

Comparison of K2 and STRUCT routines

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Improving our confidence in predictions

Two scattering routines used:

K2 and STRUCT

Tracking programs:

Linear transfer matrices

DIMAD

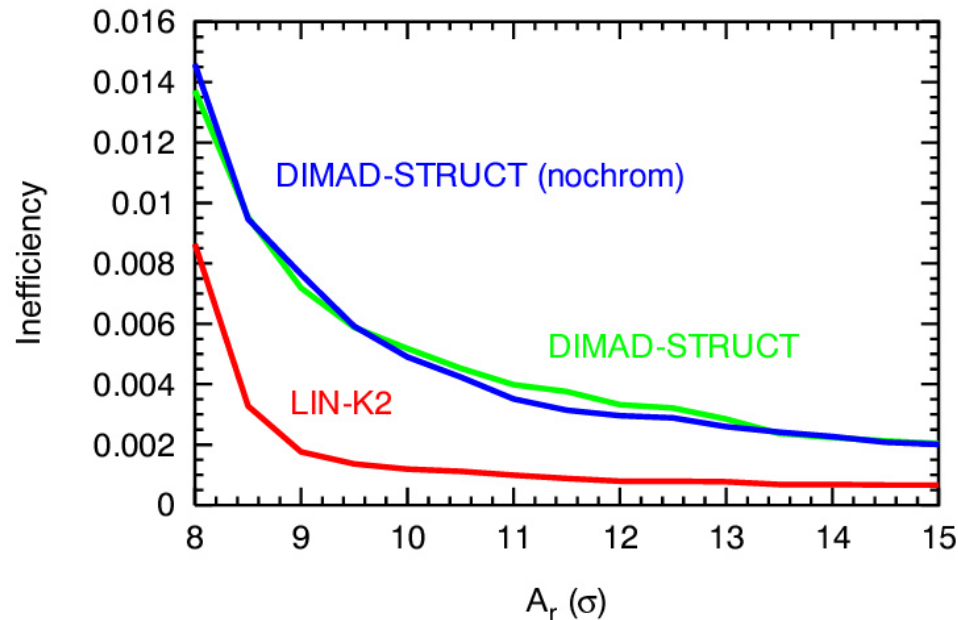
SIXTRACK

Effects being considered:

Scattering physics

Chromatic effects

Non-linear fields (diffusion)



