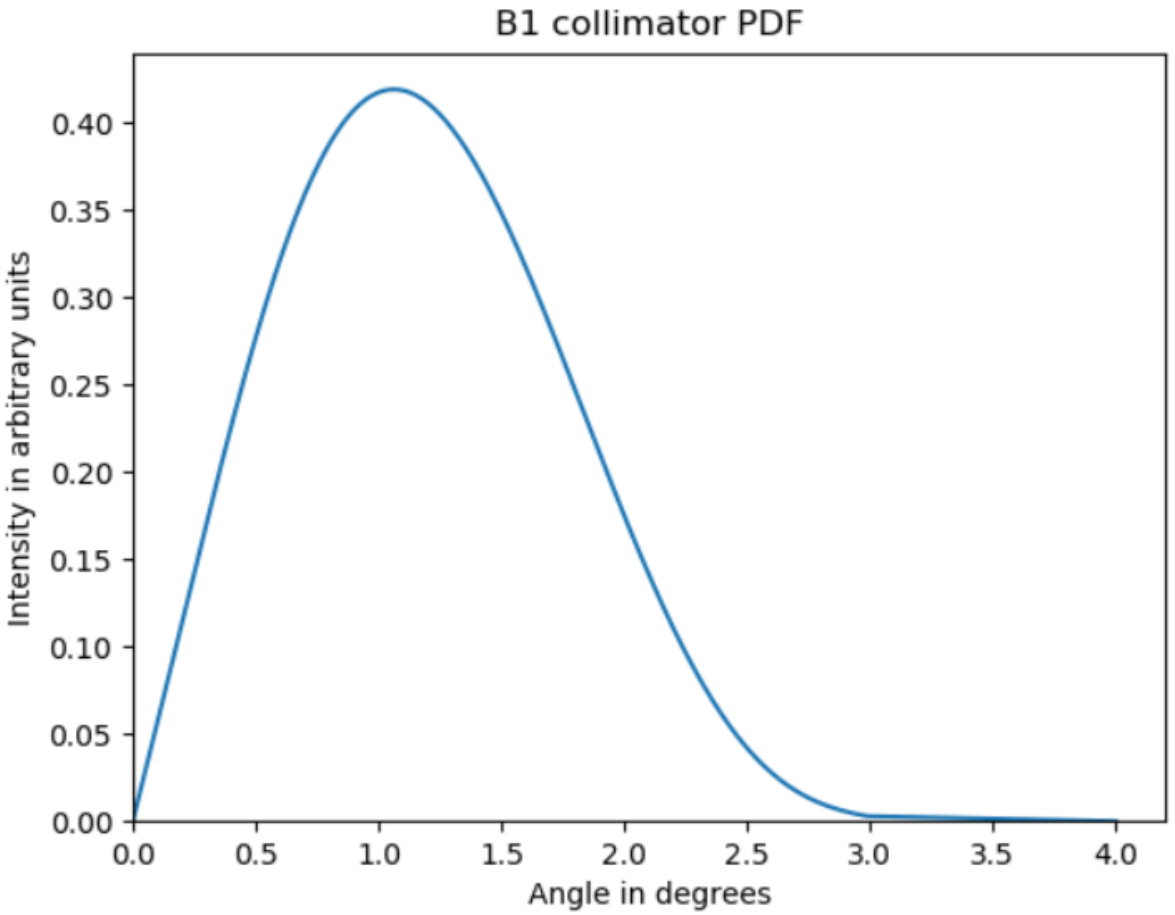
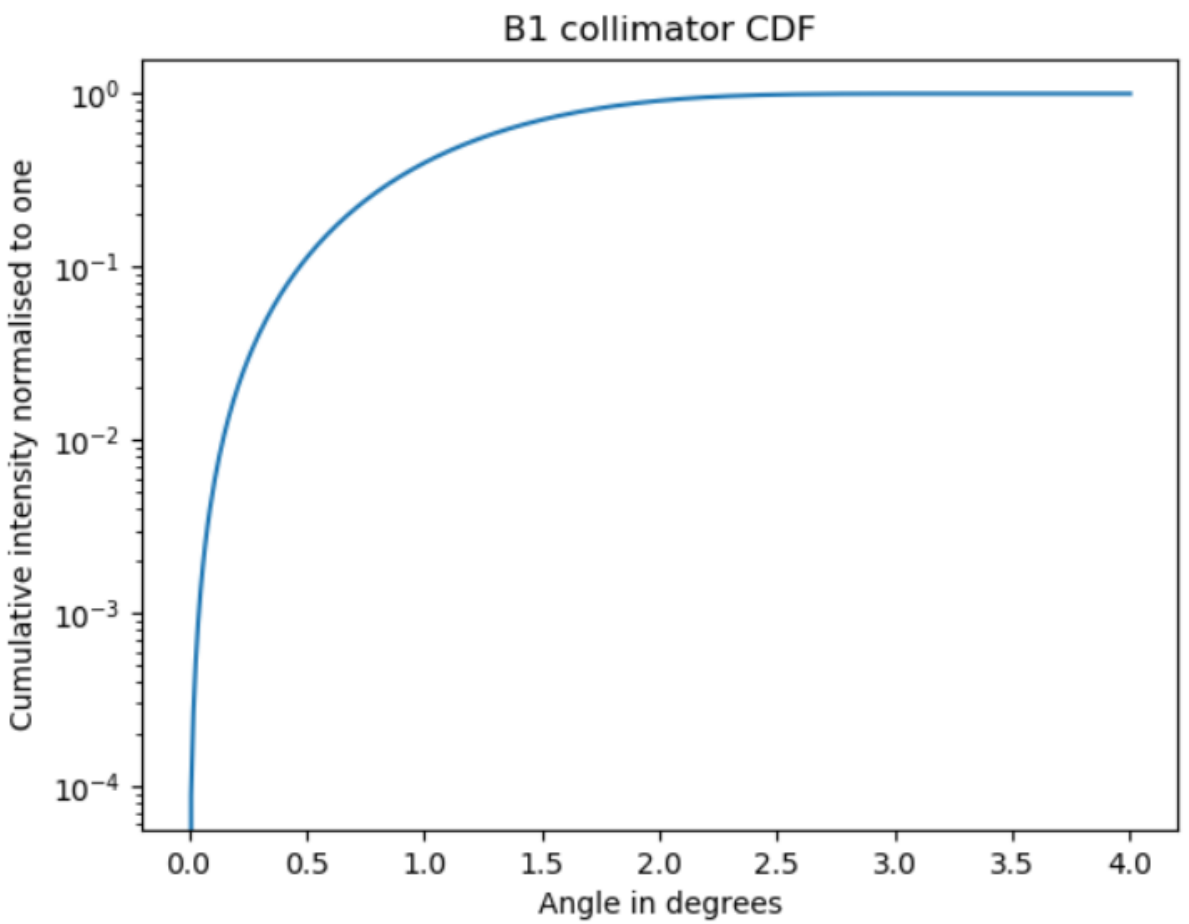
Collimator profile implementation update

