XFT efficiency

Based on run 168889

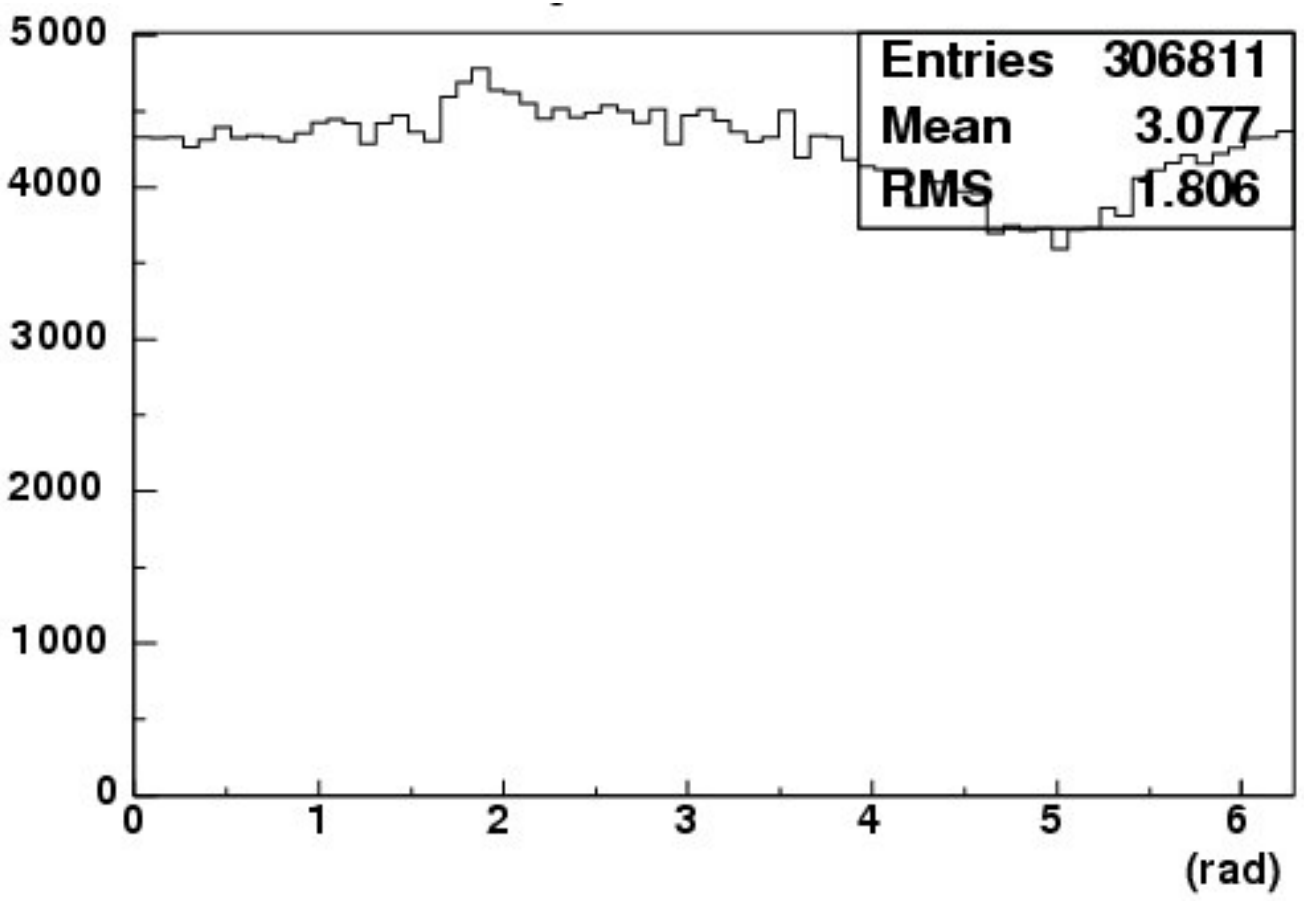
Last big run (1.4pb-1) just before shutdown
Luminosity:40E30 – 13E30