Same order of magnitude results

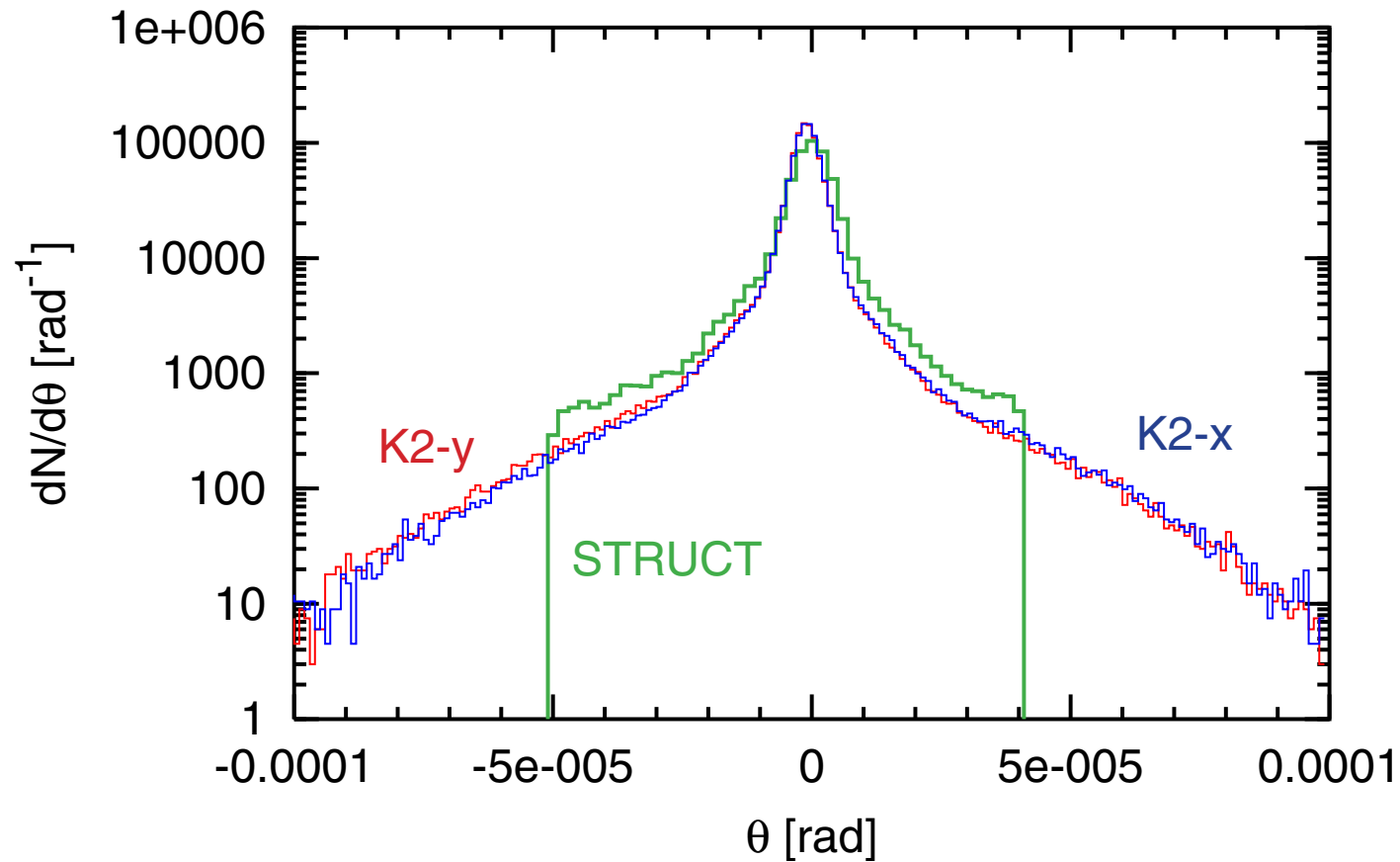
Factor 5 disagreement to be understood.

System requires detailed understanding of 7 TeV proton interaction in matter.