Pruthvi Mehta

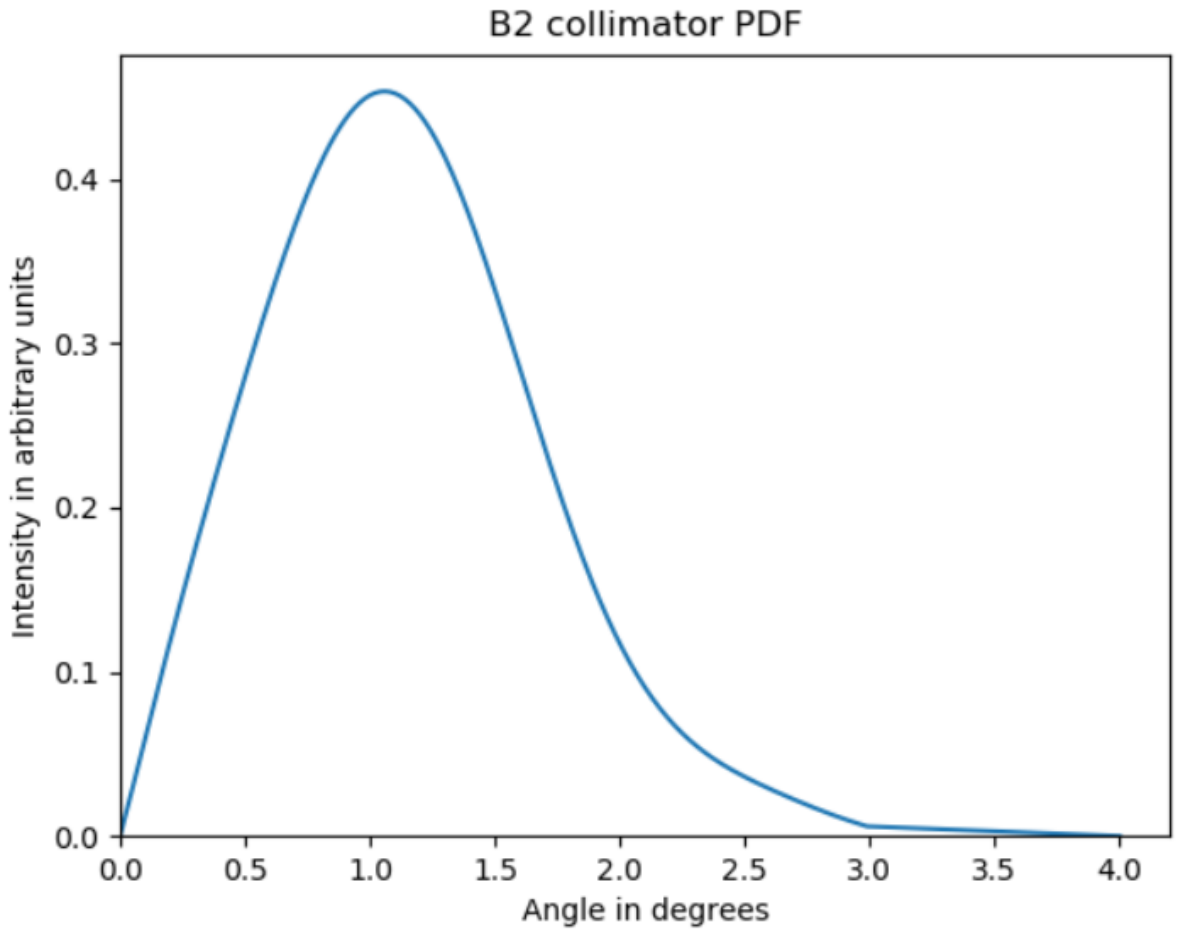
Modified profile plots –B1

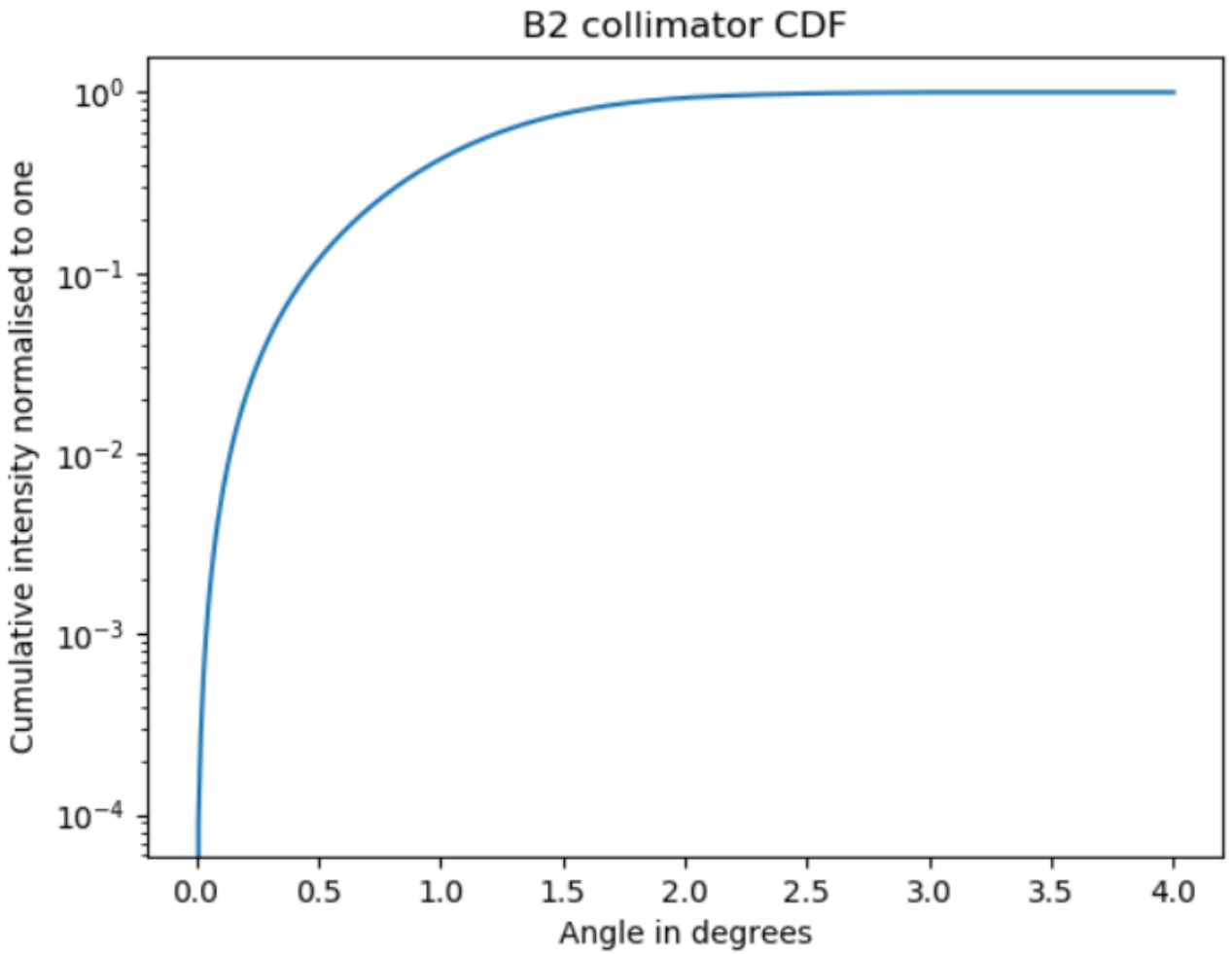
- Linearly extrapolated plot to include 4degrees
- Log scale for CDF