XFT track efficiency from JET_20 data

XFT pixel efficiency from MINBIAS data

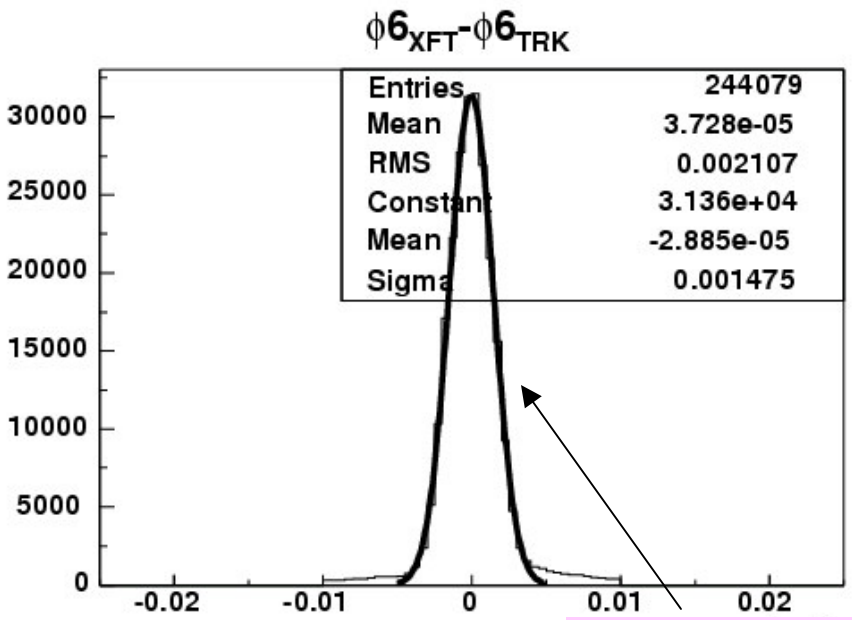
JET_20 does not have XFFD bank

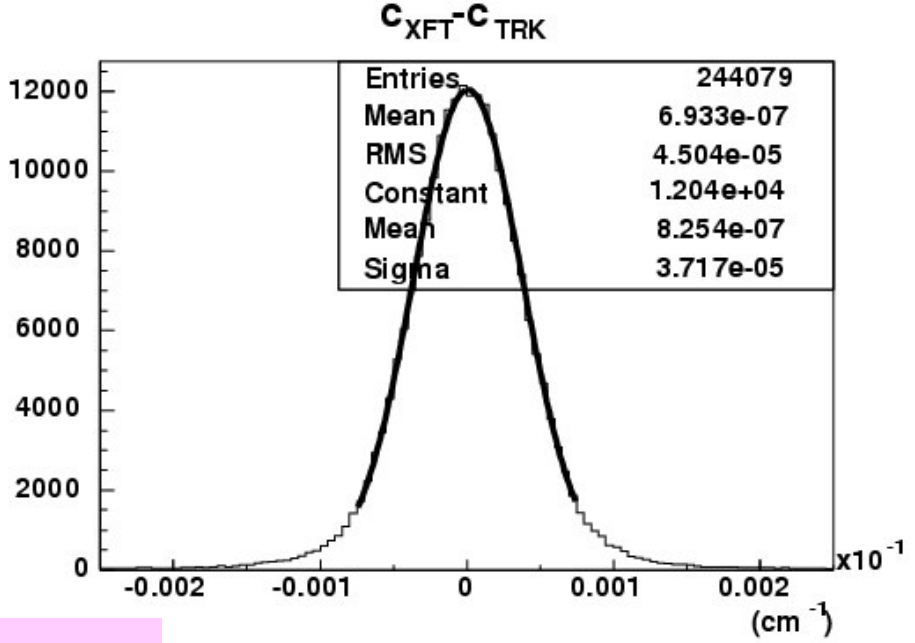
Raw XFT-ϕ_6 distribution



dip already visible in raw ϕ_6 distribution

XFT-track matching





1.5mrad resolution!

Track criteria:

$p_T \geq 1.5$GeV

$|z_0| \leq 90$cm

$|z_{133}| \leq 150$cm

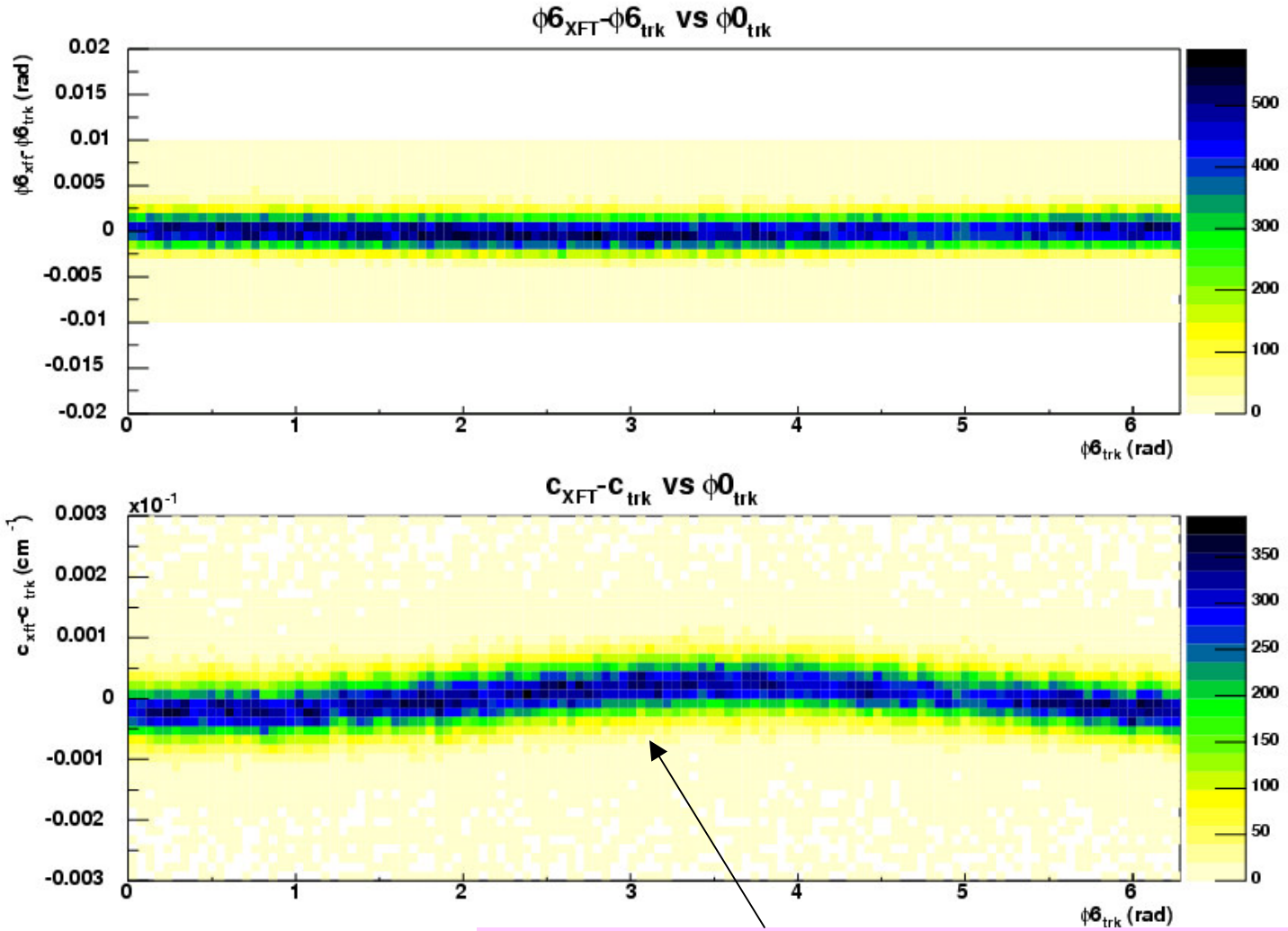
$|d_0| \leq 1$cm *(beam-subtracted)*

$N_{ax,st} \geq 25$

Matching criterion: $\Delta\phi_6 \leq 10$mrad

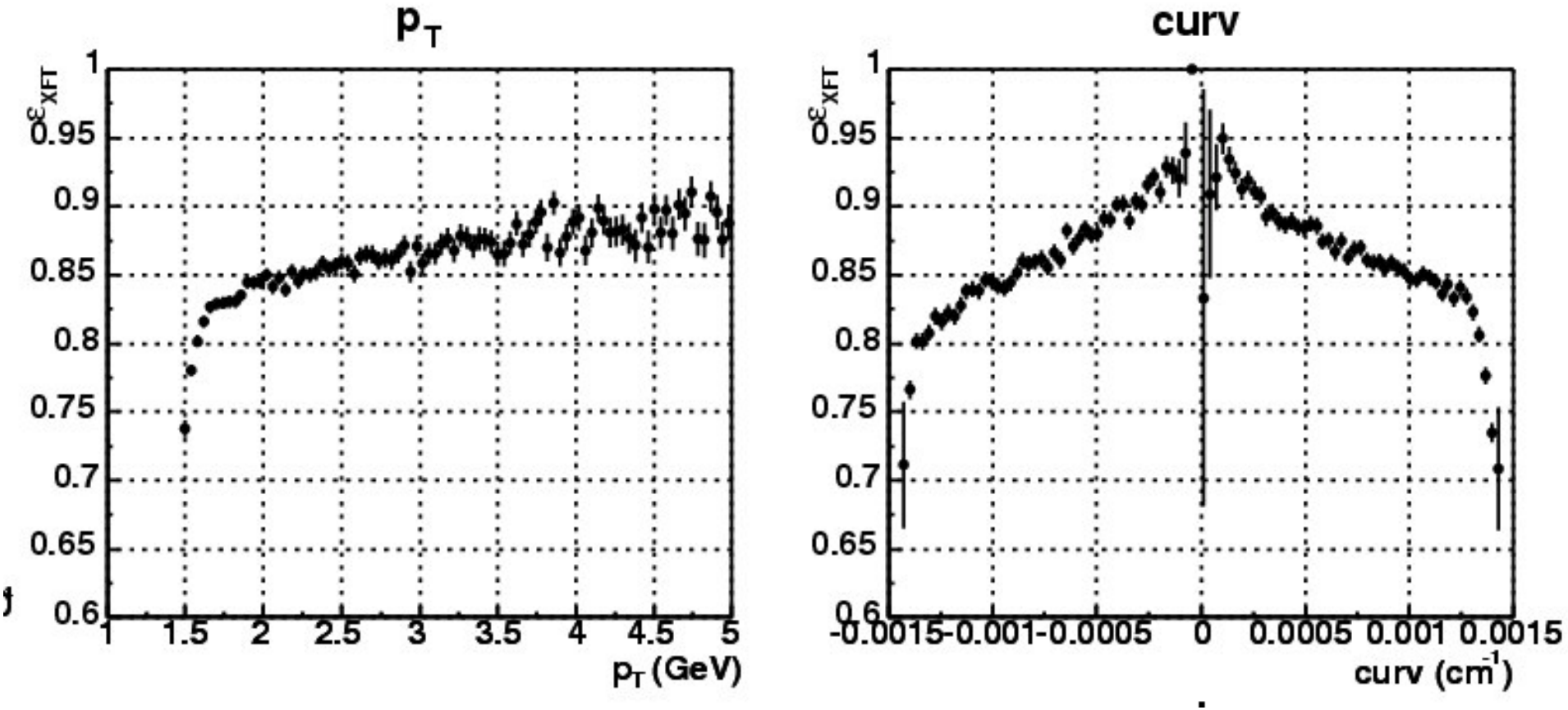
(no curvature matching required)