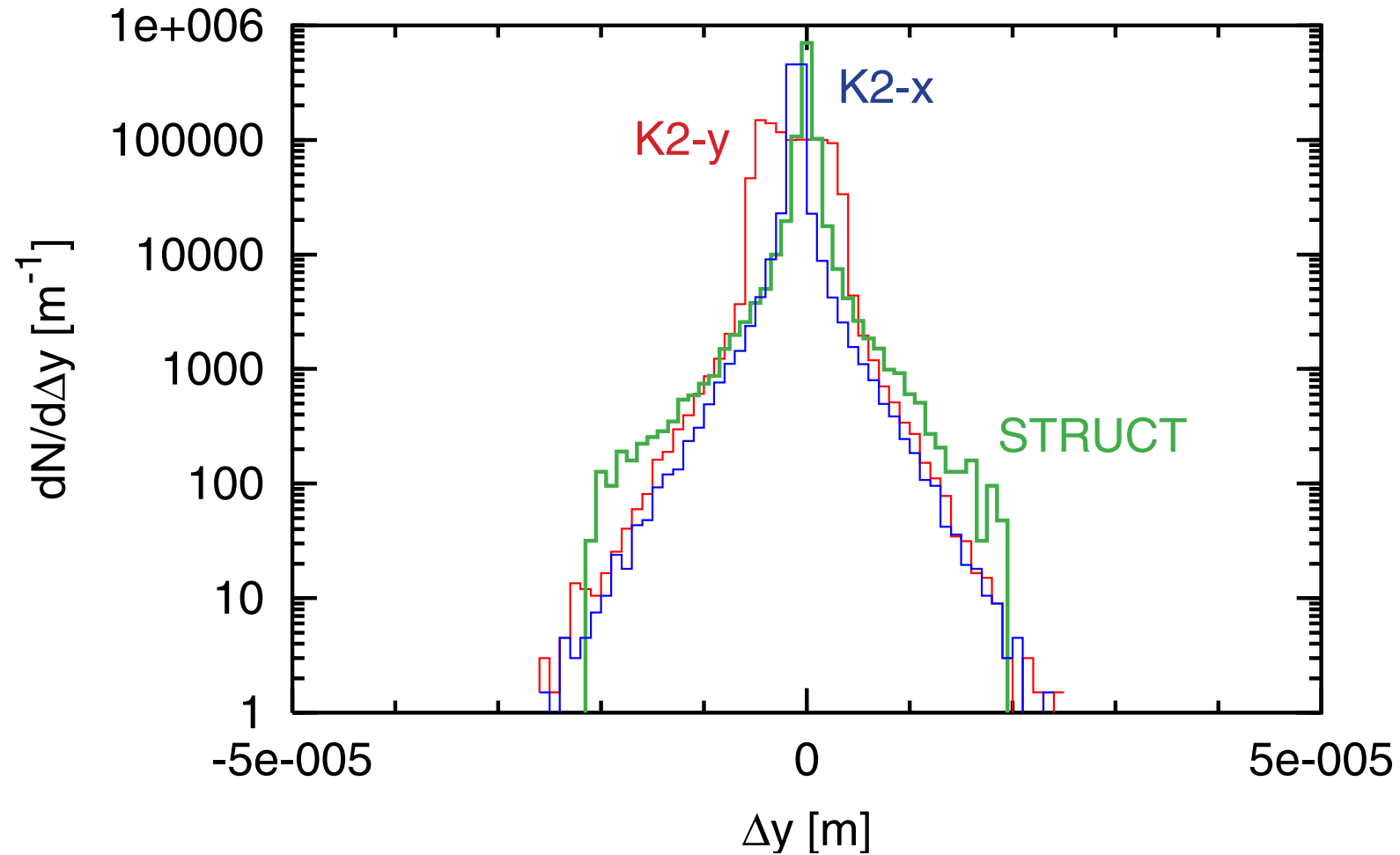
Comparison single jaw

20 cm Al, 7 TeV, pencil beam ($y = 1\mu\text{m}$, $y' = 0$)

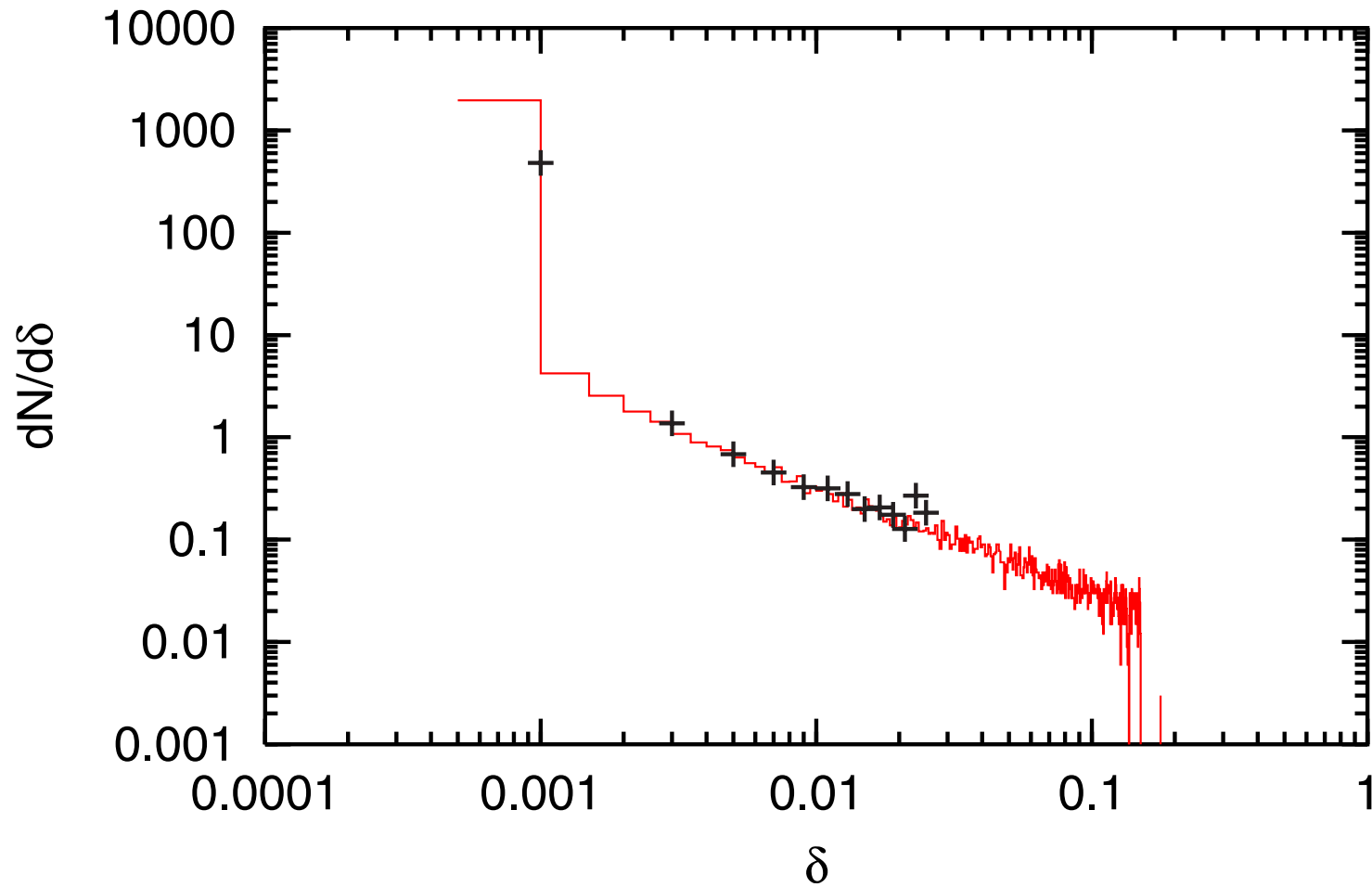
Collimator kick:



