

Analysis of channeling for run 5870, crystal TCP76

Run date: 2017-12-04

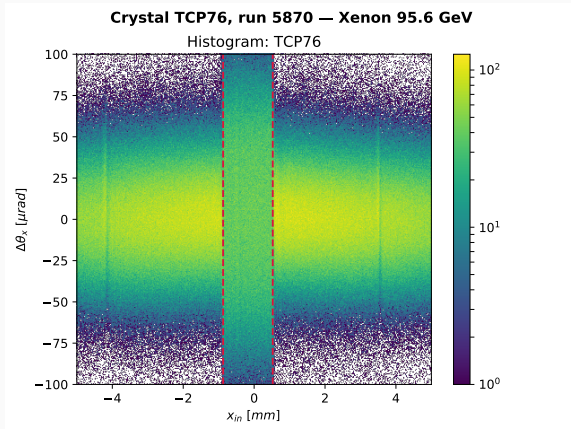
Particle type: Xenon

Particle energy: 95.6 GeV

FRANCESCO FORCHER

December 18, 2017





Cuts in x:

$x1: -0.875$ [mm]

$x2: 0.525$ [mm]

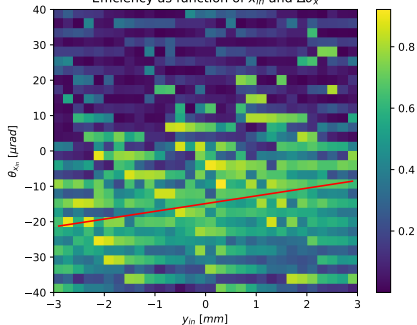
Cuts in y:

$y1: -3.000$ [mm]

$y2: 3.000$ [mm]

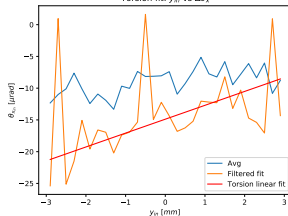
Crystal TCP76, run 5870 — Xenon 95.6 GeV

Efficiency as function of x_{in} and $\Delta\theta_x$



Crystal TCP76, run 5870 — Xenon 95.6 GeV

Torsion fit: y_{in} vs $\Delta\theta_x$



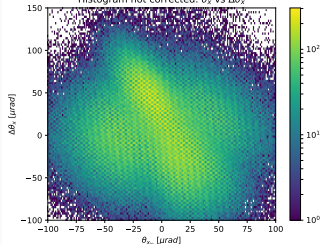
Efficiency fit:

$m: 2.2 [\mu\text{rad}/\text{mm}]$

$q: -14.9 [\mu\text{rad}]$

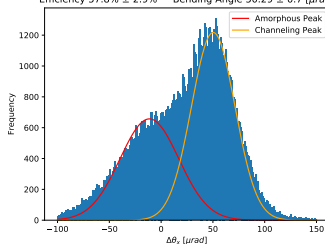
Crystal TCP76, run 5870 — Xenon 95.6 GeV

Histogram not corrected: θ_x vs $\Delta\theta_x$



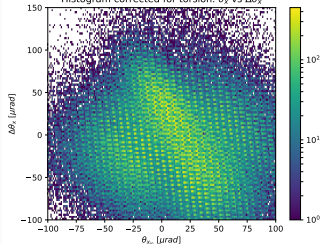
TCP76 run 5870, Xenon 95.6 GeV — Channeling, cut $\pm \theta_c/2 = \pm 10.5$

Efficiency $57.8\% \pm 2.9\%$ — Bending Angle 50.29 ± 0.7 [μrad]



Crystal TCP76, run 5870 — Xenon 95.6 GeV

Histogram corrected for torsion: θ_x vs $\Delta\theta_x$



TCP76 run 5870, Xenon 95.6 GeV — Channeling, cut $\pm \theta_c = \pm 21.1$

Efficiency $52.5\% \pm 2.4\%$ — Bending Angle 48.94 ± 0.7 [μrad]

