π, μ 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 upstream of coils. Differences from earlier results (19 Dec ’08):
  - Helmholtz geometry: Target rods centred at $z_0 \approx -15$ cm as before.
    Gap increased from 25 cm to 30 cm: $\sim 10\%$ increase in currents to get 20 T
  - Offset Study2: Target rod ends placed immediately behind first Cu coil
    ($z_0$ between $-80$ and $-72.5$ cm), as before. No upstream SC coils.
- Next page shows the two geometries, while the remaining pages show the yields for the two cases.
- We see that yields for the second case are lower, as expected (lower $B$ field).
Target Geometries

Helmholtz

Offset Study 2
Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 0.25 \text{ cm}$

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

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

Helmholtz

Offset Study2
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 $r_{\text{beam}} = 1 \text{ cm}$

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

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Charge averaged $\pi, \mu$ accepted yield per proton for $r_{\text{beam}} = 1.5\, \text{cm}$

Helmholtz

Offset Study2

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