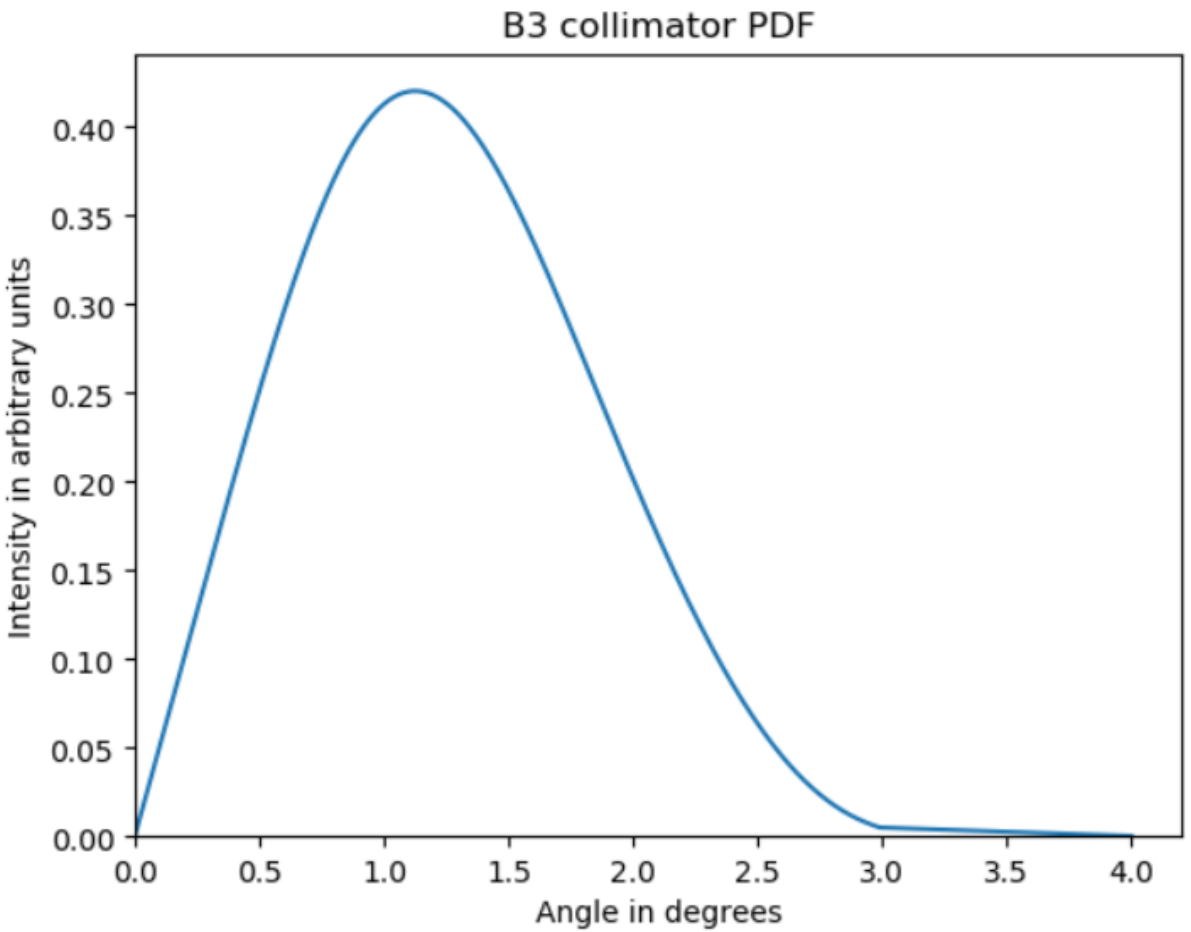


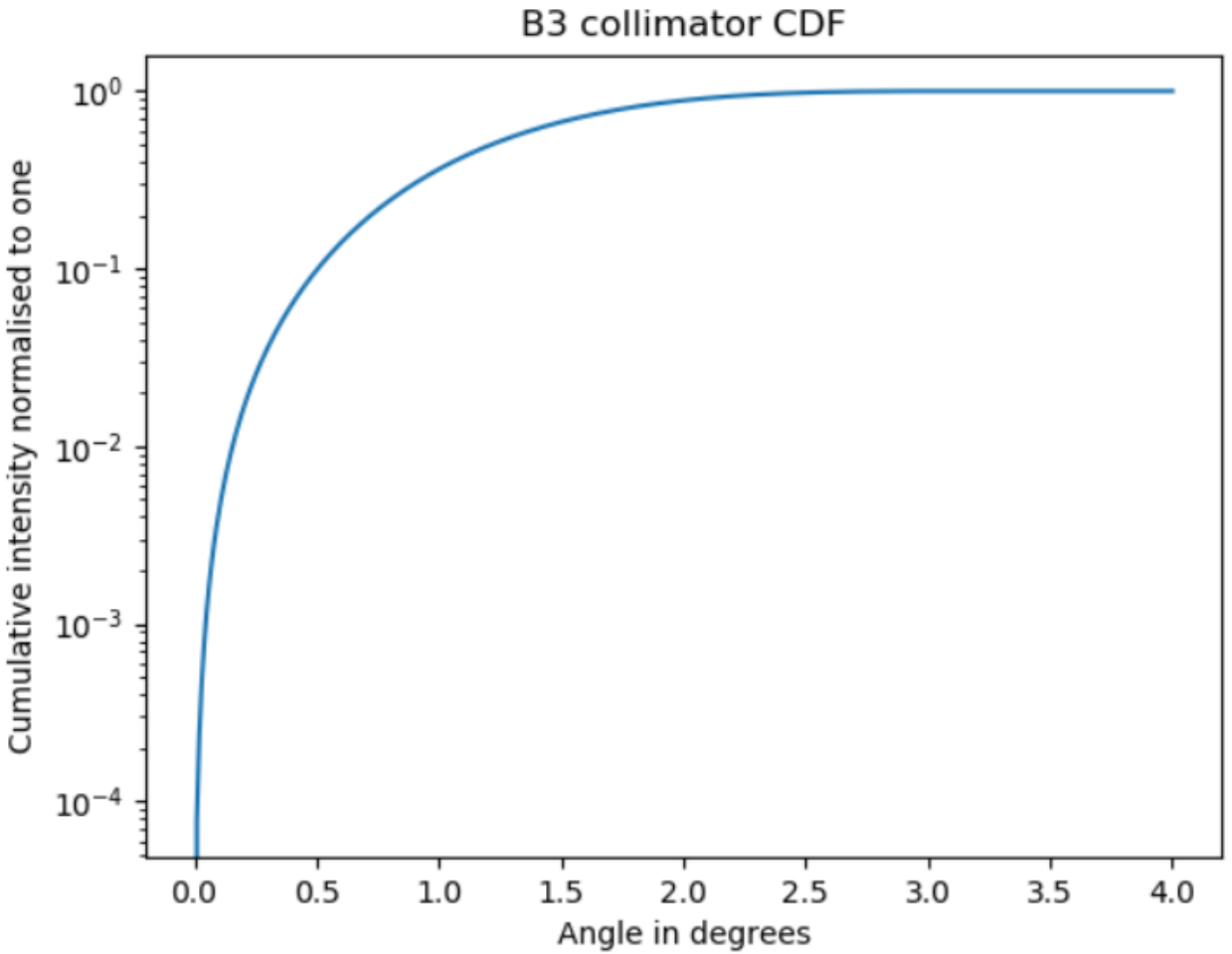
Modified profile plots-B2



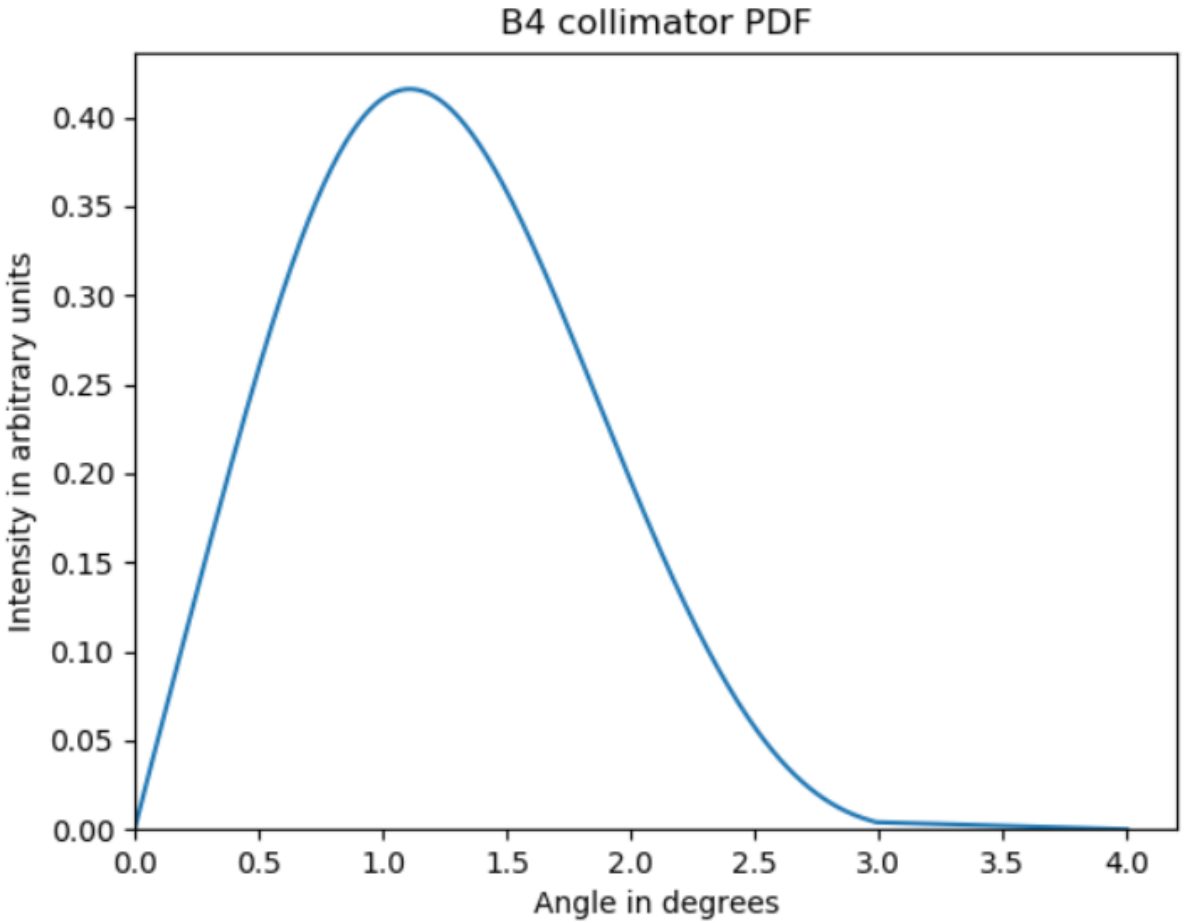


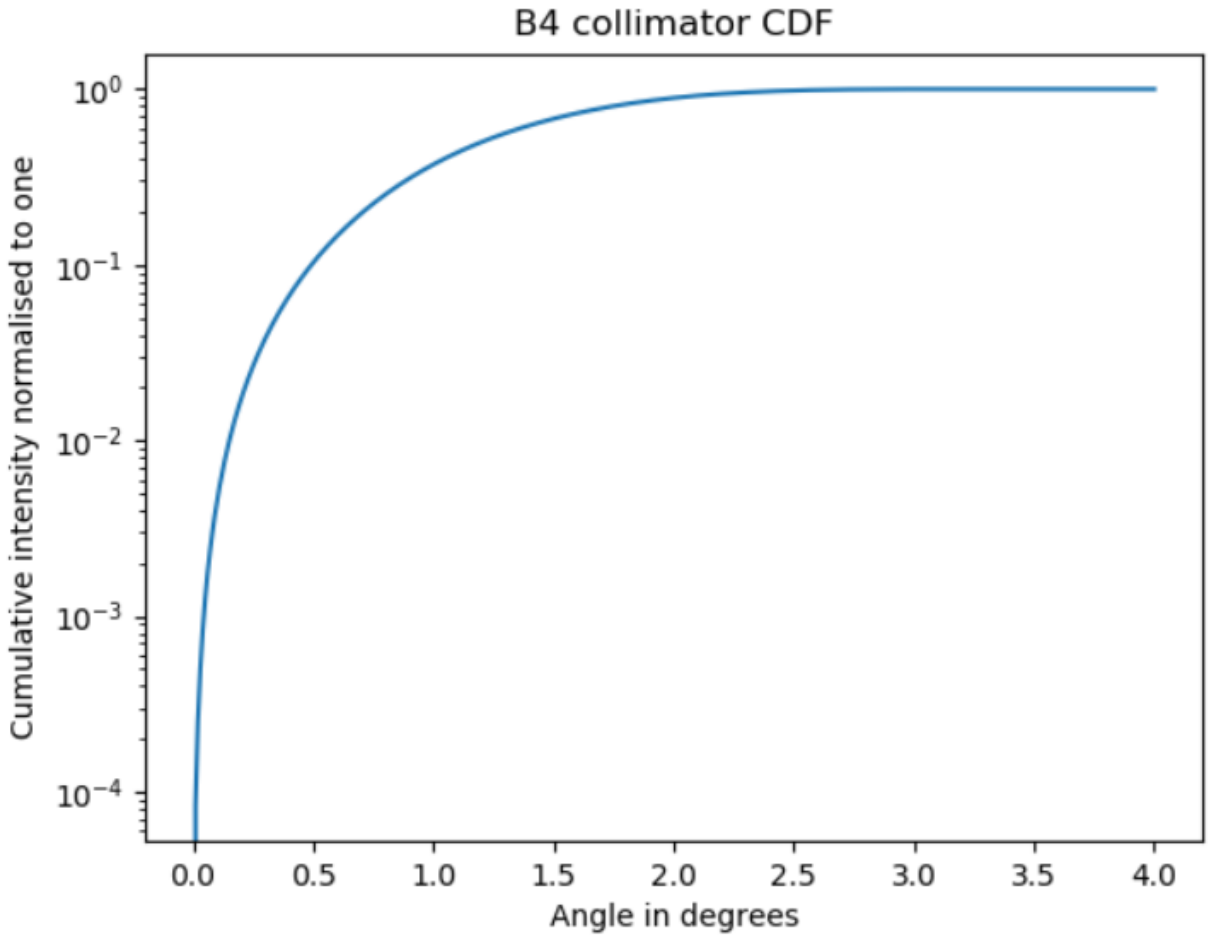
Modified profile plots – B3



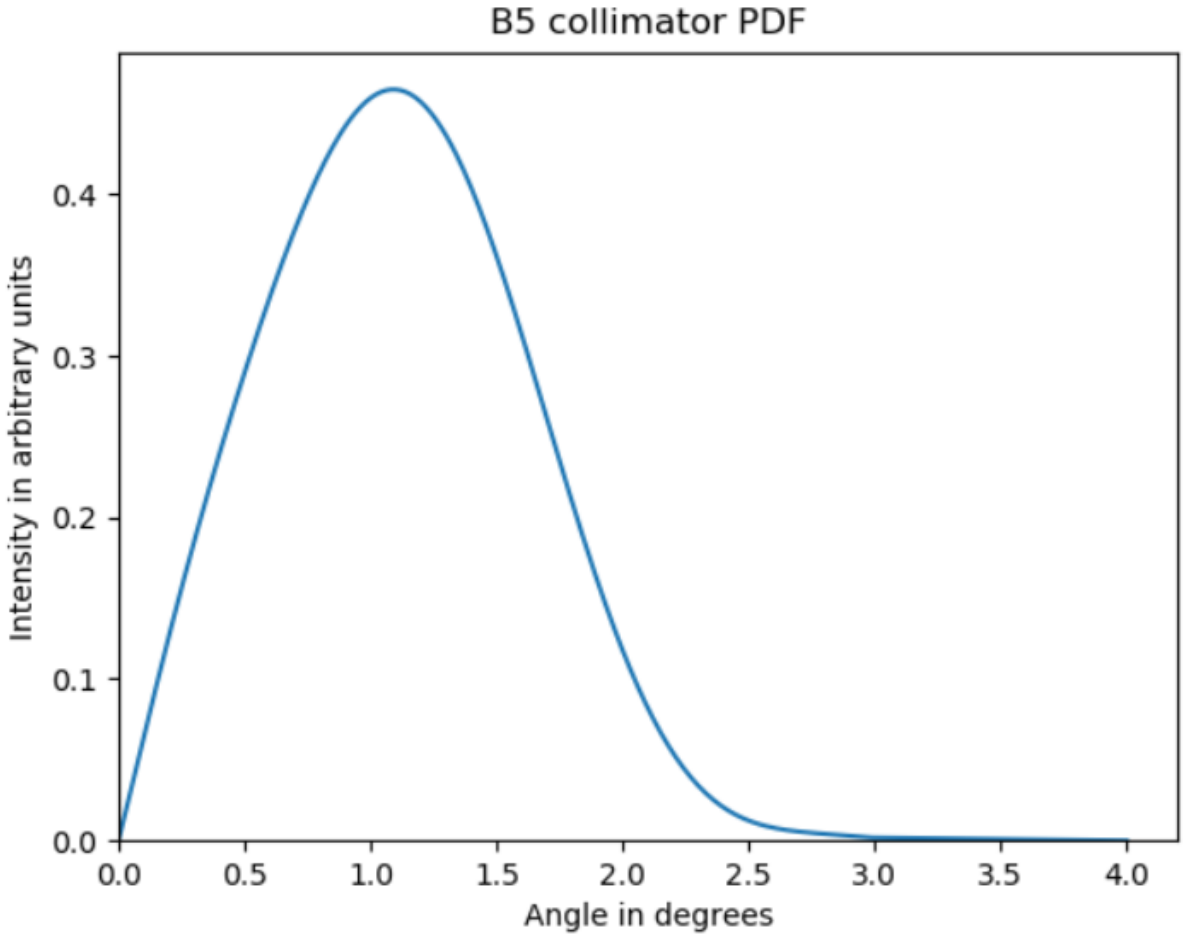


