I have taken $E_p \approx 3 \cdot 10^{-4} \mu J$, $w = 34 \mu m$, ablation thickness $= 9.3 \mu m$. I previously only plotted 20%, 40%,..., 100% ablation cases, but it seemed that the interesting enough magnitudes of fluctuations began at below 30% and I decided to do a more thorough synthesis of data. Also, I have corrected a minor error in the ellipticization of the Gaussian beams and have used a big ($100\mu m$ by $100\mu m$, resolution = 40nm per unit length) matrix for the beam to weed out errors due to margins having a much higher energy density than a sane threshold for calculations. All this boils down to the following two figures, the data are in two csv files and you can select which values to keep and plot as you wish. Especially $> 40\,\%$ does not seem to convey much in the plot and may be left out and be mentioned elsewhere.

Fig1a.csv includes the Loss % values for Figure 1a, first line is for 80% ablated, the rest are for: 70,60,50,40,30,25,20,15,10 %. The last line is the x axis. Fig1b.csv includes the % Change in Loss over Mean Loss values, the first line is the y-axis, the second one is the x-axis.

Finally, I should mention that I have changed the energy density function of the elliptical variants of Gaussian beams. It now reads as: $J(x,y) = \frac{2E_p \cos(\theta_{brew})}{\pi w^2} e^{-2\left(\frac{x^2}{w^2/\cos^2(\theta_{brew})} + \frac{y^2}{w^2}\right)}$. Apart from the sin/cos mistake, there was a problem with taking E_p as is, like in the Gaussian beam formula. It should be multiplied by $\cos(\theta)$ so that the integral of $J(x,y)$ over the whole x-y plane comes out as E_p, as expected.

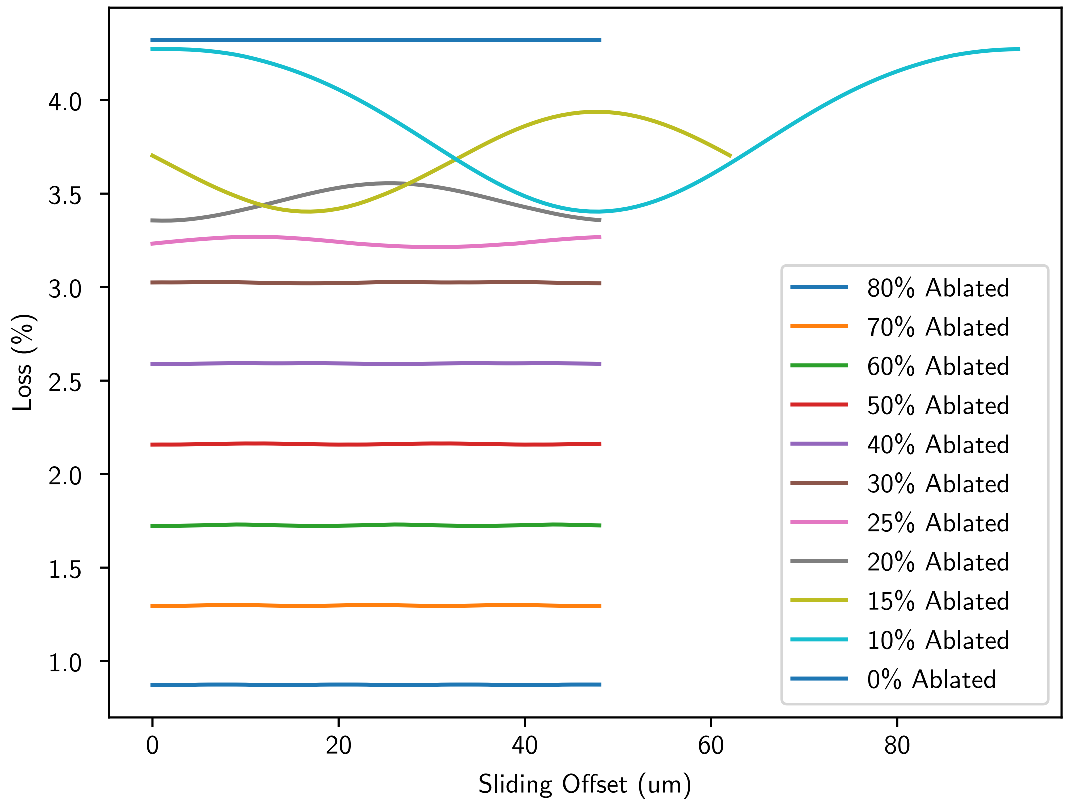

Figure 1a

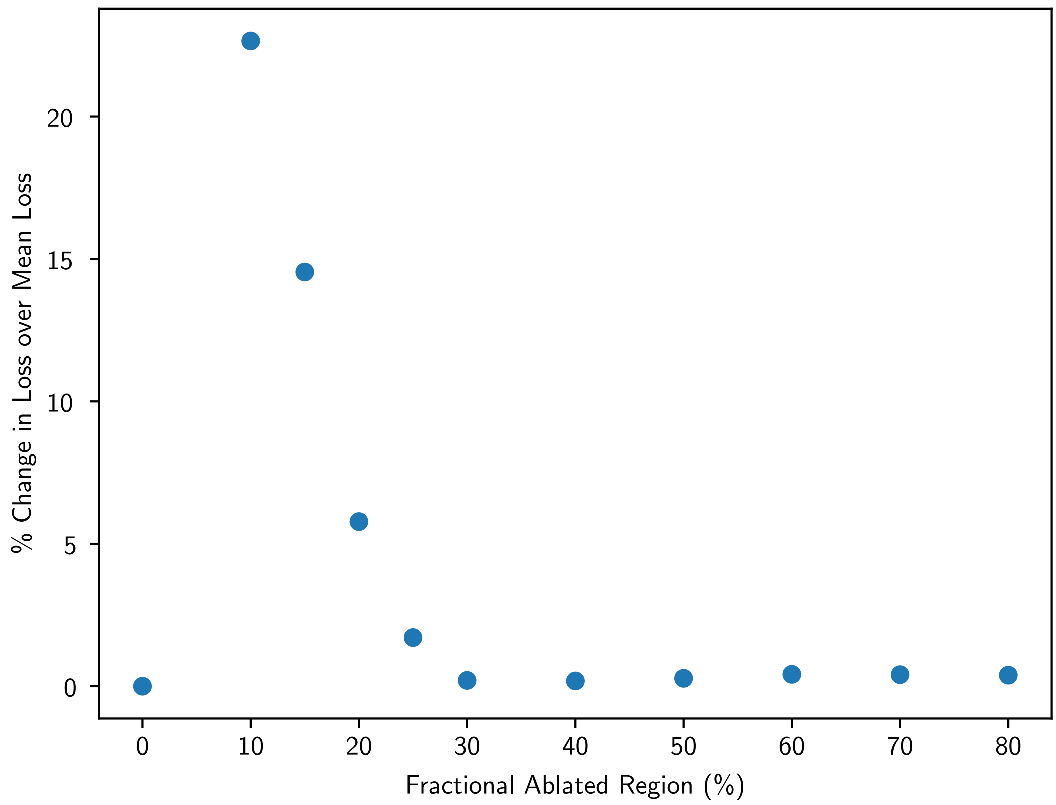
20
15
10
5
0
% Change in Loss over Mean Loss
0
10
20
30
40
50
60
70
80
Fractional Ablated Region (%)

Figure 1b