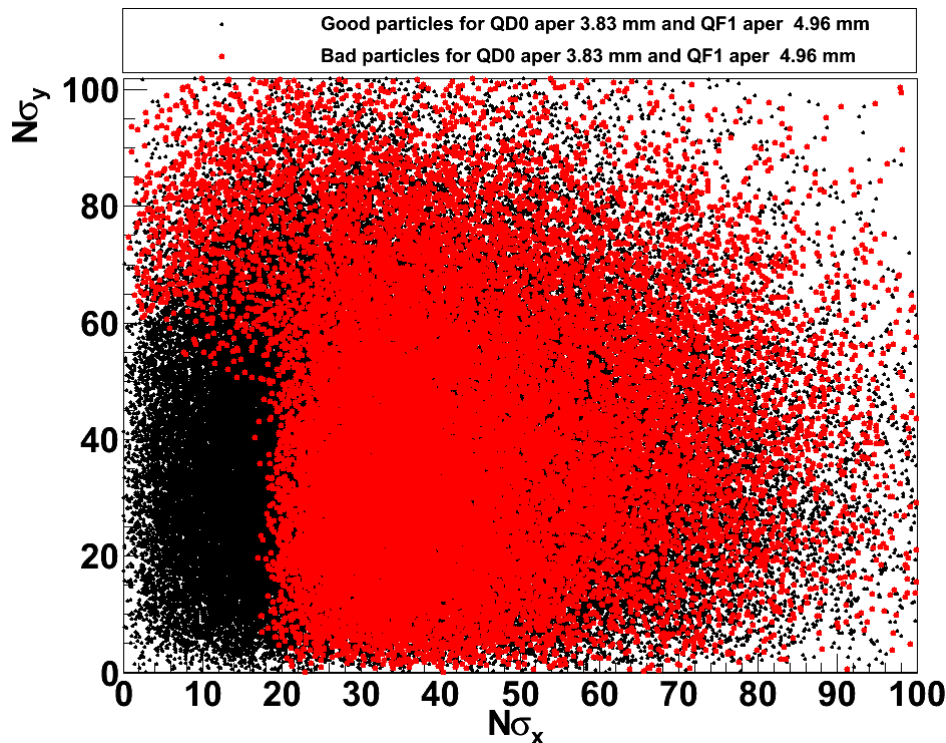
Incoming beam  
→

PLACET tracking

Target position



# Particle correlation at BDS entrance



$$\sigma_{x_i}^{\alpha=0} = \sqrt{\frac{X_i^2}{\sigma_{xref}^2} + \frac{X_i'^2}{\sigma_{x'ref}^2}}$$

## Good particles:

- ✓ no photons hitting QD0
- ✓ no particles hitting QF1 & QD0

## Bad particles:

- ✓ emitted photons hit QD0
- ✓ particles hit QF1 or QD0

- QD0 aperture 3.83 mm
- QF1 aperture 4.96 mm
- **no collimators** in the lattice
- all other elements apertures 1 m
- incoherent synchrotron radiation ON in the tracking

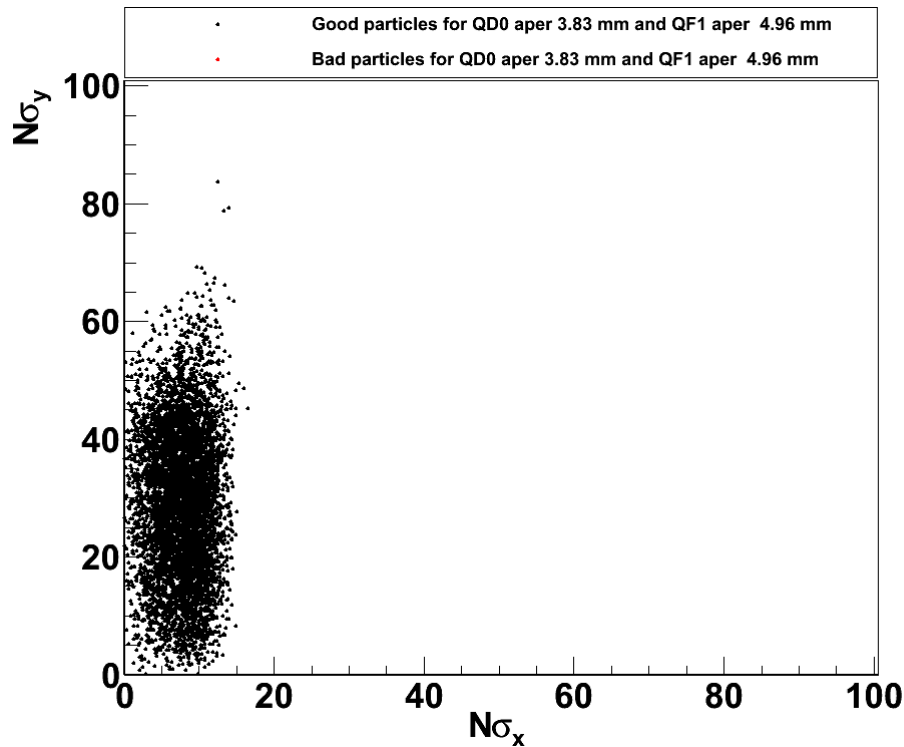
## Collimator parameters

s[m]	Name	$\beta_x$ [m]	$\beta_y$ [m]	$D_x$ [m]	$a_x$ [mm]	$a_y$ [mm]	Geometry	Material
907.098	ENGYSP	1406.33	70681.9	0.27	3.51	25.4	rect	Be
1072.098	ENGYAB	3213.03	39271.5	0.417	5.41	25.4	rect	Ti(Cu coated)
1830.872	YSP1	114.054	483.253	0.	10.	0.08	rect	Be
1846.694	XSP1	270.003	101.347	0.	0.08	10.	rect	Be
1923.893	XAB1	270.102	80.9043	0.	1.	1.	ellip	Ti(Cu coated)
1941.715	YAB1	114.054	483.184	0.	1.	1.	ellip	Ti(Cu coated)
1943.715	YSP2	114.054	483.188	0.	10.	0.08	rect	Be
1959.537	XSP2	270.002	101.361	0.	0.08	10.	rect	Be
2036.736	XAB2	270.105	80.9448	0.	1.	1.	ellip	Ti(Cu coated)
2054.558	YAB2	114.055	483.257	0.	1.	1.	ellip	Ti(Cu coated)
2056.558	YSP3	114.054	483.253	0.	10.	0.08	rect	Be
2072.379	XSP3	270.003	101.347	0.	0.08	10.	rect	Be
2149.579	XAB3	270.102	80.9043	0.	1.	1.	ellip	Ti(Cu coated)
2167.401	YAB3	114.054	483.184	0.	1.	1.	ellip	Ti(Cu coated)
2169.401	YSP4	114.054	483.188	0.	10.	0.08	rect	Be
2185.222	XSP4	270.002	101.361	0.	0.08	10.	rect	Be
2262.421	XAB4	270.105	80.9448	0.	1.	1.	ellip	Ti(Cu coated)
2280.243	YAB4	114.055	483.257	0.	1.	1.	ellip	Ti(Cu coated)

New vertical  $\beta_y$  –spoiler half-gap:  $a_y=0.08$  mm (previously  $a_y=0.102$  mm)

E-spoiler half-gap:  $a_x=D_x\delta$  ( $\delta=\pm 1.3$  %)

# Collimation depths



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