

# Analysis of channeling for run 4397, crystal STF107

*Run date: 2017-05-16*

*Particle type: Pions*

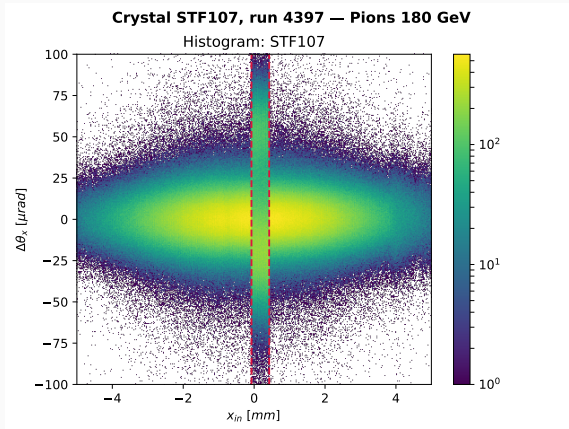
*Particle energy: 180 GeV*

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FRANCESCO FORCHER

*February 13, 2018*





Cuts in x:

x1: -0.075 [mm]

x2: 0.425 [mm]

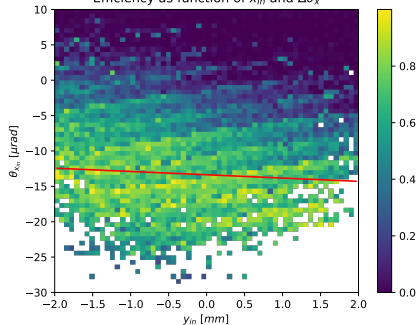
Cuts in y:

y1: -2.000 [mm]

y2: 2.000 [mm]

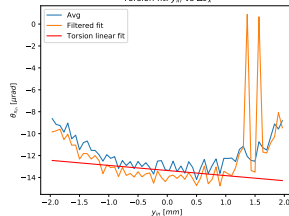
Crystal STF107, run 4397 — Pions 180 GeV

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



Crystal STF107, run 4397 — Pions 180 GeV

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



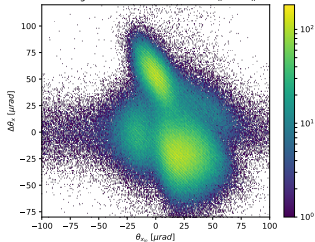
Efficiency fit:

m:  $-0.5 [\mu\text{rad}/\text{mm}]$

q:  $-13.4 [\mu\text{rad}]$

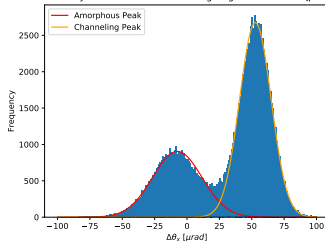
**Crystal STF107, run 4397 — Pions 180 GeV**

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



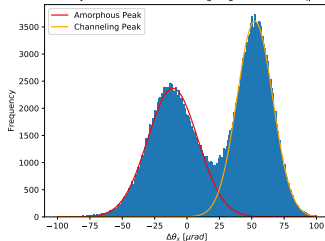
**STF107 run 4397, Pions 180 GeV — Channeling, cut  $\pm \theta_c/2 = \pm 7.66$**

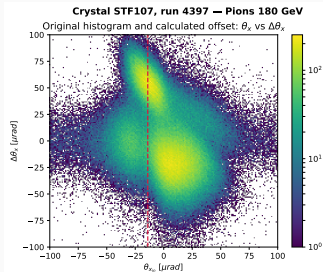
Efficiency  $65.4\% \pm 0.2\%$  — Bending Angle  $52.77 \pm 0.1$  [ $\mu\text{rad}$ ]



**STF107 run 4397, Pions 180 GeV — Channeling, cut  $\pm \theta_c = \pm 15.3$**

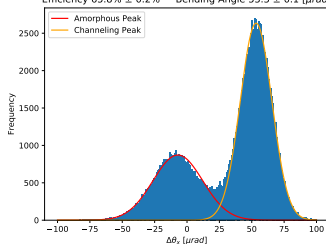
Efficiency  $52.2\% \pm 0.2\%$  — Bending Angle  $52.37 \pm 0.1$  [ $\mu\text{rad}$ ]





**STF107 run 4397, Pions 180 GeV — Chan., cut  $\pm \theta_c/2 = -14.0 \pm 7.66$**

Efficiency  $65.8\% \pm 0.2\%$  — Bending Angle  $53.3 \pm 0.1$  [ $\mu\text{rad}$ ]



**STF107 run 4397, Pions 180 GeV — Chan., cut  $\pm \theta_c = -14.0 \pm 15.3$**

Efficiency  $52.7\% \pm 0.2\%$  — Bending Angle  $52.6 \pm 0.1$  [ $\mu\text{rad}$ ]