XFT matching vs ϕ_0



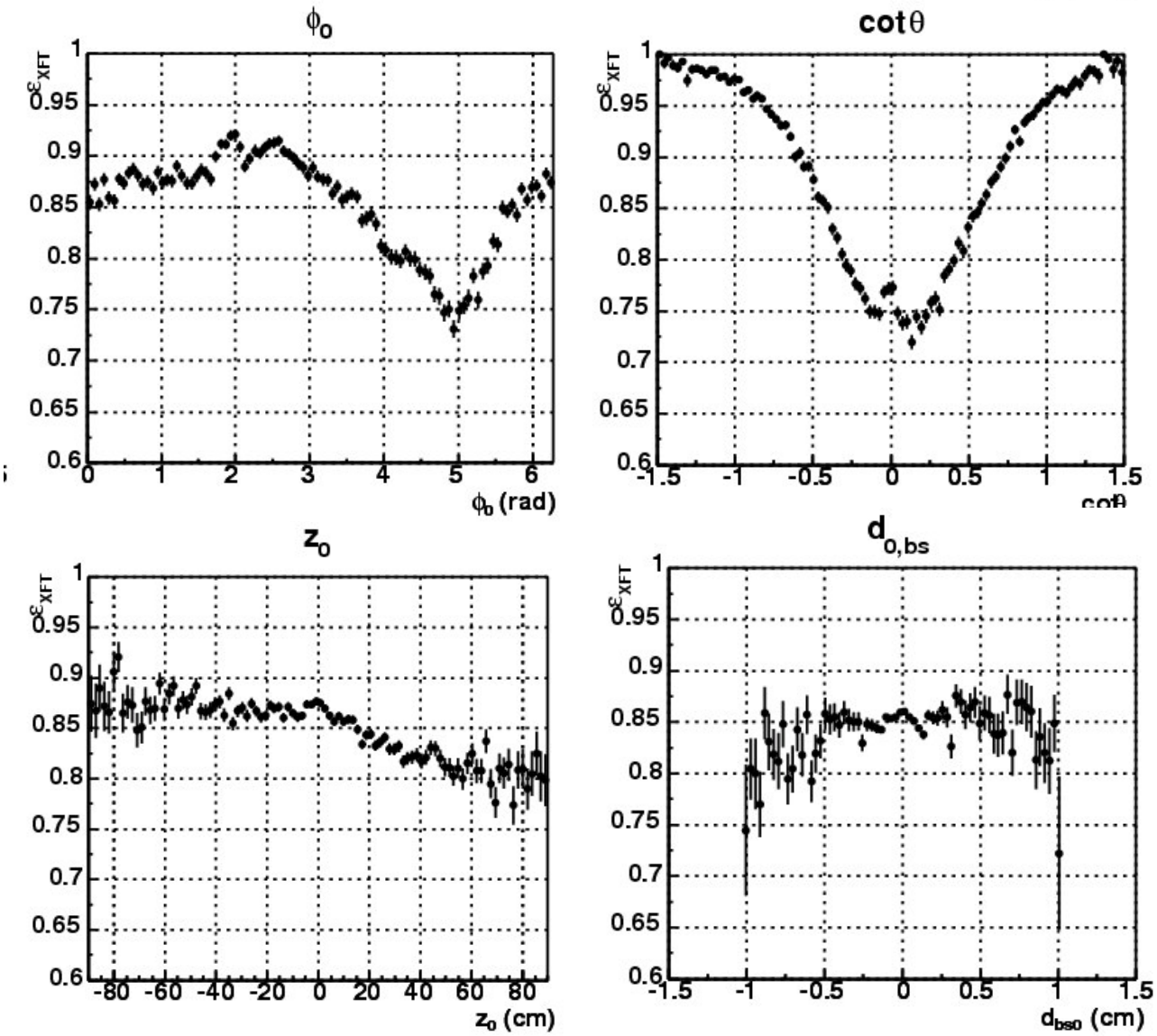
Small wiggle due to beam-offset

XFT efficiency vs p_T



Strong p_T dependence

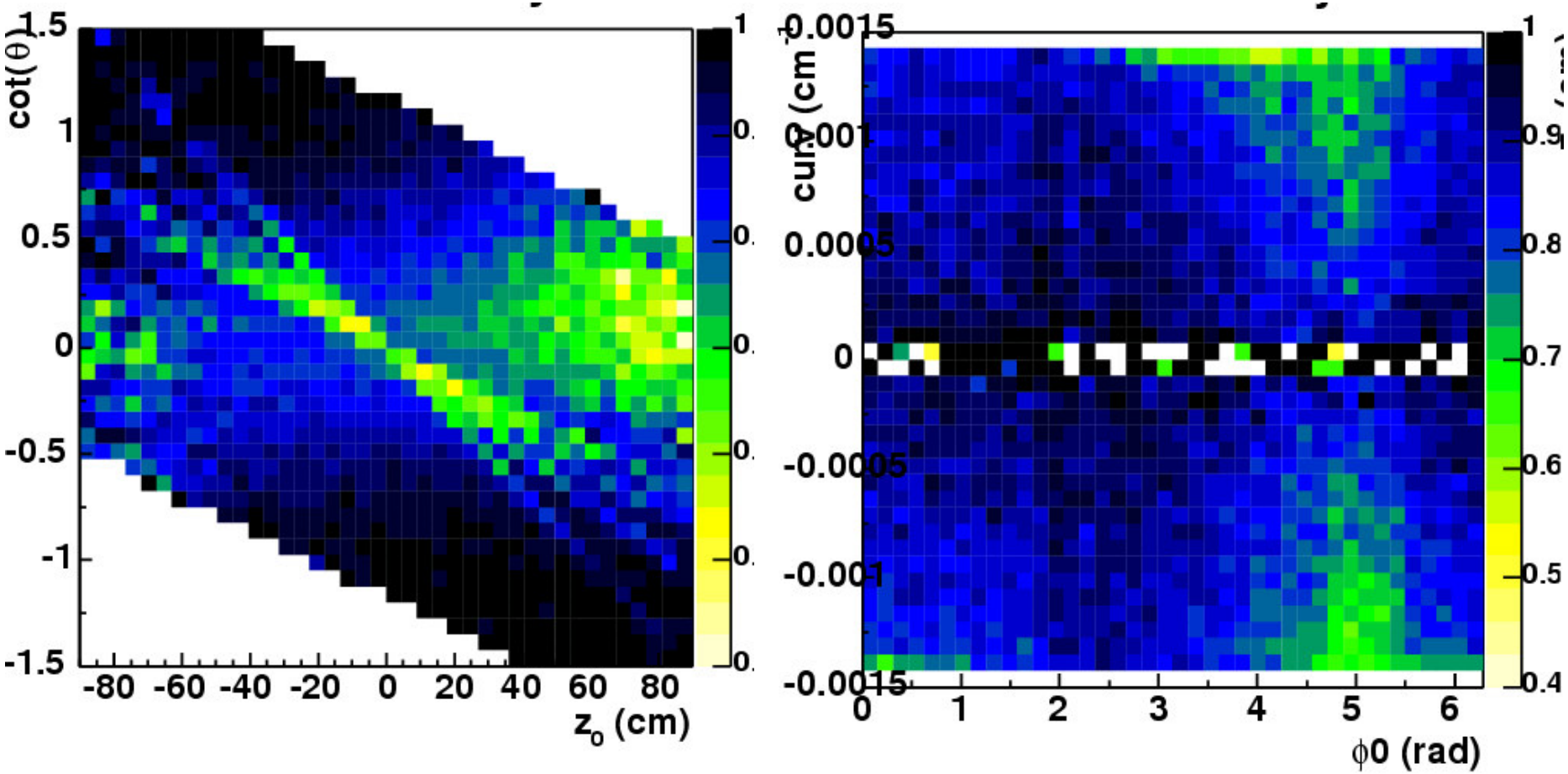
XFT efficiency vs geometry



Strong dependence on
- p_T