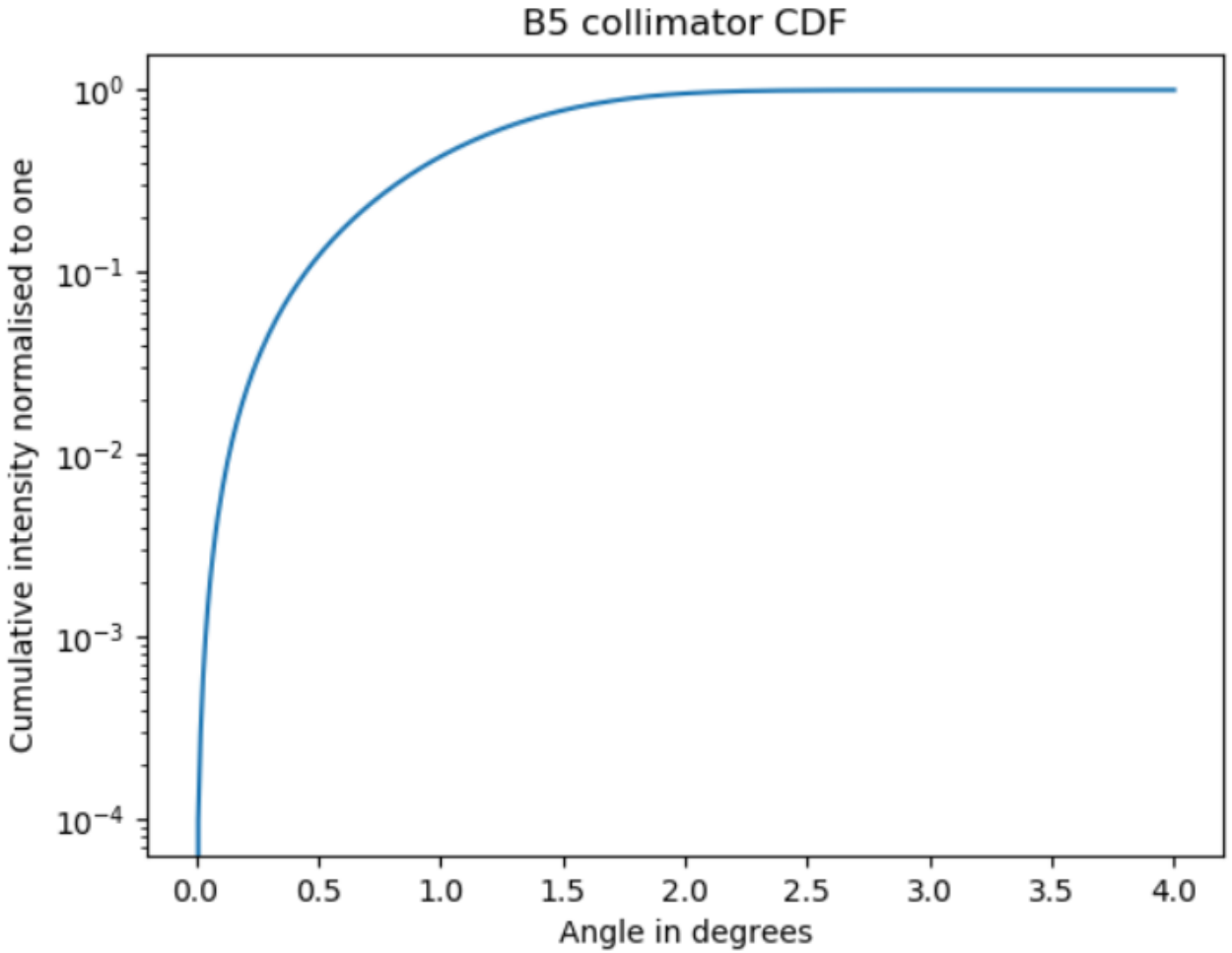
Modified profile plots –B4





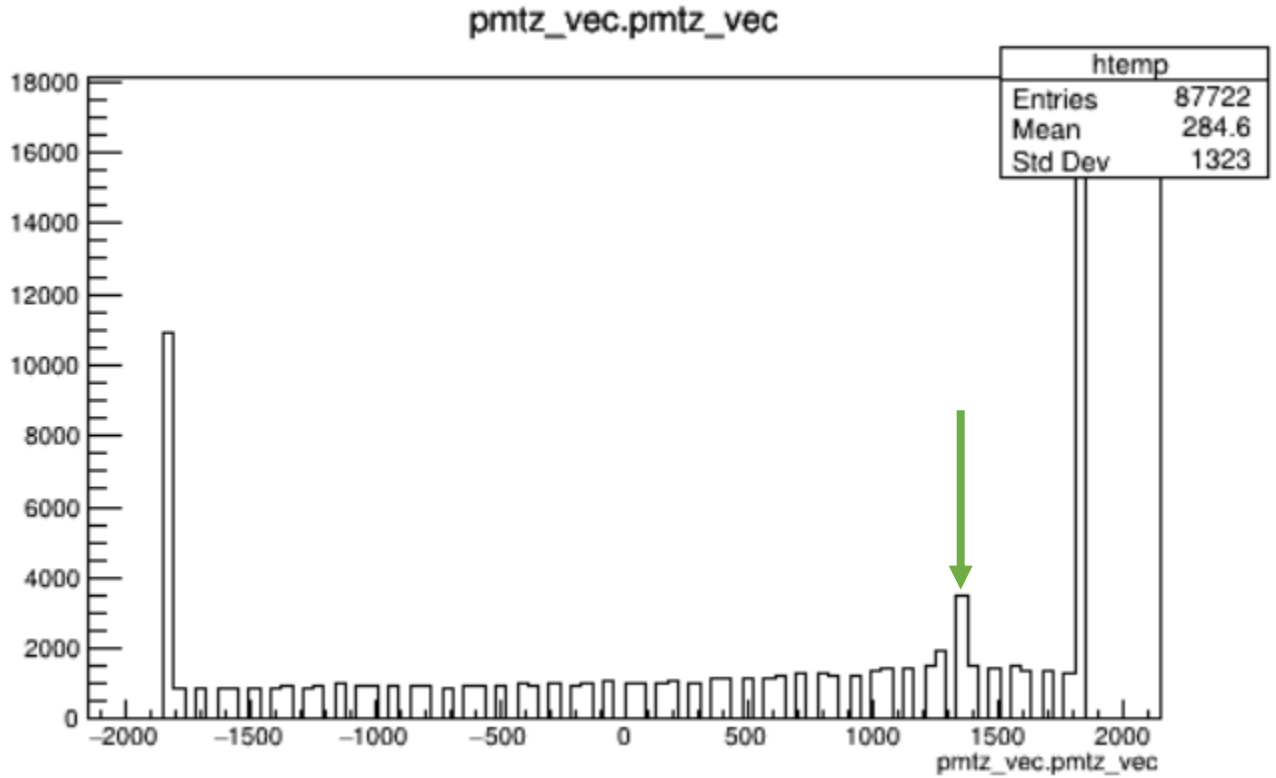
Modified profile plots –B5





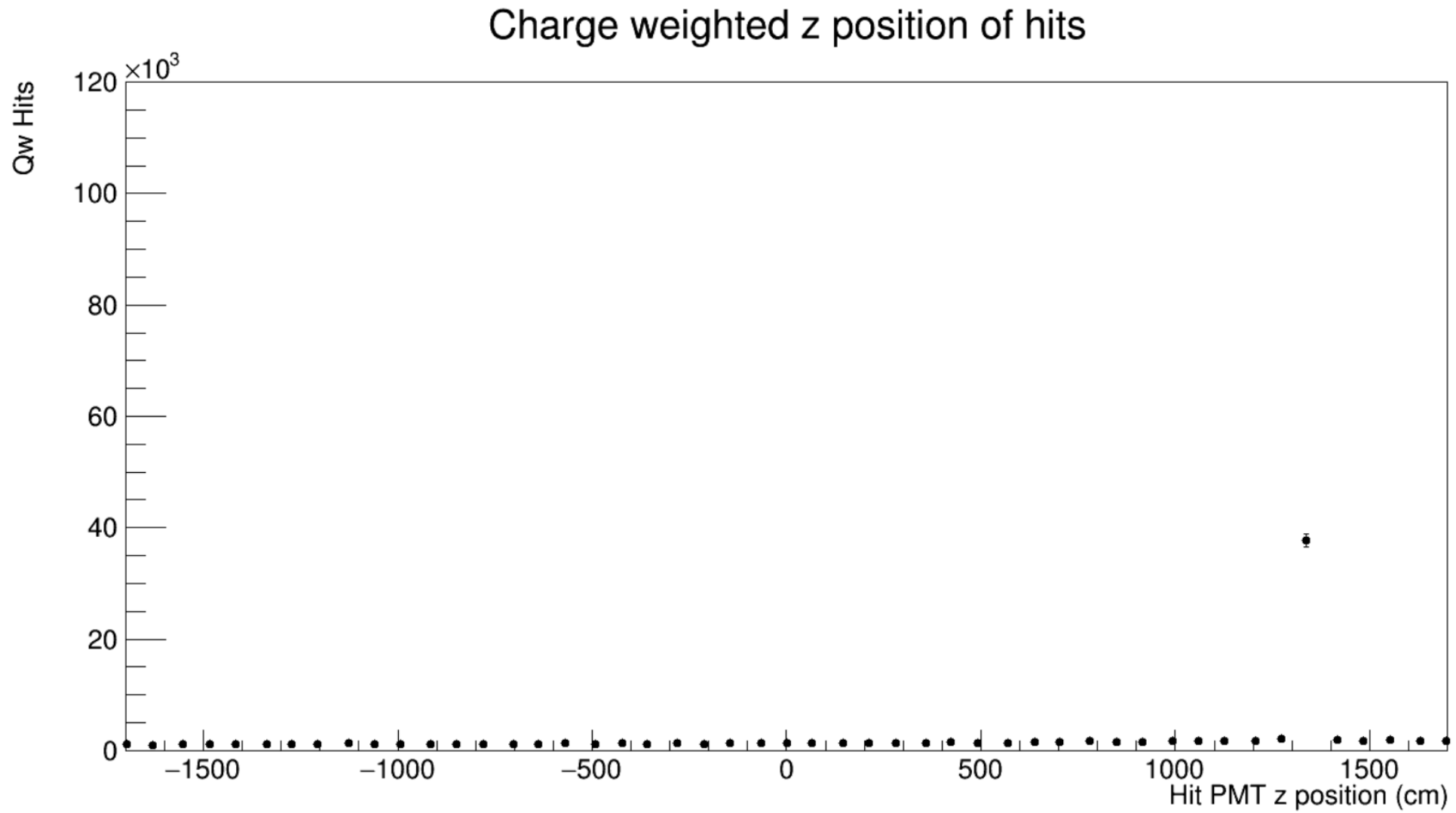
Perfect uniform collimator profile implementation –B1

