Muon Collider putative parameters

√s (TeV)	1.5	3
Av. Luminosity / IP (10^{34}/cm^2/s)	1	4
Max. bending field (T)	10	14
Av. bending field in arcs (T)	8	12
Circumference (km)	2.6	4
No. of IPs	2	2
Repetition Rate (Hz)	15	12
Beam-beam parameter/IP	0.1	0.1
β* (cm)	1	0.5
Beam size @ IP (μm)	6	3
Bunch length (cm)	1	0.5
No. bunches / beam	1	1
No. muons/bunch (10^{12})	2	2
Norm. Trans. Emit. (μm)	25	25
Energy spread (%)	0.1	0.1
Norm. long. Emit. (m)	0.07	0.07
Total RF voltage (MV) at 800MHz	60	700
SR losses/turn (keV)	60	350
μ+ in collision / 8GeV proton	0.008	0.007
8 GeV proton beam power (MW)	4.8	4.3

$$\langle \mathcal{L} \rangle = f_0 \frac{n_b N_\mu^2}{4\pi\varepsilon_\perp \beta^*} h \times \frac{1}{2} \tau f_{rep} \sim \frac{P_\mu \xi}{C\beta^*} h \tau$$

Pμ – average muon beam power (~ γ)

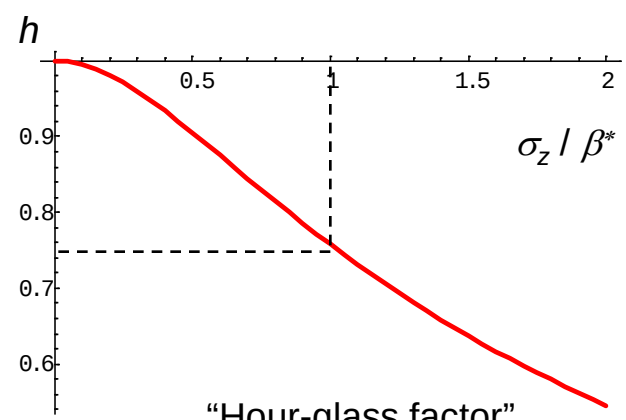
$$\xi = \frac{r_\mu N_\mu}{4\pi\gamma\varepsilon_\perp}$$ – beam-beam parameter

$\gamma\varepsilon_\perp$ – normalized emittance

C – collider circumference (~ γ if B=const)

τ – muon lifetime (~ γ)

β* – beta-function at IP



"Hour-glass factor"