- ϕ_0
- cot(θ)
- z_0

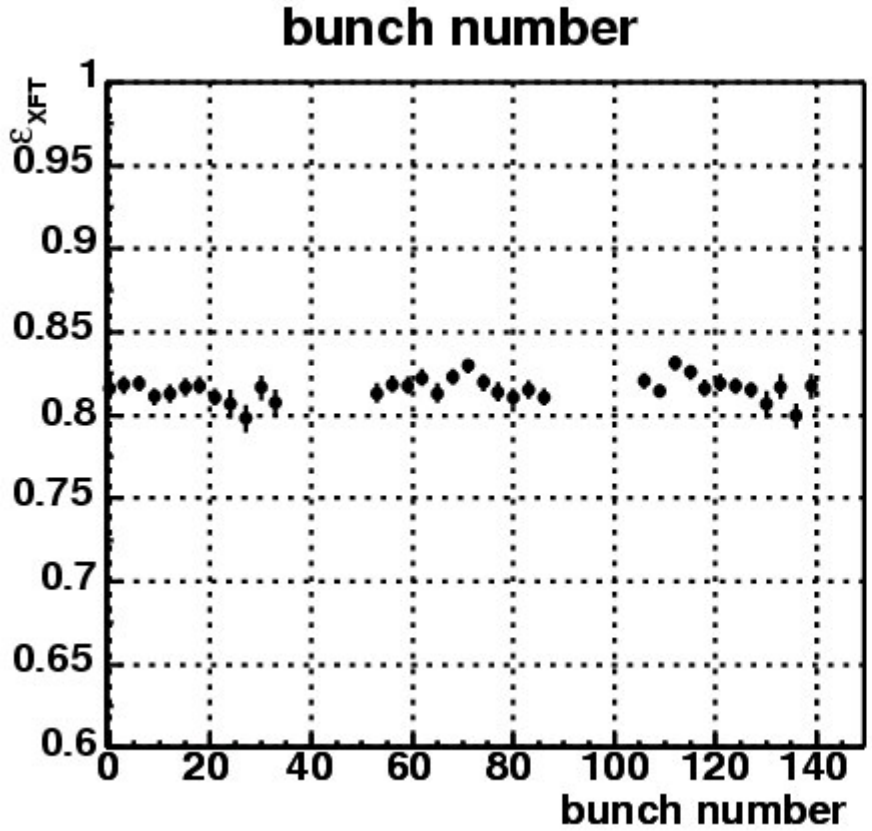
Weak(no?) dependence on
- d_0

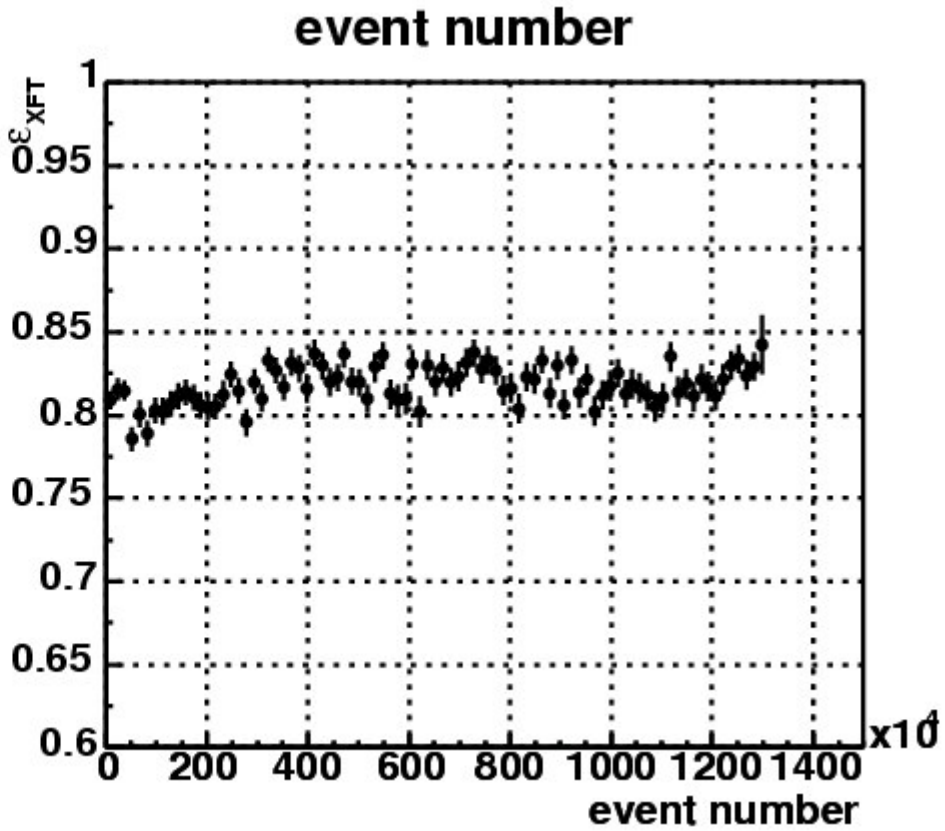
XFT efficiency 2D



Complicated function of $\cot(\theta)$, z_0, p_T, ϕ_0

Additional checks