Offset change after collimator:



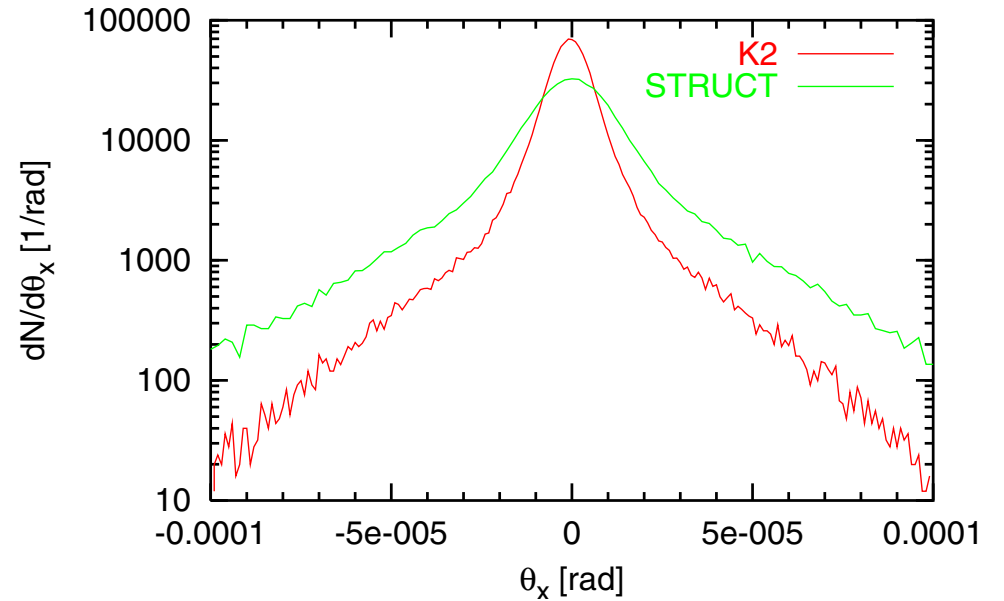
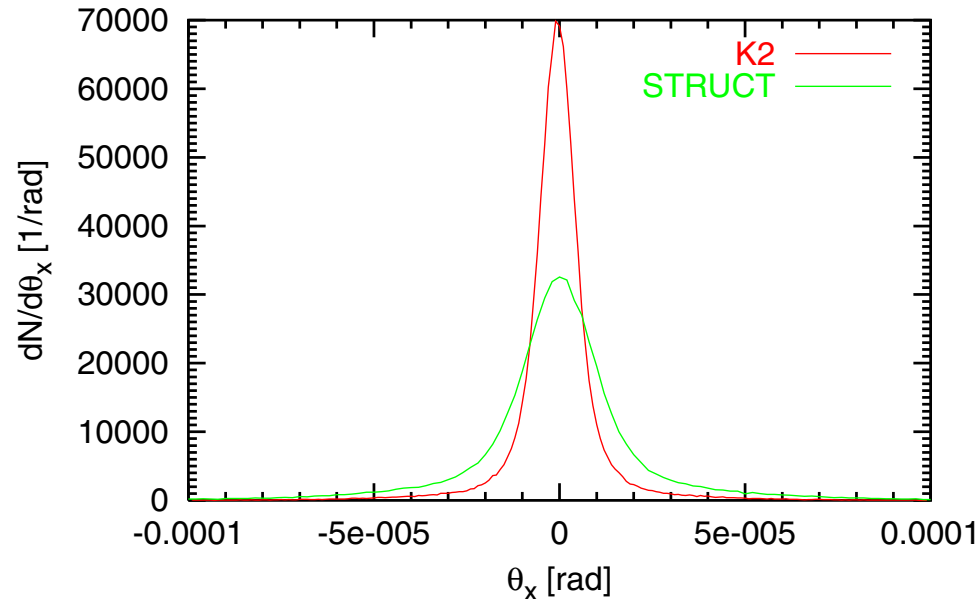
Momentum loss in collimator:



