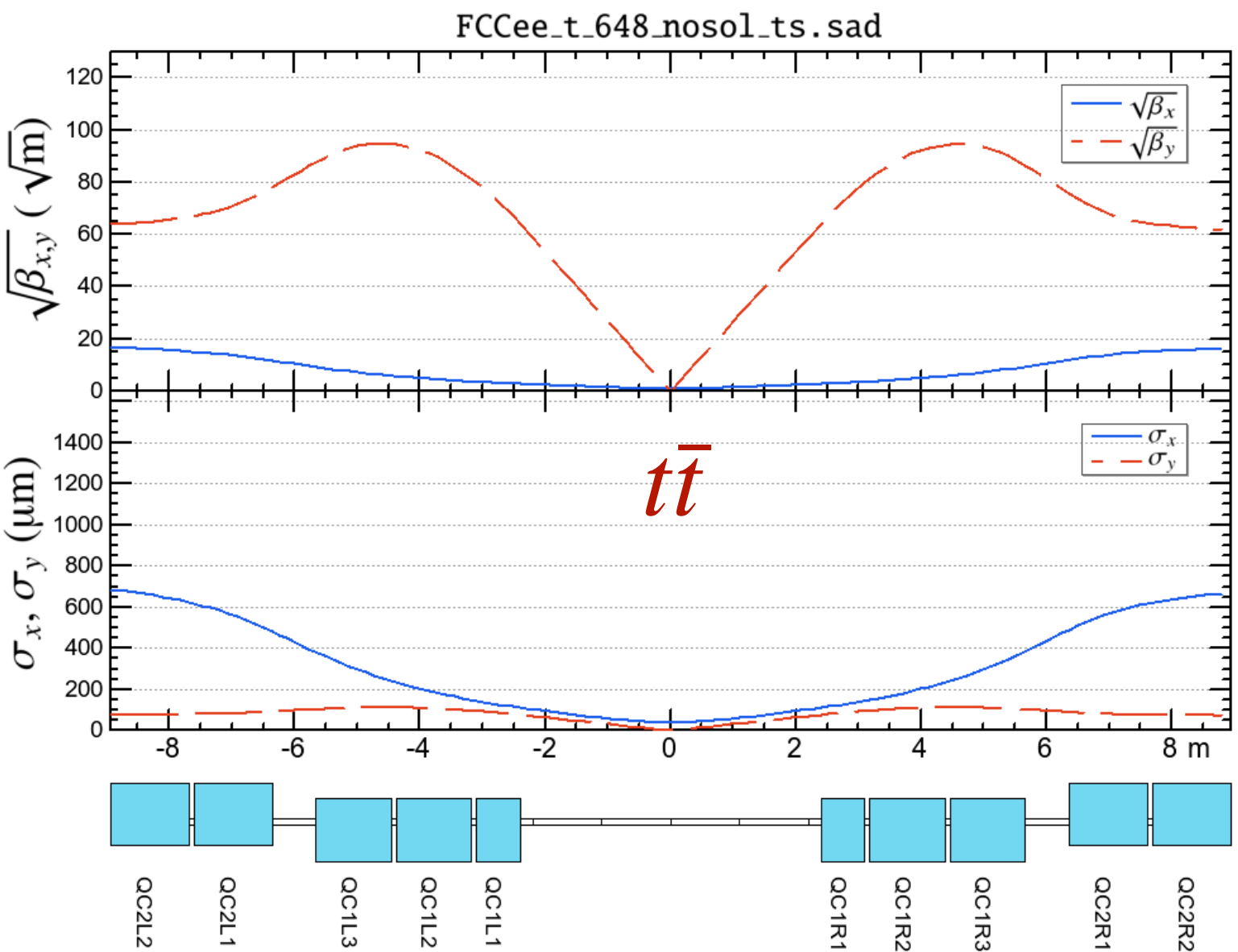
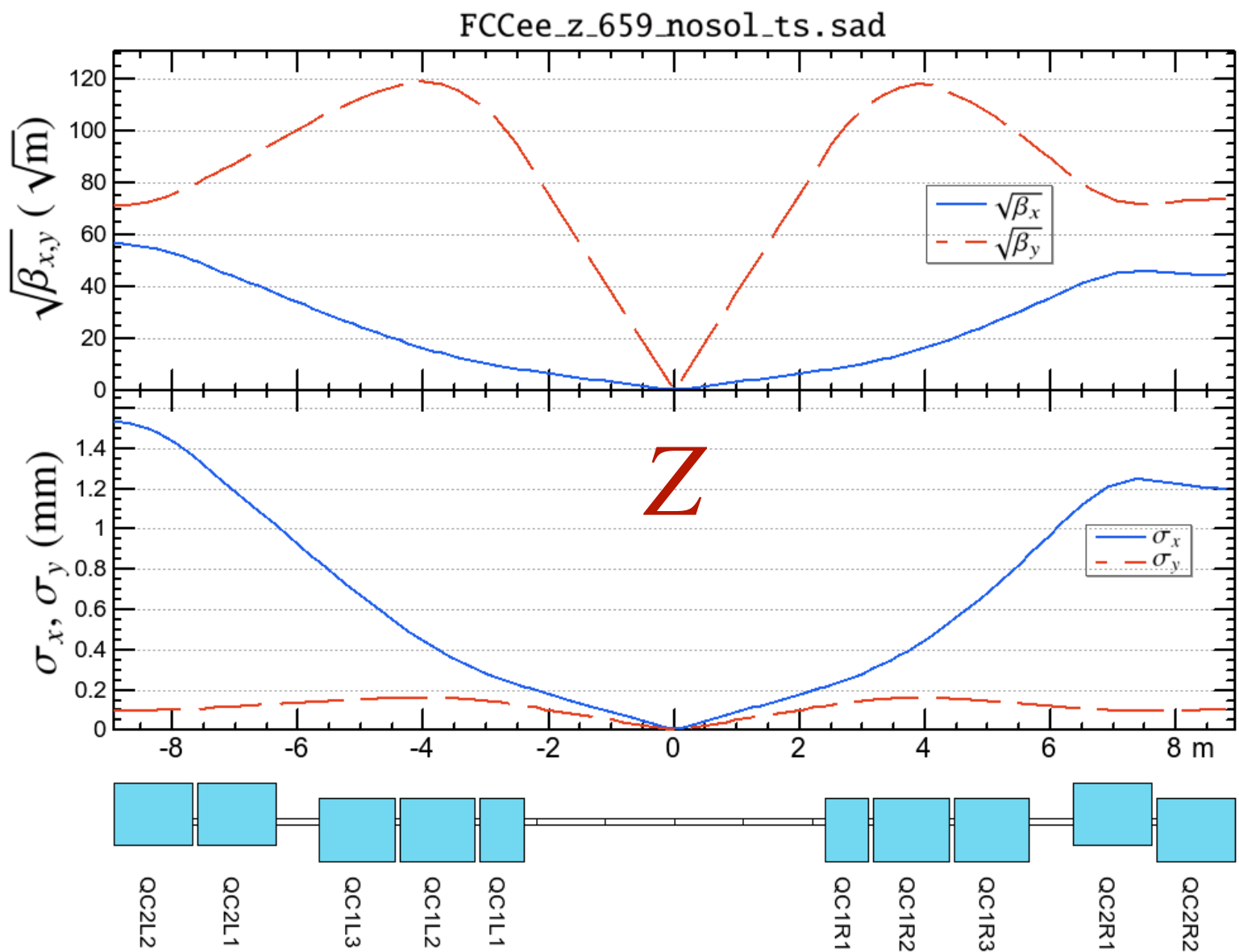


GHC optics and beam sizes @ collision



Quad	L	B' @ Z	B' @ tt
QC2L2	1.25	20.331275	29.804212
QC2L1	1.25	0.764186	65.239609
QC1L3	1.2	-6.834041	-89.069195
QC1L2	1.2	-26.249839	-89.755058
QC1L1	0.7	-43.930843	-99.998576
QC1R1	0.7	-43.930843	-99.998576
QC1R2	1.2	-30.971965	-90.726139
QC1R3	1.2	-9.774418	-97.61654
QC2R1	1.25	34.958893	86.458409
QC2R2	1.25	-2.420649	16.852788

- These are the β 's and the beam sizes at collision of the GHC optics through the final quads for Z and $t\bar{t}$, at FCC Week 2025.
- The length and field gradient of each segment is listed in the table above.
- There are rooms for further optimization in their positions, lengths, and strengths.