- The setup is producing data files
- For this test:
  - B1 collimator
  - 1000 events
  - 4000 photons
  - Abs = 1.7
  - Ray = 0.8
  - Mie = 0.5



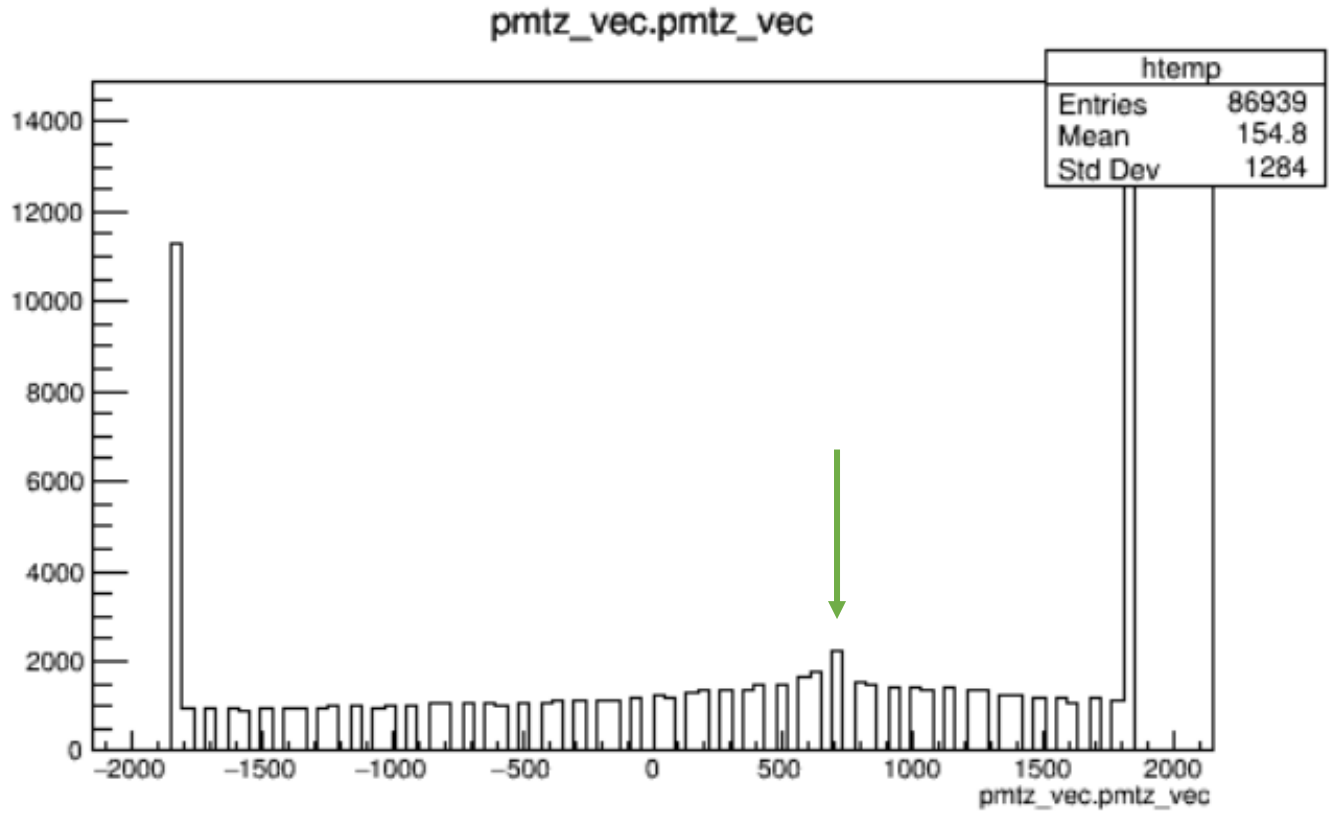
Increased hits in area where B1 hits should be z = 1303 cm