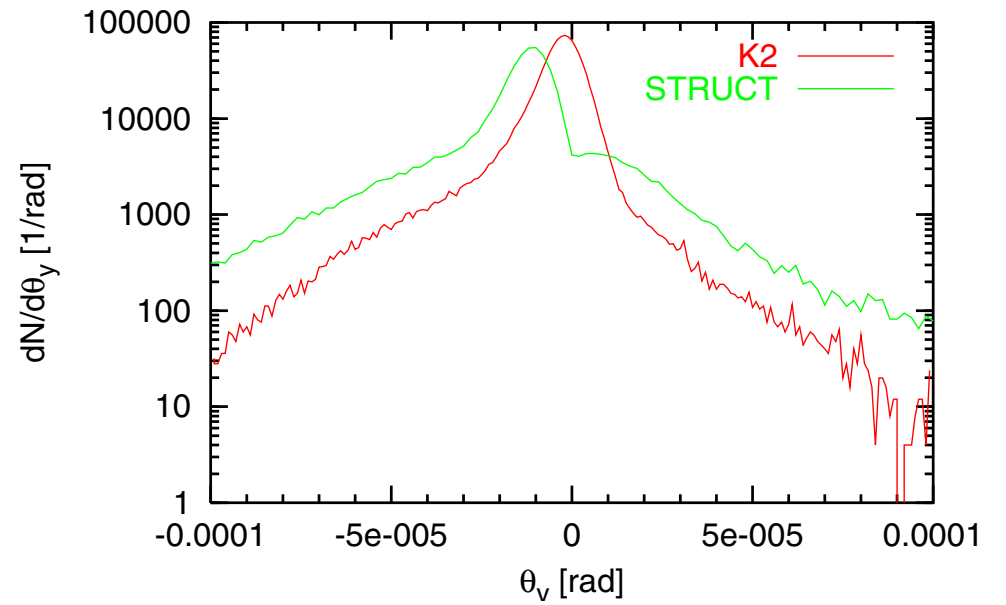
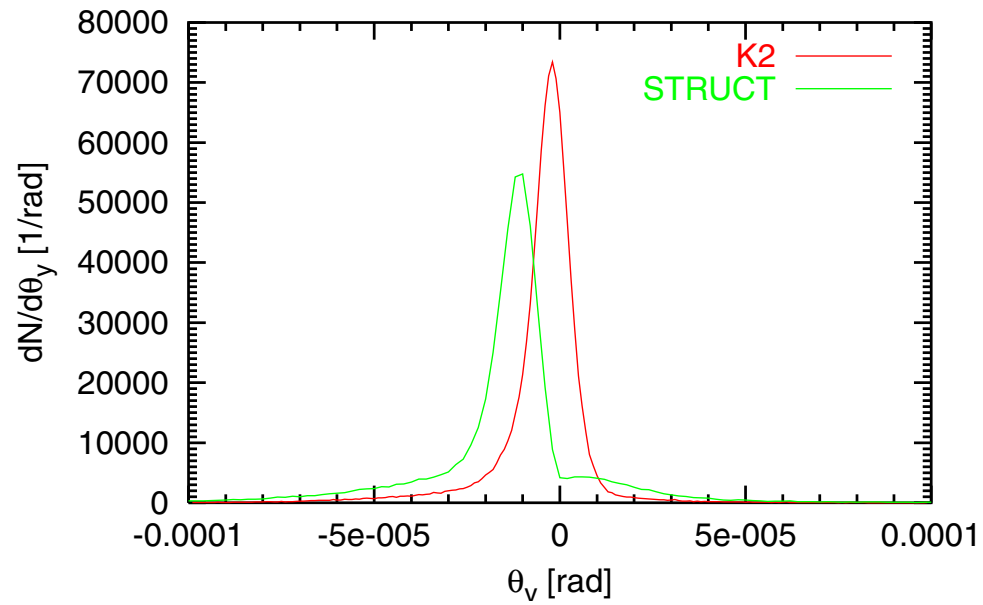
Comparison single jaw

