Comparison of K2 and STRUCT routines

R. Assmann, D. Kaltchev

BCSG 19/6/02 + 3/7/02
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 m, y' = 0)

Collimator kick:
Offset change after collimator:

$dN/d\Delta y$ [m$^{-1}$] vs. $\Delta y$ [m]

- K2-x
- K2-y
- STRUCT

RA

BCSG 19/6/02 + 3/7/02
Momentum loss in collimator:
Comparison single jaw

50 cm Cu, 7 TeV, pencil beam (y = 1µm, y’ = 0)

Collimator kick x:
Collimator kick $y$:
Momentum loss in collimator:
Efficiency with pencil beam and ellipse: