

# Analysis of channeling for run 5920, crystal STF110

*Run date: 2017-12-04*

*Particle type: Xenon*

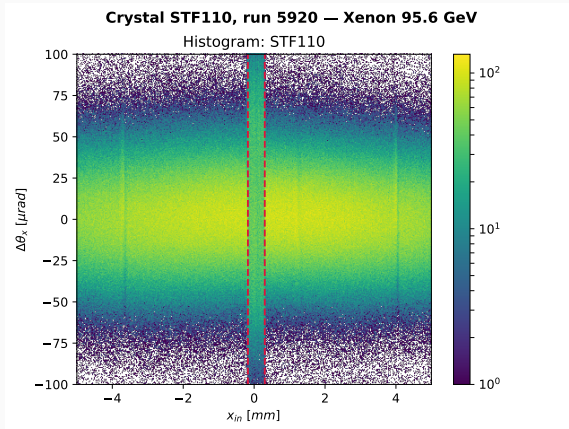
*Particle energy: 95.6 GeV*

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FRANCESCO FORCHER

*December 18, 2017*





Cuts in x:

x1: -0.175 [mm]

x2: 0.300 [mm]

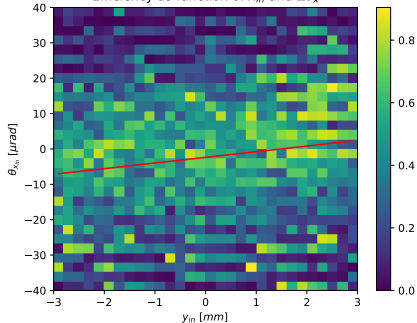
Cuts in y:

y1: -3.000 [mm]

y2: 3.000 [mm]

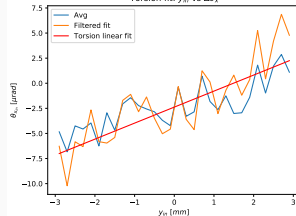
Crystal STF110, run 5920 — Xenon 95.6 GeV

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



Crystal STF110, run 5920 — Xenon 95.6 GeV

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



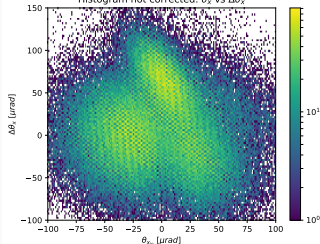
Efficiency fit:

m:  $1.6 [\mu\text{rad}/\text{mm}]$

q:  $-2.4 [\mu\text{rad}]$

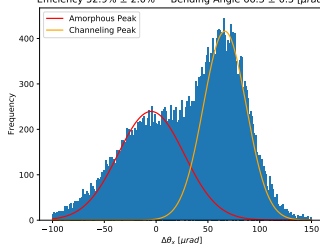
**Crystal STF110, run 5920 — Xenon 95.6 GeV**

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



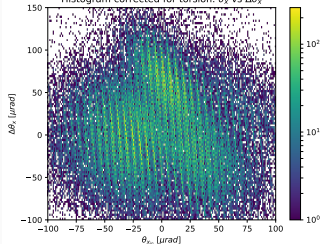
**STF110 run 5920, Xenon 95.6 GeV — Channeling, cut  $\pm \theta_c/2 = \pm 10.5$**

Efficiency  $52.9\% \pm 2.0\%$  — Bending Angle  $66.3 \pm 0.5$  [ $\mu\text{rad}$ ]



**Crystal STF110, run 5920 — Xenon 95.6 GeV**

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



**STF110 run 5920, Xenon 95.6 GeV — Channeling, cut  $\pm \theta_c = \pm 21.1$**

Efficiency  $45.6\% \pm 1.7\%$  — Bending Angle  $65.55 \pm 0.6$  [ $\mu\text{rad}$ ]