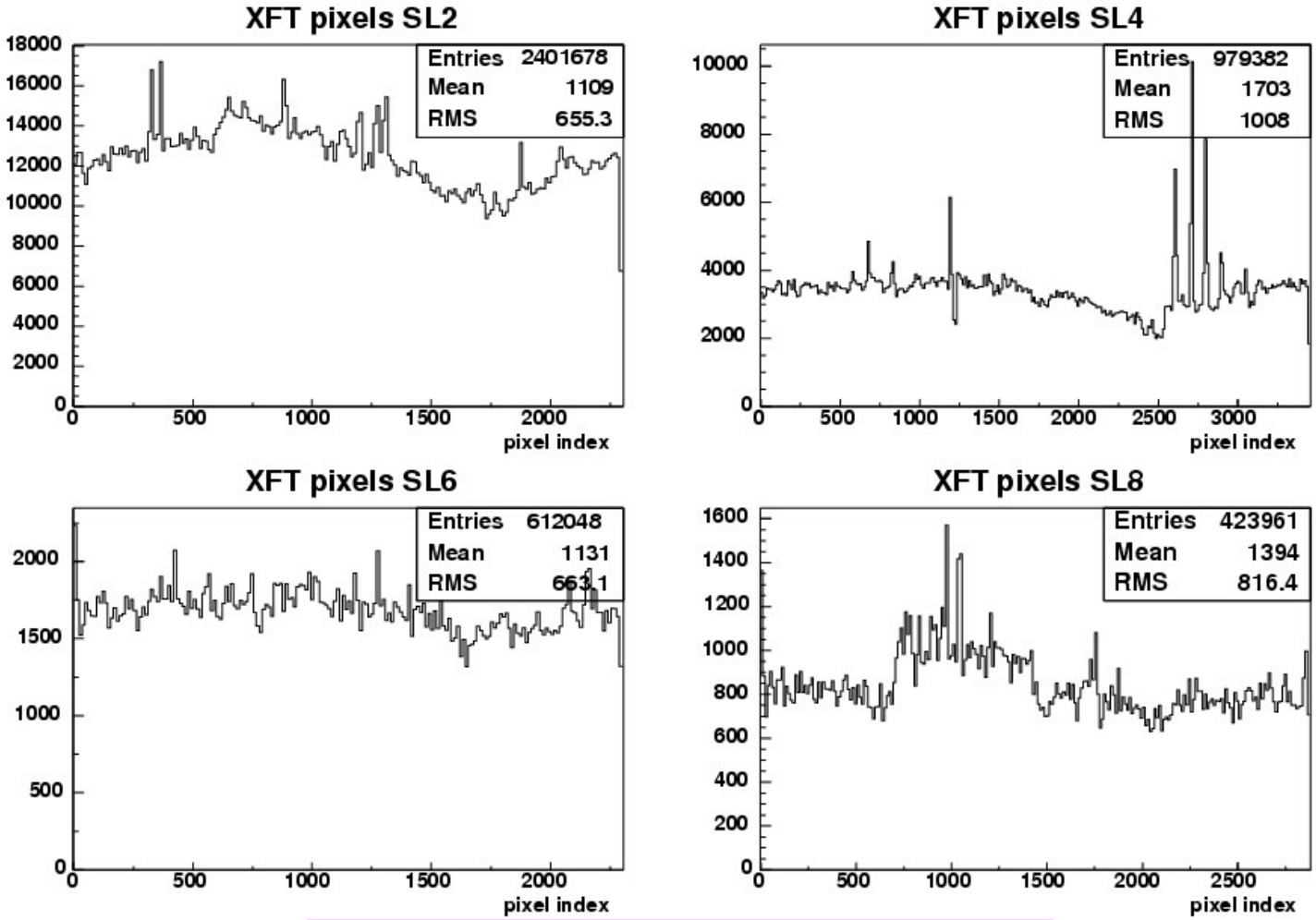




Some luminosity dependence?
No strong bunch-number dependence

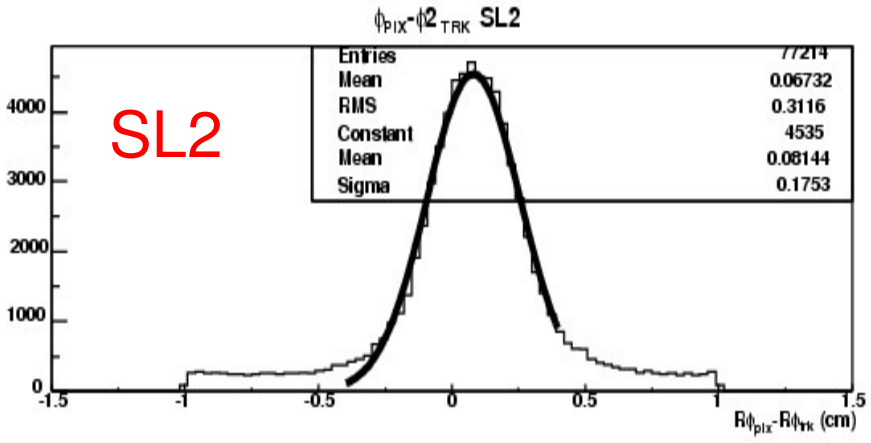
Raw pixel distribution

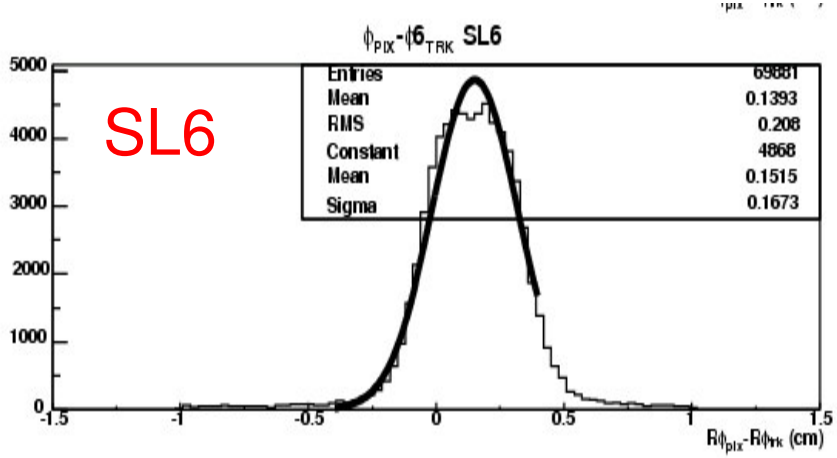
Ignoring 'charge' information in SL6, SL8

