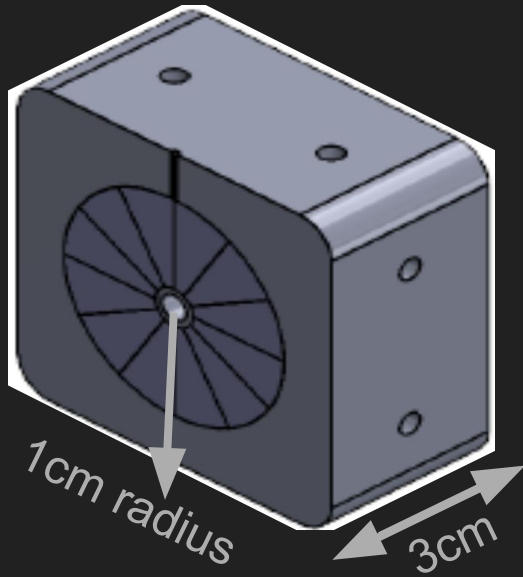


PoPLaR Meeting

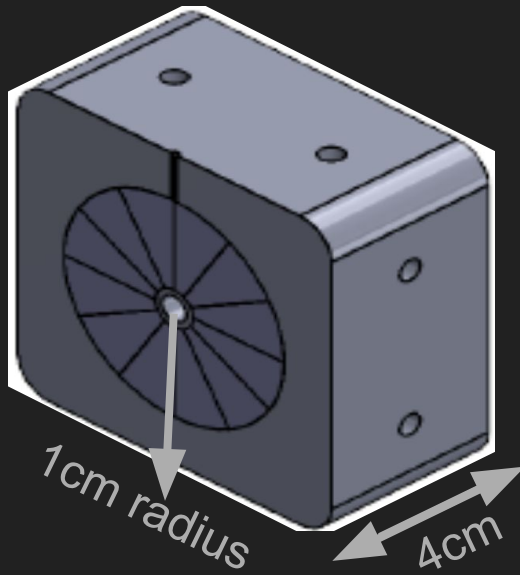
11/07/2024

3 Quad combination

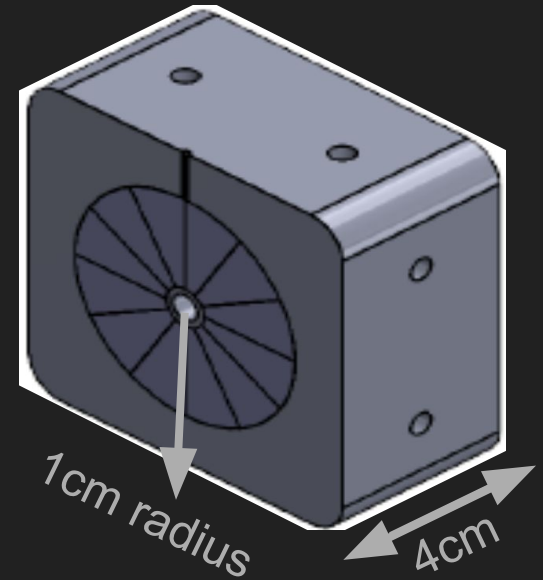
Focusing quad



Defocusing quad



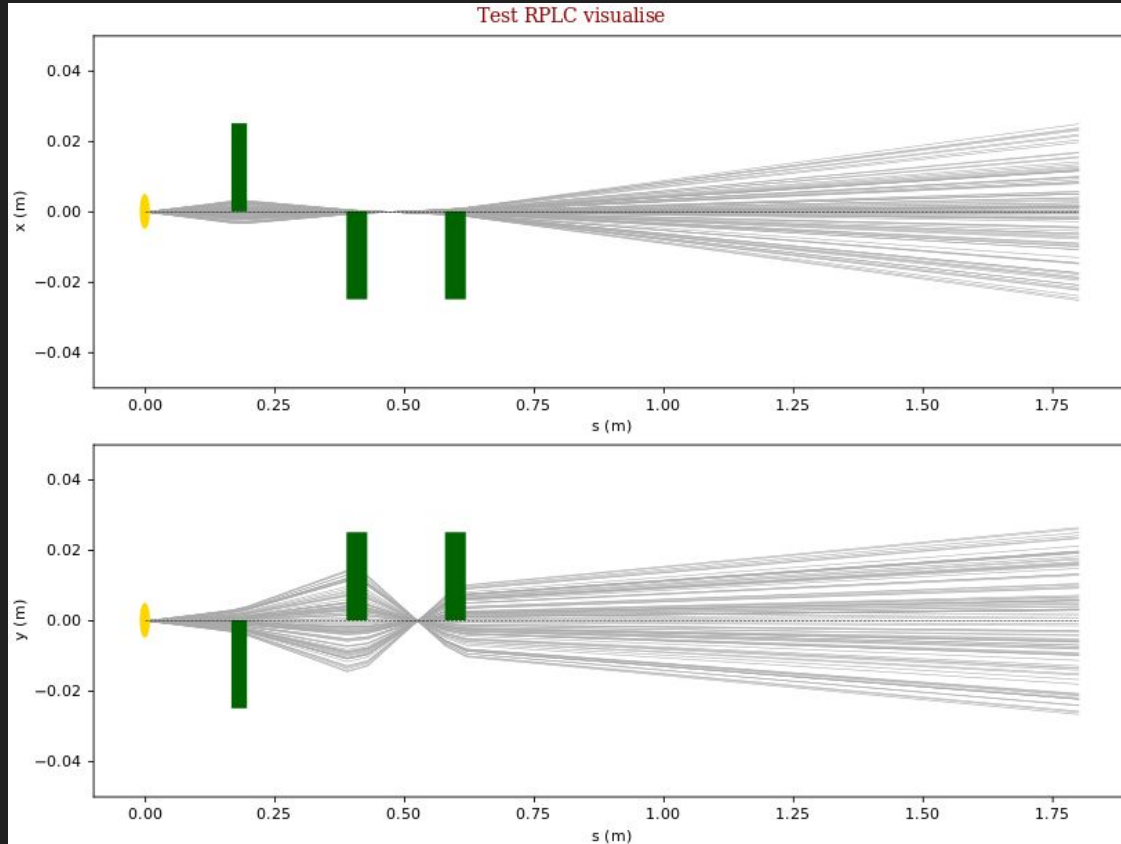
Defocusing quad 2



Quads were optimised 3 ways

1. By symmetry- making the x and y dimensions as similar as possible at the final delivery.
2. By gradient- making the beam as horizontal as possible when arriving to the sample.
3. A combination of both (perhaps not as sophisticated)

10 MeV beam profile- symmetric optimisation



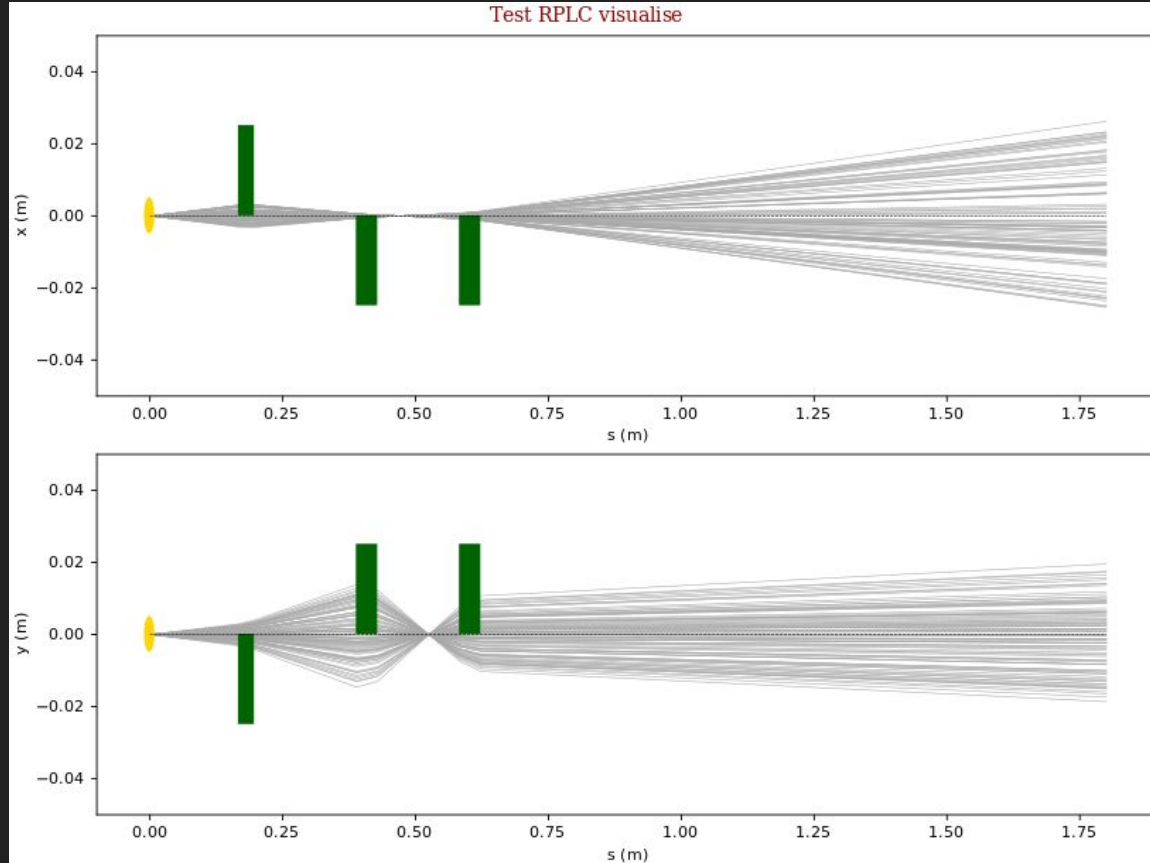
Drift 1- 16.7cm

Drift 2- 19.2cm

Drift 3- 15cm

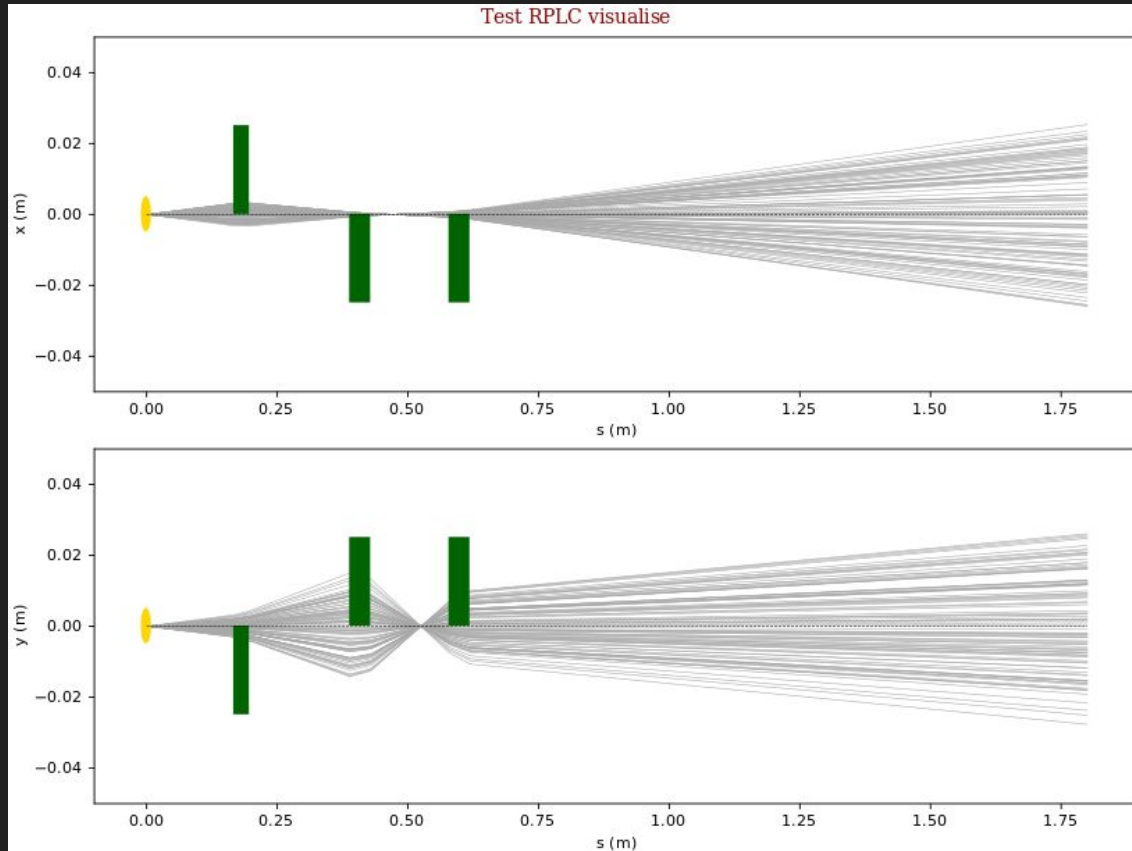
Drift 4- 1.181m

10 MeV beam profile- gradient optimisation



Drift 1- 16.7cm
Drift 2- 19.2cm
Drift 3- 15.4cm
Drift 4- 1.77m

10 MeV beam profile- combined optimisation



Drift 1- 16.7cm
Drift 2- 19.2cm
Drift 3- 15cm
Drift 4- 1.181m

Next steps

1. Add apertures & collimators
2. Move first quad doublet closer to the source by limiting the search space of the gaussian
3. Repeat for other energies
4. Plot the particle progression plots to see the spot size and distribution of the beam/ energy at the source