Charge weighted beam plot for B1 perfect coll



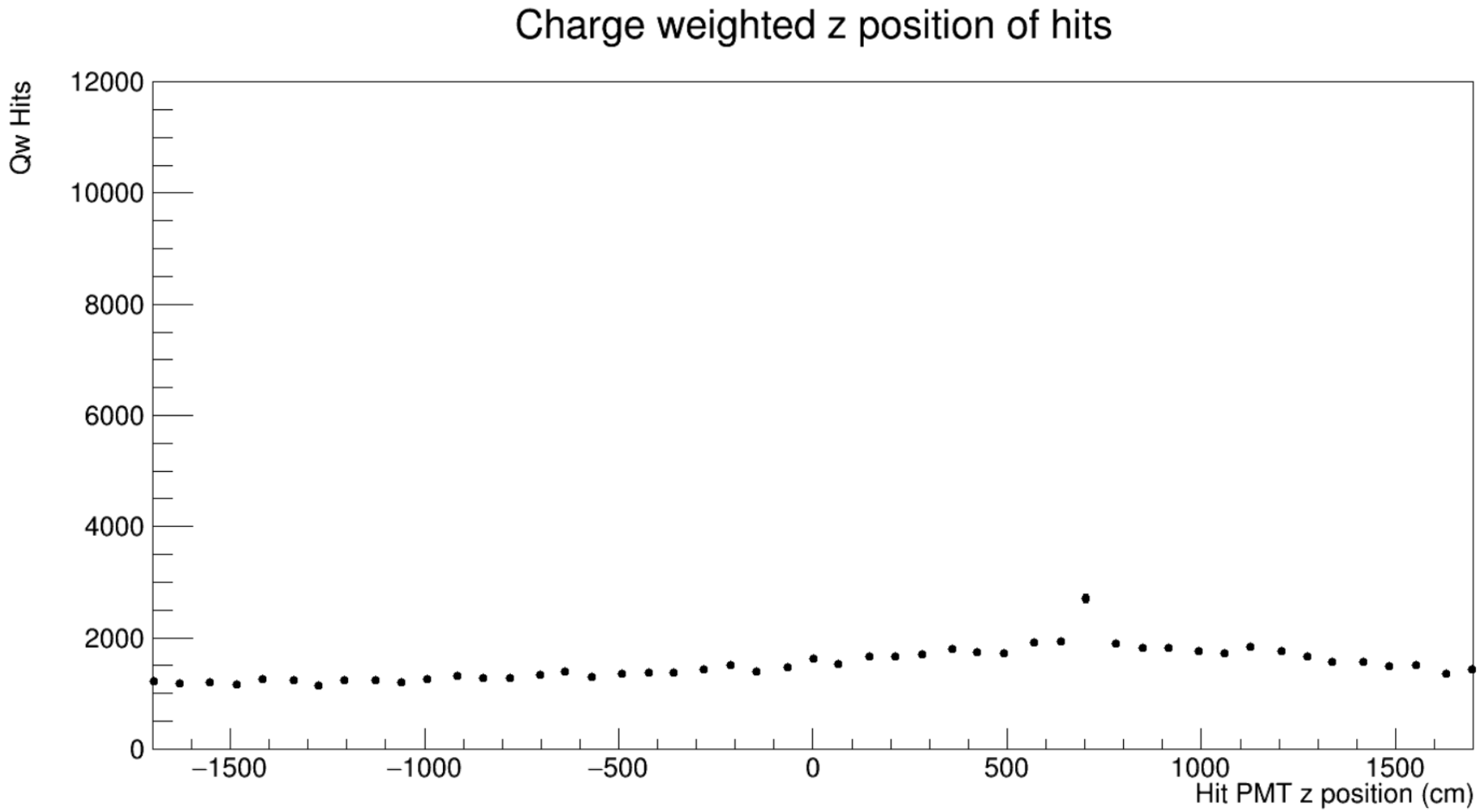
Perfect uniform collimator profile implementation –B2

- For this test:
  - B2 collimator
  - 1000 events
  - 4000 photons
  - Abs = 1.7
  - Ray = 0.8
  - Mie = 0.5



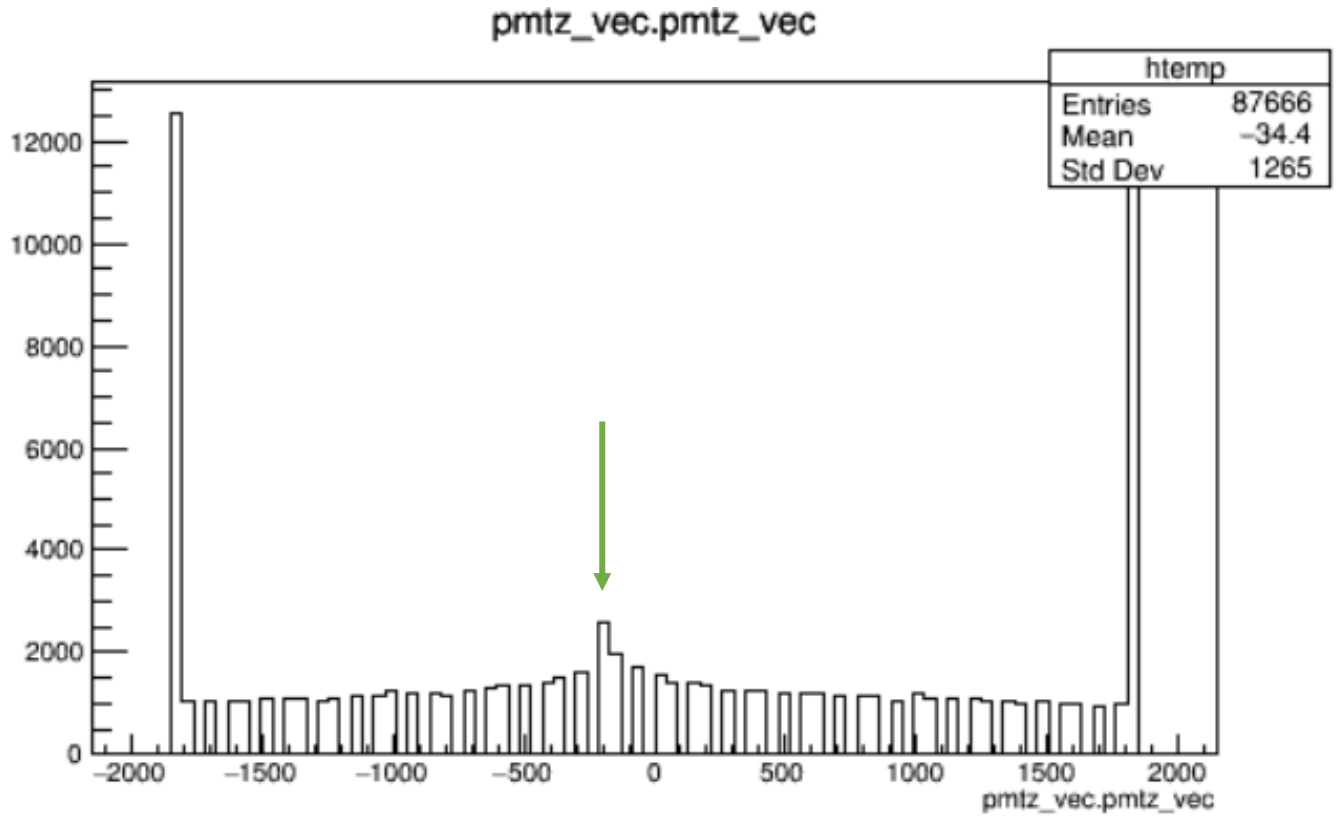
Increased hits in area where B2 hits should be z = 667 cm