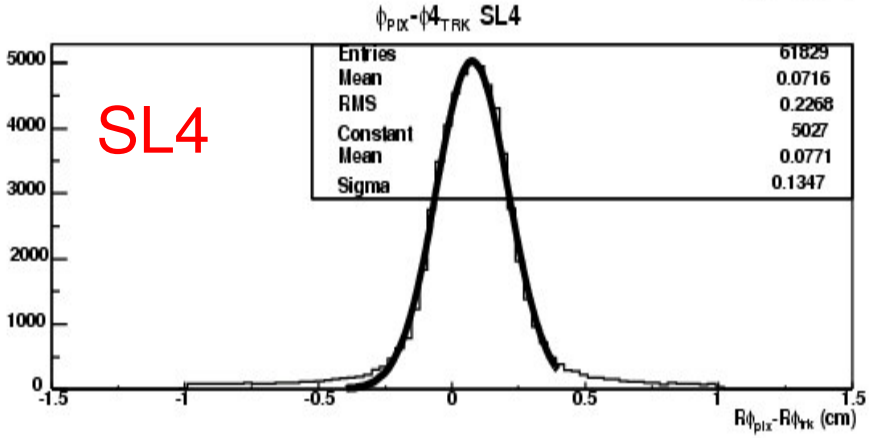


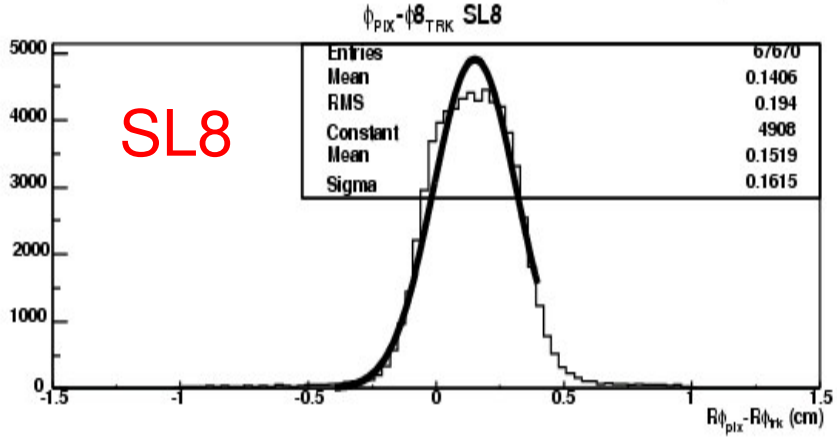
Significant non-uniformities

Pixel – track matching





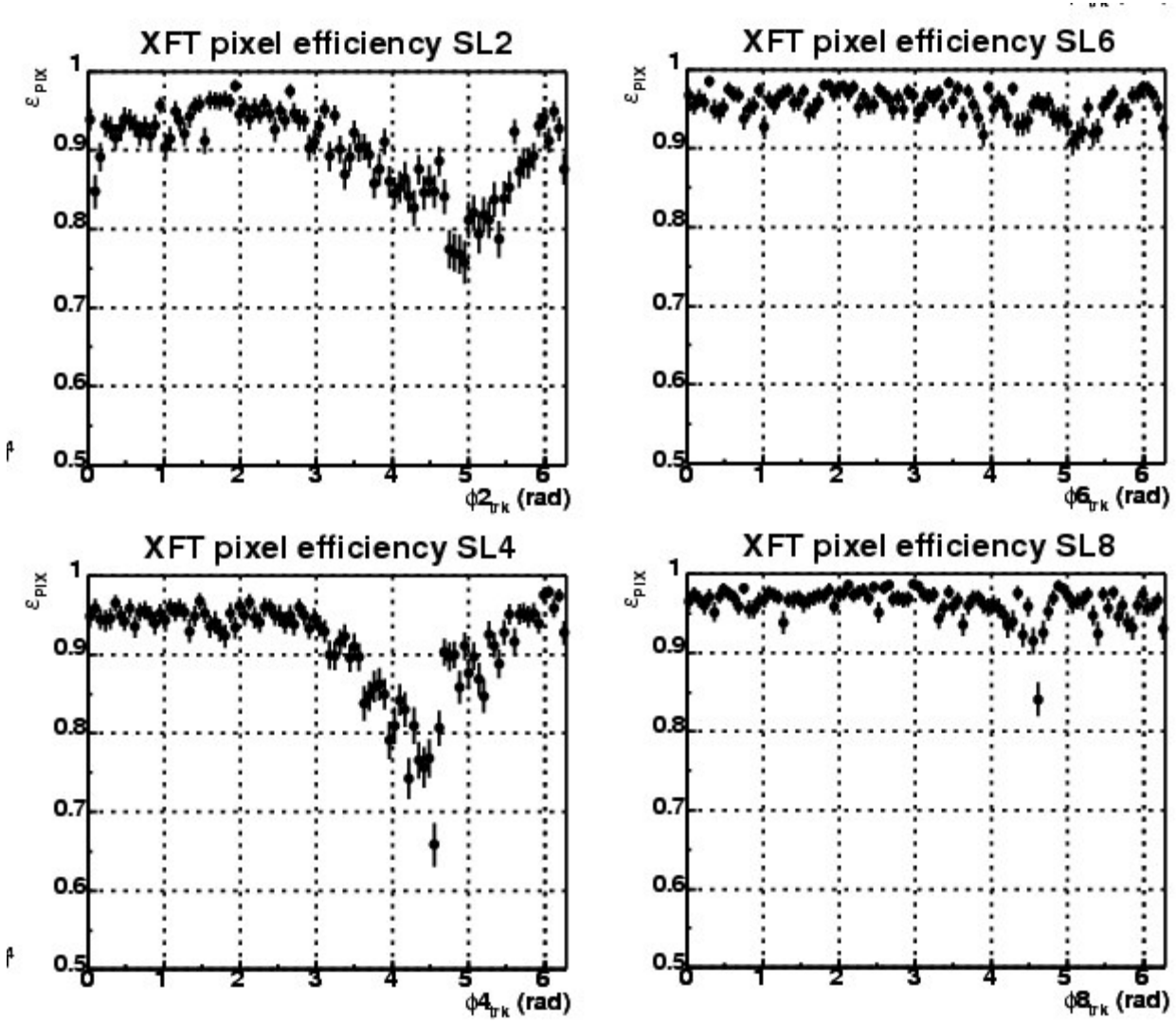




Resolution: $\approx$1.6mm

Matching criterion: $\Delta R\phi \leq 1$ cm

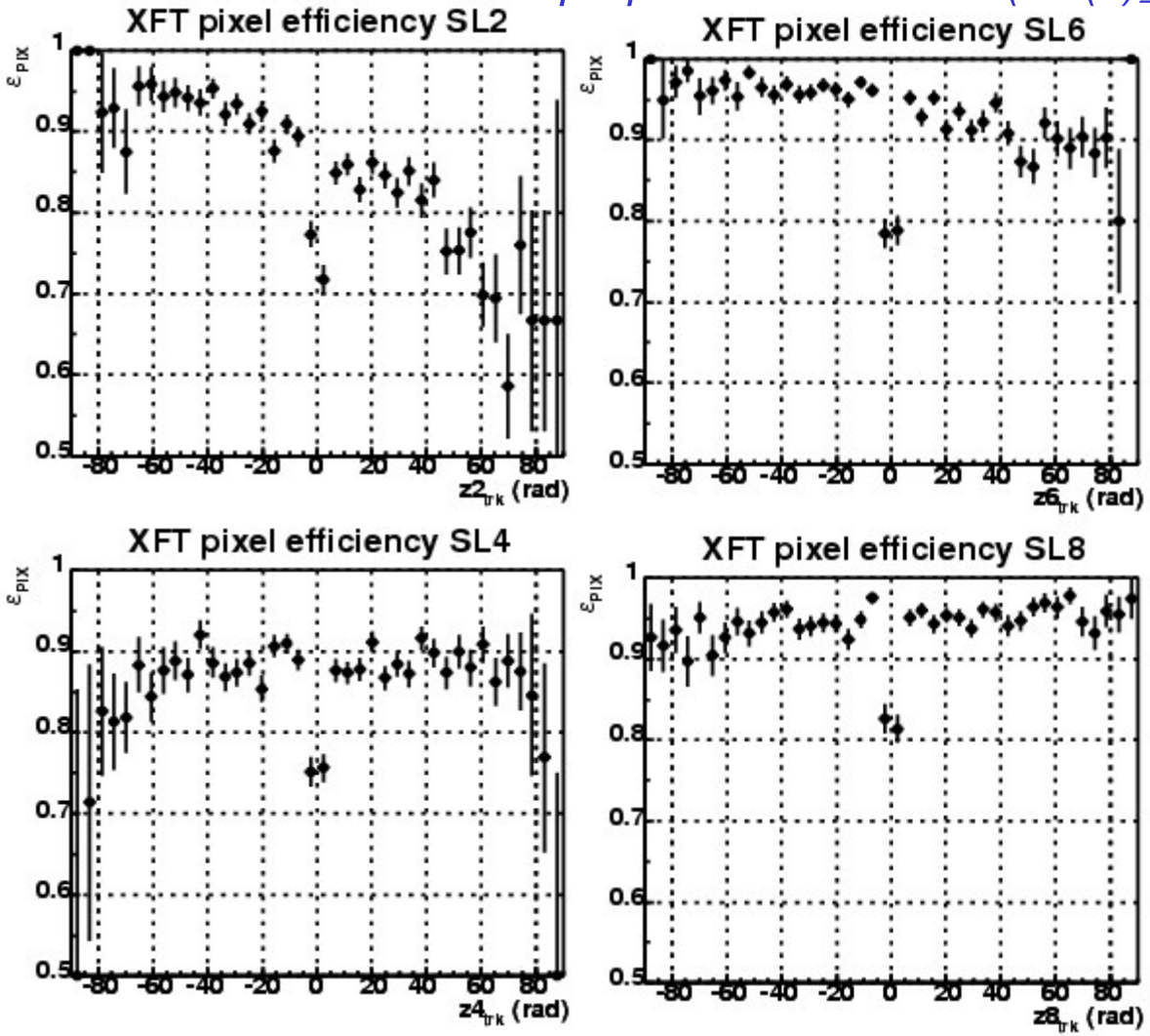
Pixel efficiency vs (local) ϕ



ϕ dip occurs in inner superlayers, not in outer superlayers

Pixel efficiency vs (local) z

Selected 'perpendicular' tracks ($\cot(\theta) \leq 0.4$)



ASDQs on alternating sides

Why stronger Asymmetry in SL2, SL6 Than SL4, SL8???