$\pi, \mu$ Yields for Offset Study2 Geometry

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Introduction

• $\pi$, $\mu$ accepted yields for 10 GeV proton beam and W target cylindrical rods
  – As before, radius of beam = radius of rod, tilt of beam = tilt of rod

• Compare yields from Helmholtz geometry with Study-2 geometry for targets placed inside and behind Cu coil aperture:
  – Helmholtz geometry: Target rods centred at $z_0 \approx -15\,\text{cm}$ as before
  – Offset Study2: Target rod ends placed immediately behind first Cu coil
    ($z_0$ between $-80$ and $-72.5\,\text{cm}$)

• Next page shows the two geometries

• Remaining pages show the yields for the two cases.

  We see that yields for the second case are lower, as expected (lower $B$ field).
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 0.25\,\text{cm}$

Helmholtz

Offset Study2

Dotted line is Hg jet yield for 10 GeV beam (using Study2 optimal tilt, radii)
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 0.50\, \text{cm}$

Dotted line is Hg jet yield for 10 GeV beam (using Study2 optimal tilt, radii)
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 0.75\ \text{cm}$

Helmholtz

Offset Study2

Dotted line is Hg jet yield for 10 GeV beam (using Study2 optimal tilt, radii)
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 1\ cm$

Helmholtz

Offset Study2

Dotted line is Hg jet yield for 10 GeV beam (using Study2 optimal tilt, radii)
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 1.5 \text{ cm}$

Dotted line is Hg jet yield for 10 GeV beam (using Study2 optimal tilt, radii)