50 cm Cu, 7 TeV, pencil beam ($y = 1\mu\text{m}$, $y' = 0$)

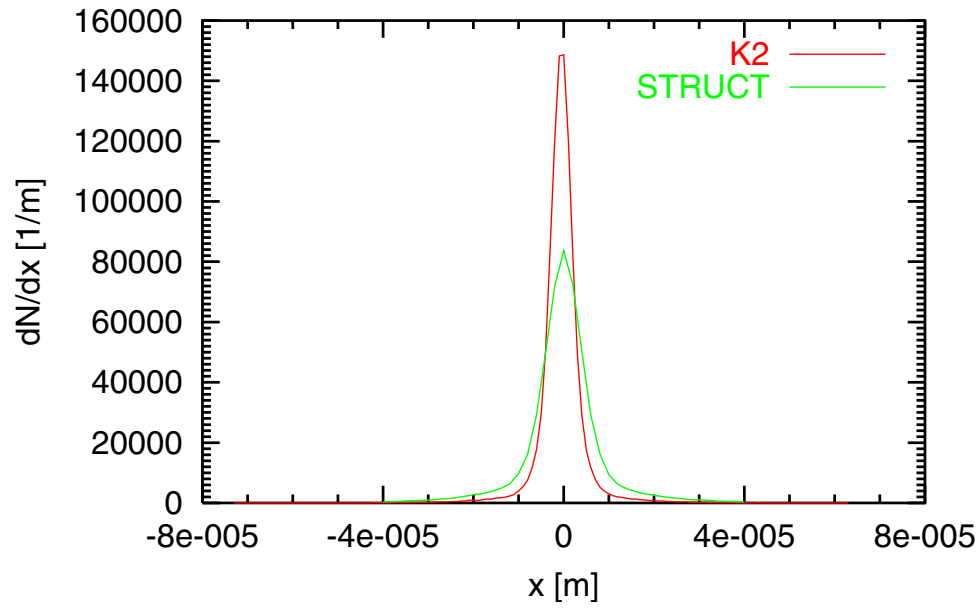
Collimator kick x:



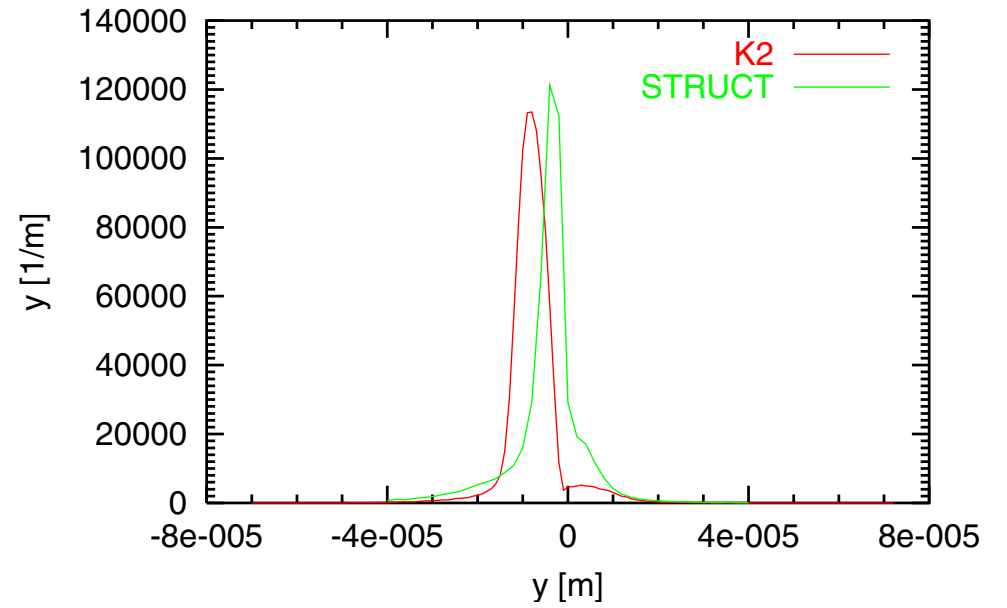
Collimator kick y:



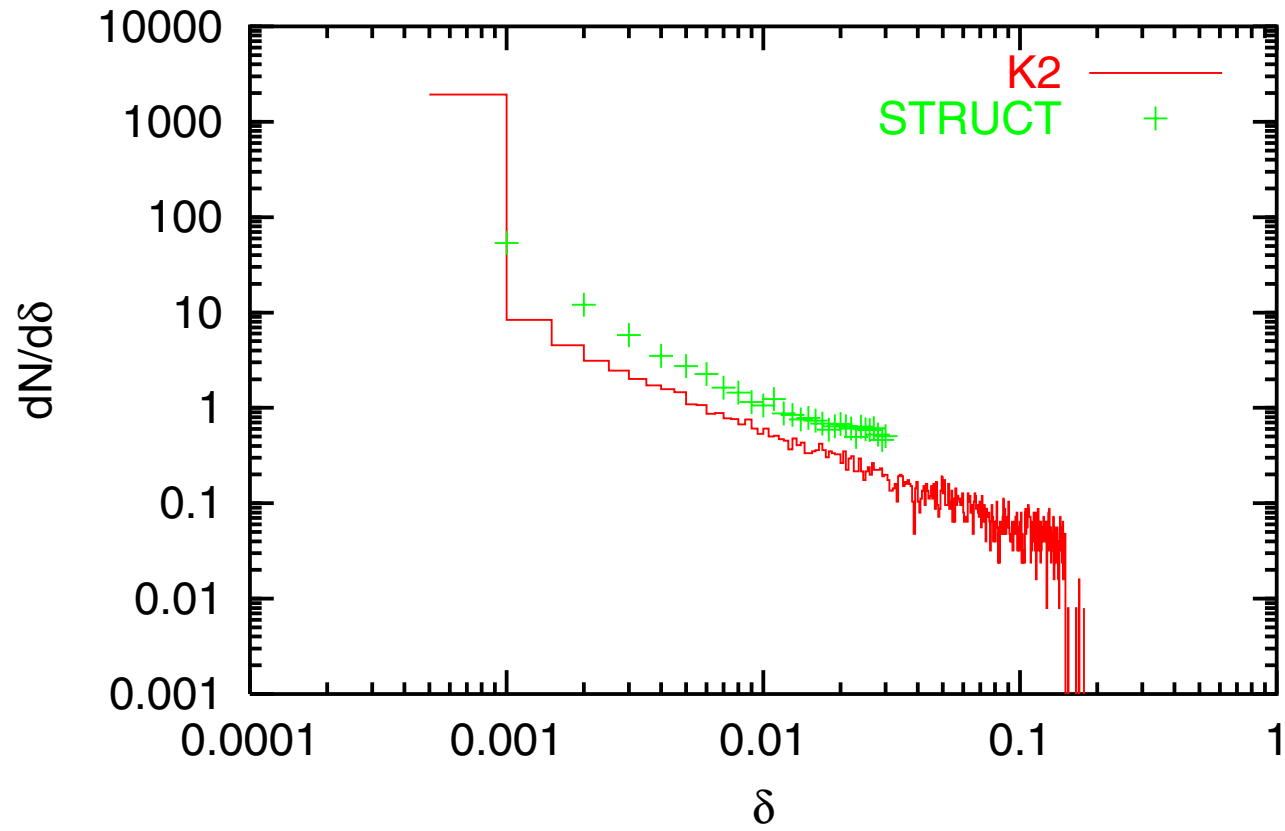
Offset x



Offset y



Momentum loss in collimator:



Efficiency with pencil beam and ellipse:

