THERA Machine Parameters

electron beam parameters	
electron energy	$E_e = 250\,\mathrm{GeV}$
number of electrons per bunch	$N_e = 2 \times 10^{10}$
bunch length	$\sigma_{se} = 0.3\,\mathrm{mm}$
invariant emittance	$\varepsilon = 100 \times 10^{-6}\,\mathrm{m}$
beta function at IP	$\beta_{x,y} = 0.5\,\mathrm{m}$
electron tune shift	$\Delta\nu_y = 0.228$
disruption	$D = 0.02$
bunch spacing	$t_{be} = t_{bp} = 211.37\,\mathrm{ns}$
RF frequency	$f = 1301\,\mathrm{MHz}$
accelerating gradient	$g = 23.4\,\mathrm{MV/m}$
beam pulse length	$T_p = 1.19\,\mathrm{ms}$
number of bunches	$56 \times (94 + 6$ empty bunches$)$
duty cycle	$d = 0.5\%$
repetition rate	$f_r = 5\,\mathrm{Hz}$
beam power	$P_b = 22.6\,\mathrm{MW}$

proton beam parameters	
proton energy	$E_p = 1\,\mathrm{TeV}$
number of protons per bunch	$N_p = 10^{11}$
number of bunches	$N_{pb} = 94$
beam current	$I_p = 71\,\mathrm{mA}$
bunch length	$\sigma_p = 10\,\mathrm{cm}$
beta functions at IP	$\beta^*_{xp} = 10\,\mathrm{cm}$
normalised emittance	$\varepsilon_p = 1 \times 10^{-6}\,\mathrm{m}$
IBS growth time transv./long.	$\tau_s = 2.88\,\mathrm{h}$, $\tau_x = 2.0\,\mathrm{h}$

collider parameters	
hourglass reduction factor	$R = 0.9$
crossing angle	$\theta = 0.05\,\mathrm{mrad}$
luminosity	$L = 4.1 \times 10^{30}\,\mathrm{cm}^{-2}\,\mathrm{s}^{-1}$