Perfect uniform collimator profile implementation –B2



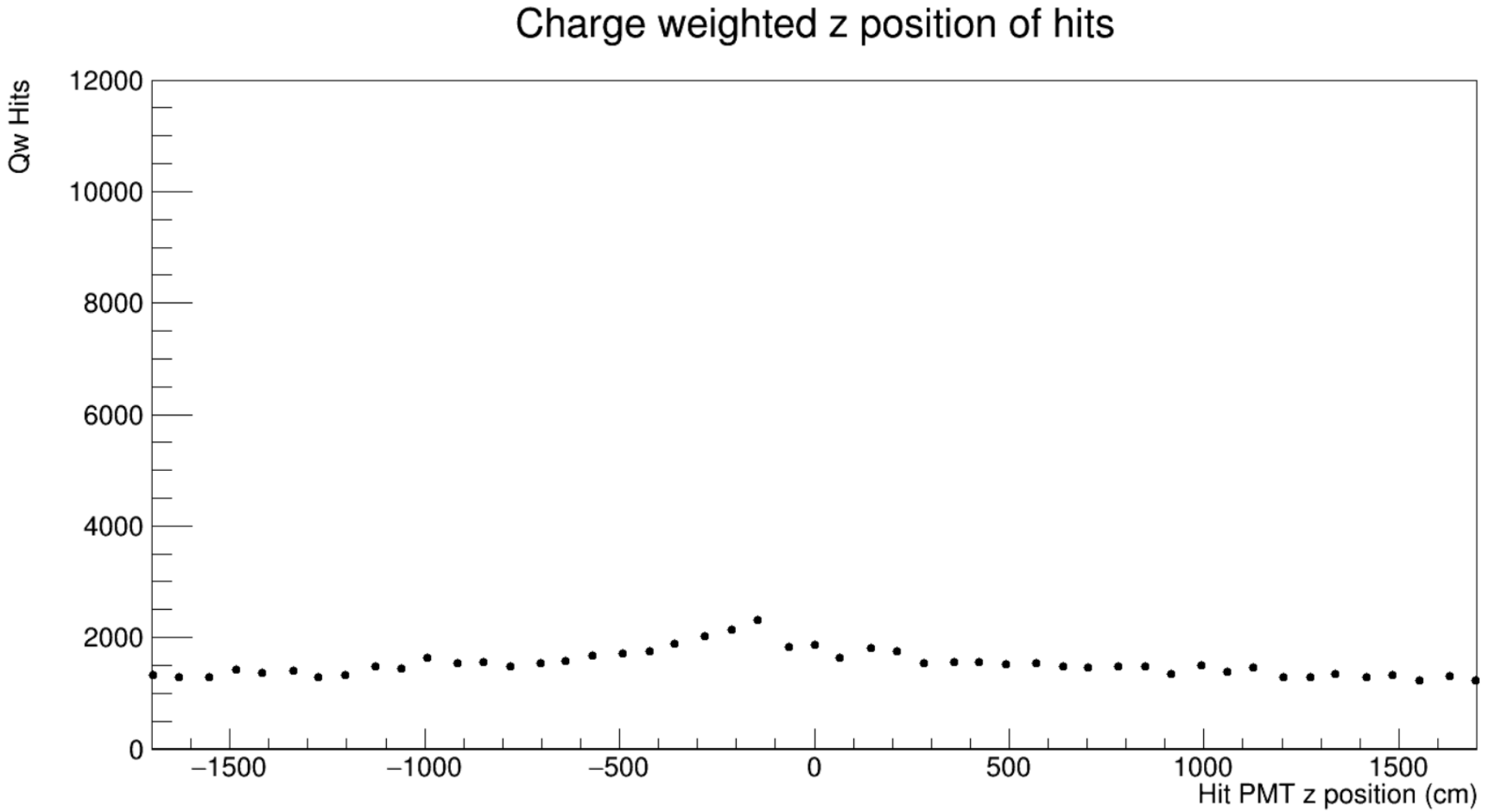
Perfect uniform collimator profile implementation –B3

- For this test:
  - B3 collimator
  - 1000 events
  - 4000 photons
  - Abs = 1.7
  - Ray = 0.8
  - Mie = 0.5



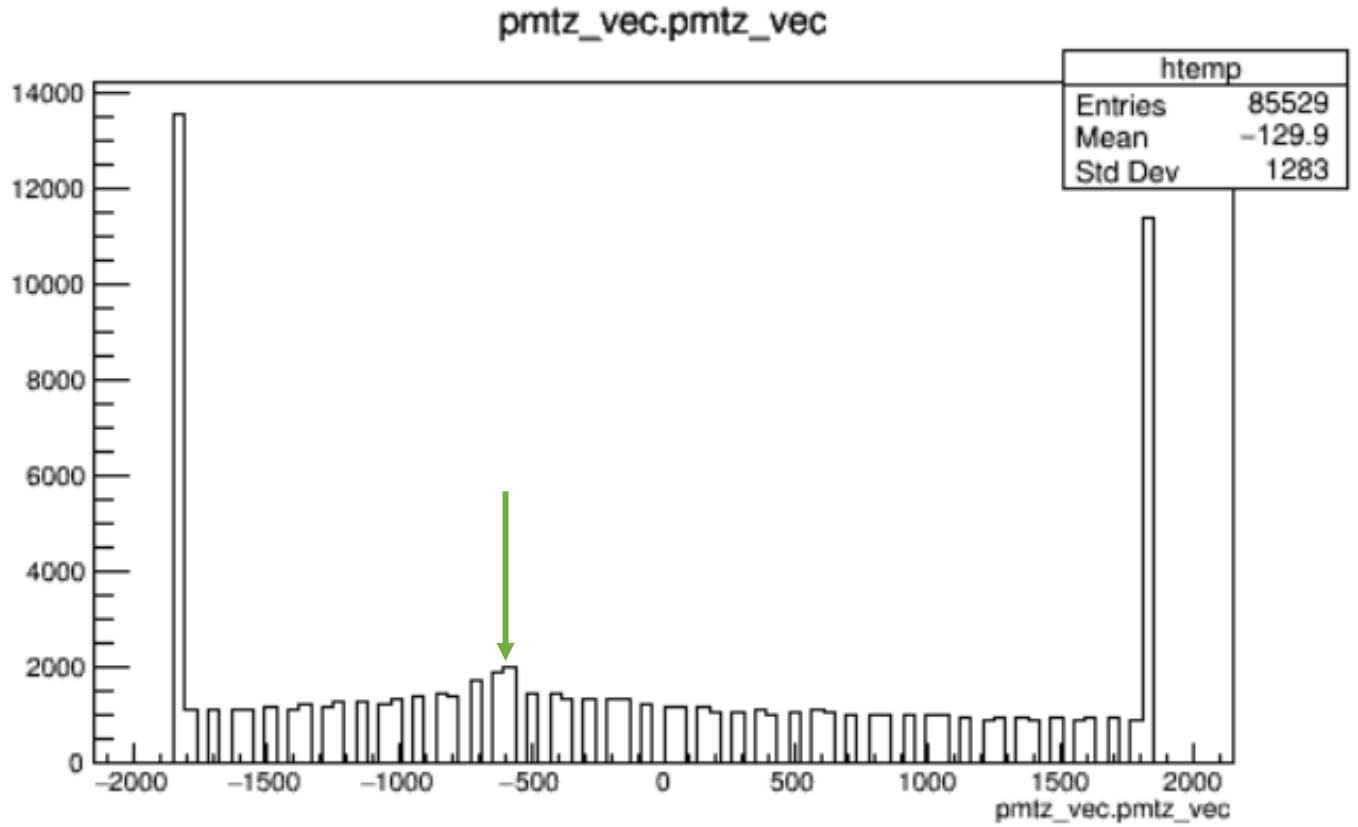
Increased hits in area where B3 hits should be z = -111 cm

Perfect uniform collimator profile implementation –B3



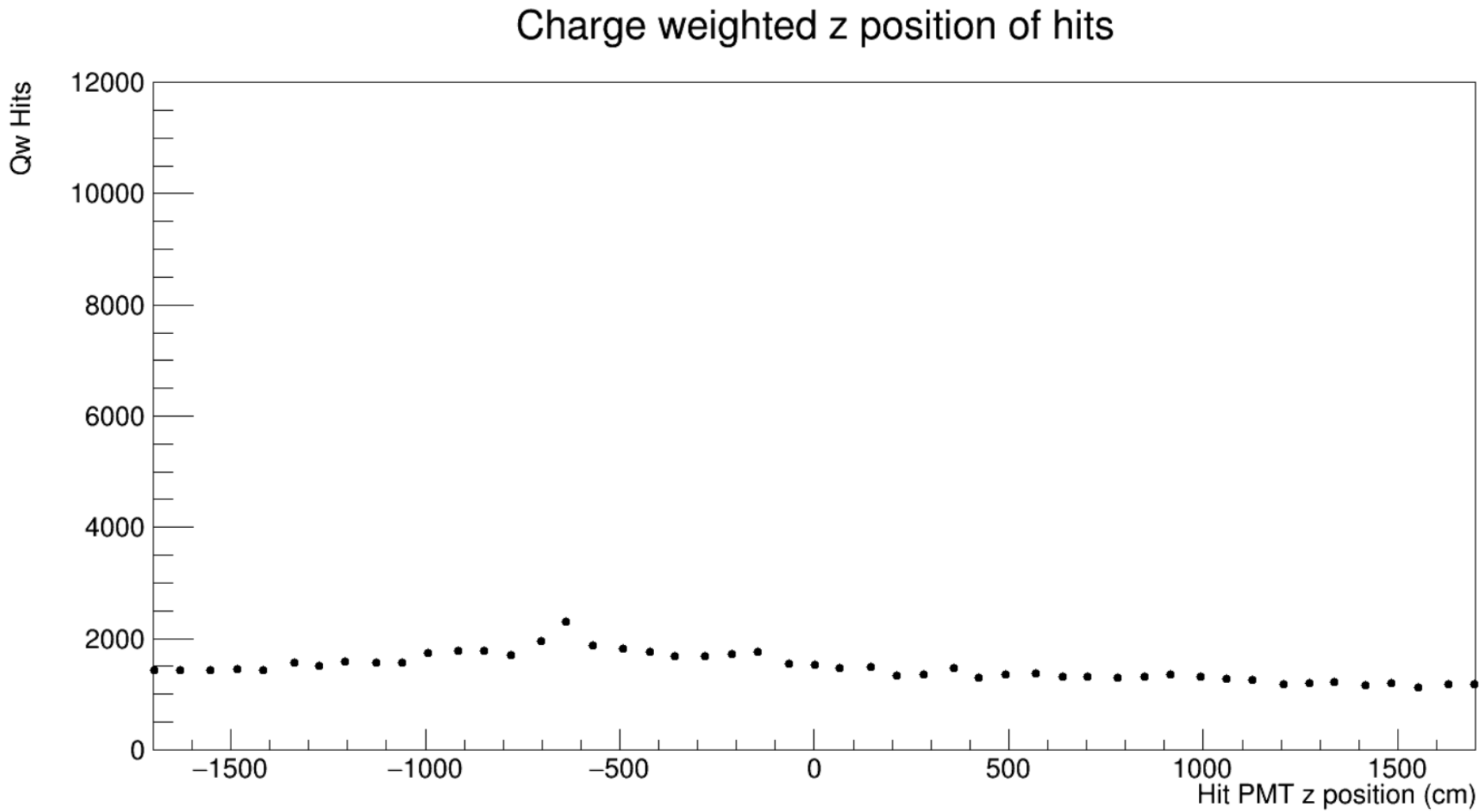
Perfect uniform collimator profile implementation –B4

- For this test:
  - B4 collimator
  - 1000 events
  - 4000 photons
  - Abs = 1.7
  - Ray = 0.8
  - Mie = 0.5



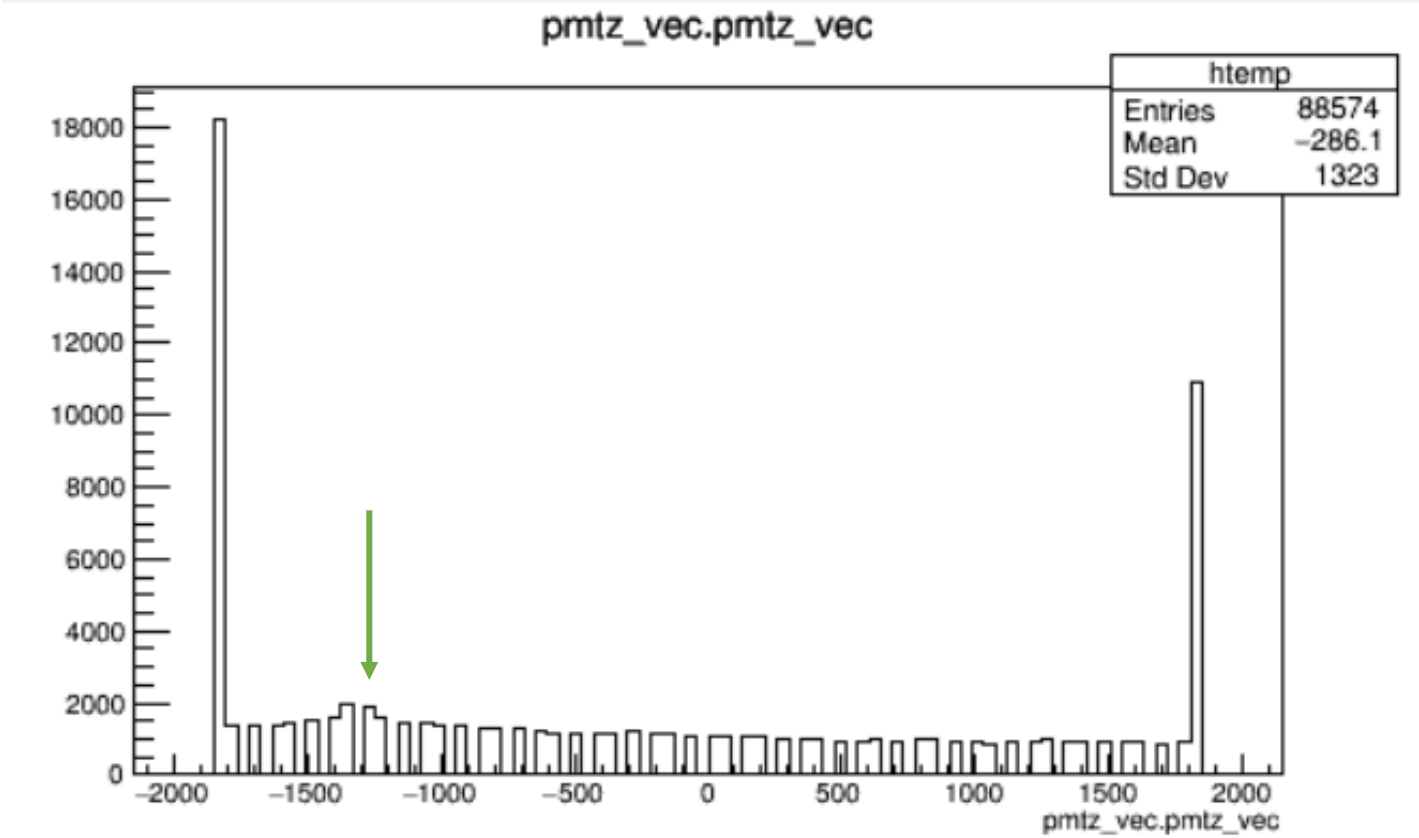
Increased hits in area where B4 hits should be z = -677 cm

Perfect uniform collimator profile implementation –B4



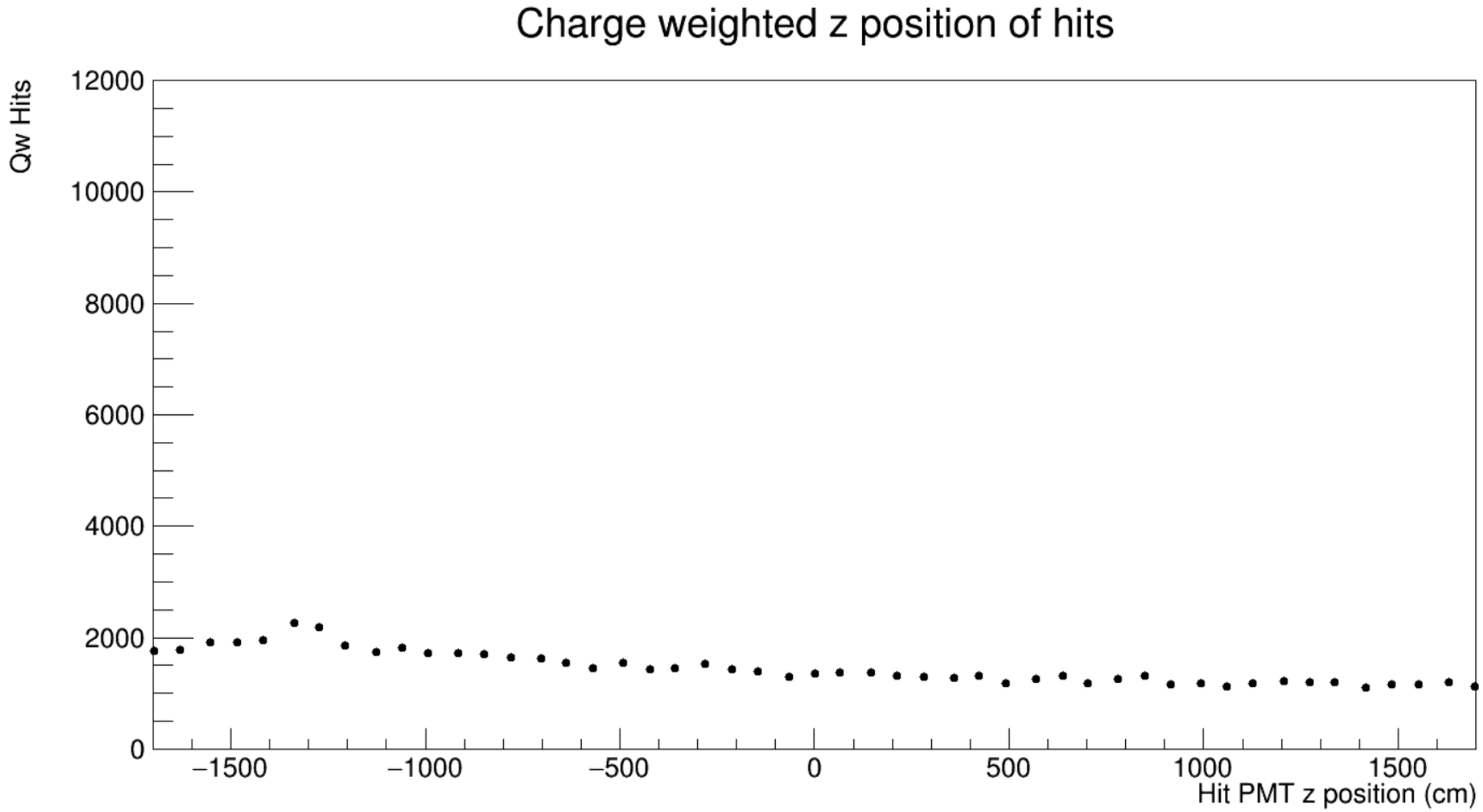
Perfect uniform collimator profile implementation –B5

- For this test:
  - B5 collimator
  - 1000 events
  - 4000 photons
  - Abs = 1.7
  - Ray = 0.8
  - Mie = 0.5



Increased hits in area where B5 hits should be z = -1313 cm

Perfect uniform collimator profile implementation –B5



Conclusion + next steps

- Extended PDF and CDF profile plots to include full 4degree range of collimator
- Got the uniform collimator profile generator scripts working and producing output data files
- Increased hits in regions at expected z-positions
- However, increase in charge at these positions smaller than expected
  - Beam spot is far too faint/narrow
  - Not obvious on superscan where the beam spot is