Quick look at cosmics with Micromegas

LPTPC Analysis meeting #22 - 22.07.14

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Introduction

* Quick look at Micromegas run 04097 (2014)
  ‣ 7 modules
  ‣ Cosmics (mainly) parallel to pad rows
  ‣ 1000 events analysed

Reconstruction

★ Standard MM reconstruction up to hit level
  ‣ Thanks to P. Hayman

★ Track finding with FastHoughTransformation
  ‣ Track parametrisation X(Y), Z(Y)
  ‣ Hits rotated by 90° in software
    ✦ X ↔ Y, rows ↔ pads

★ Track fitting
  ‣ with 'radial' direction as measurement direction
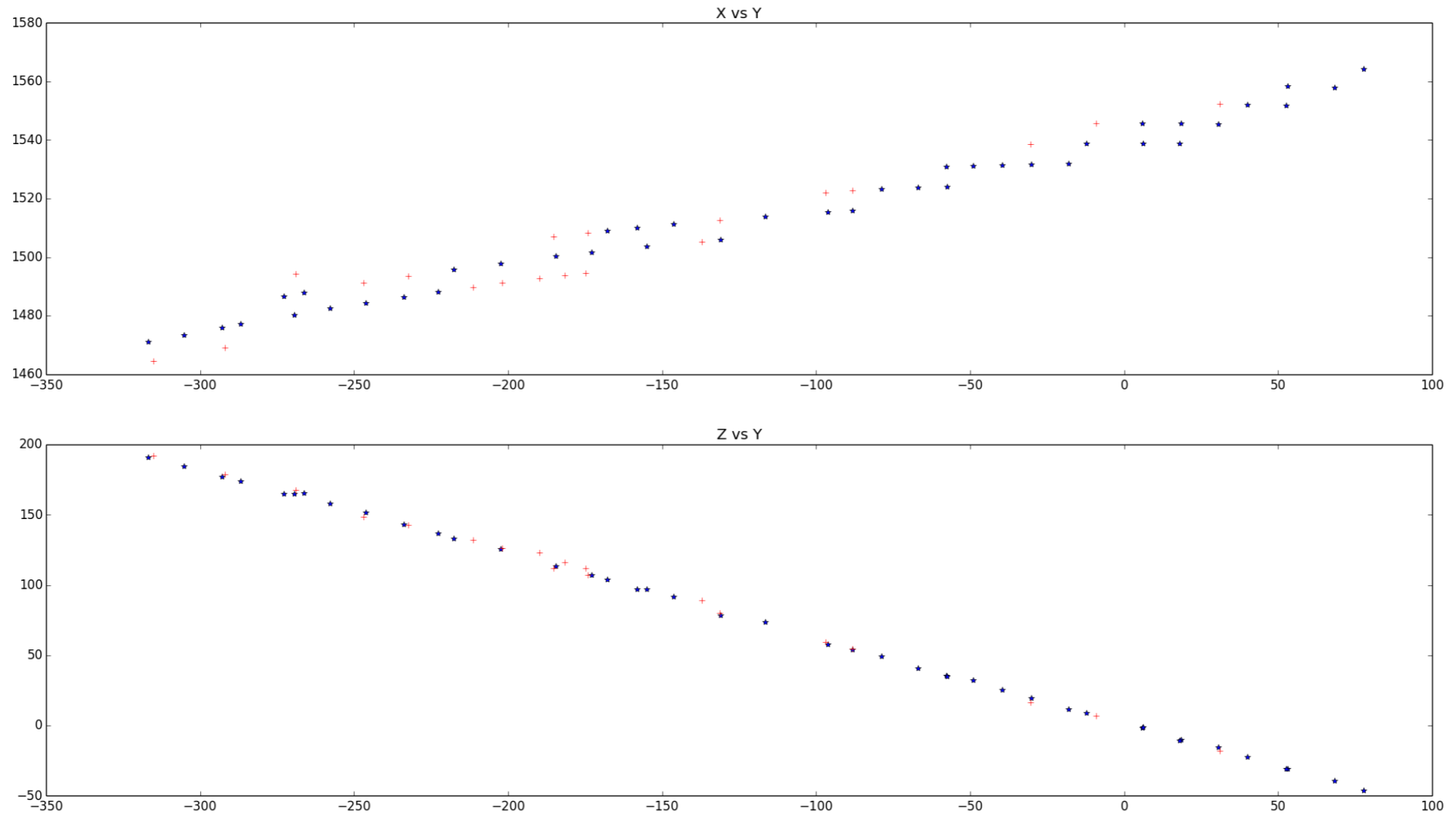   ✦ expected resolution: row distance / sqrt(12) ≈ 2 mm
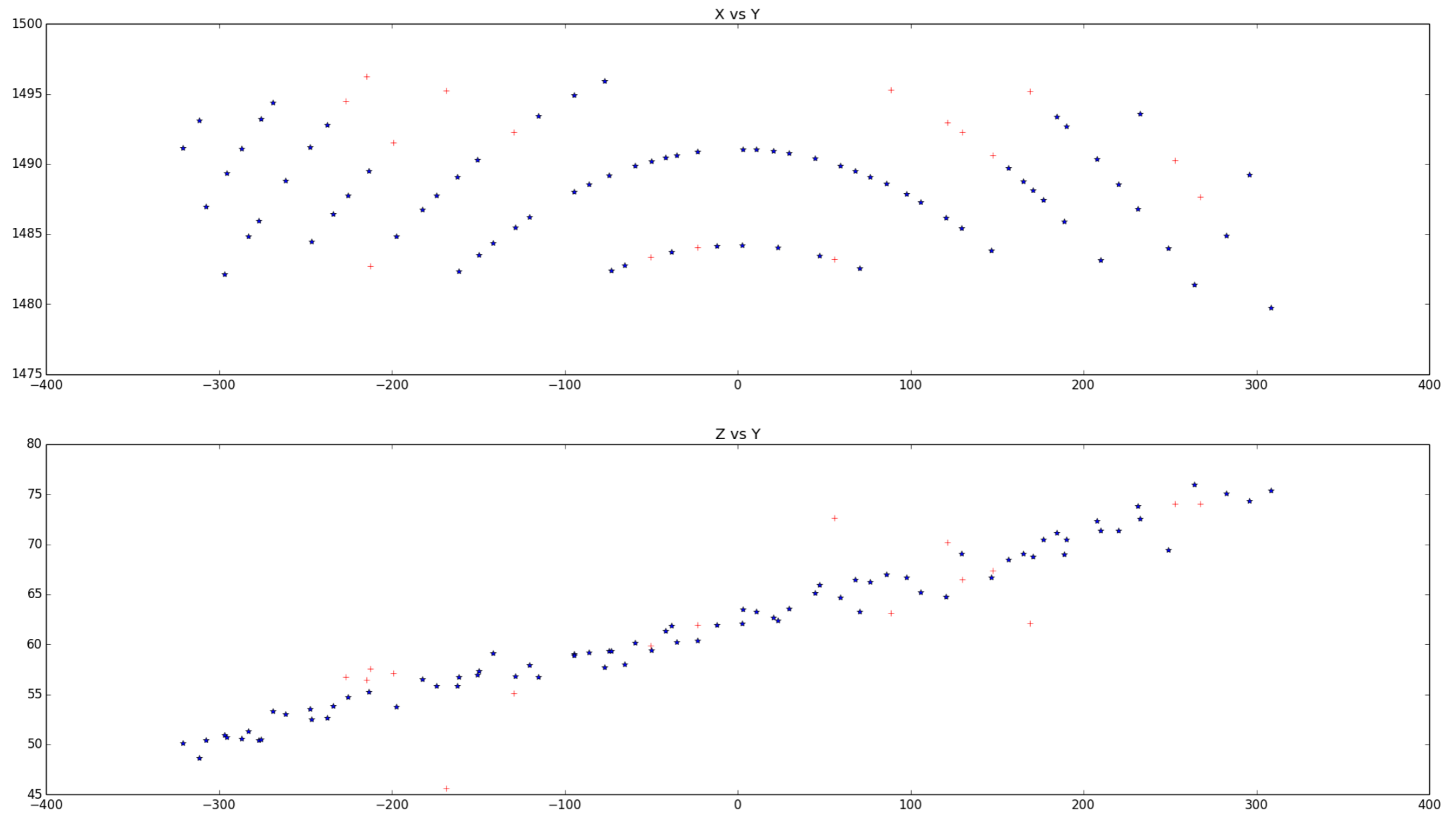
Example track (I)
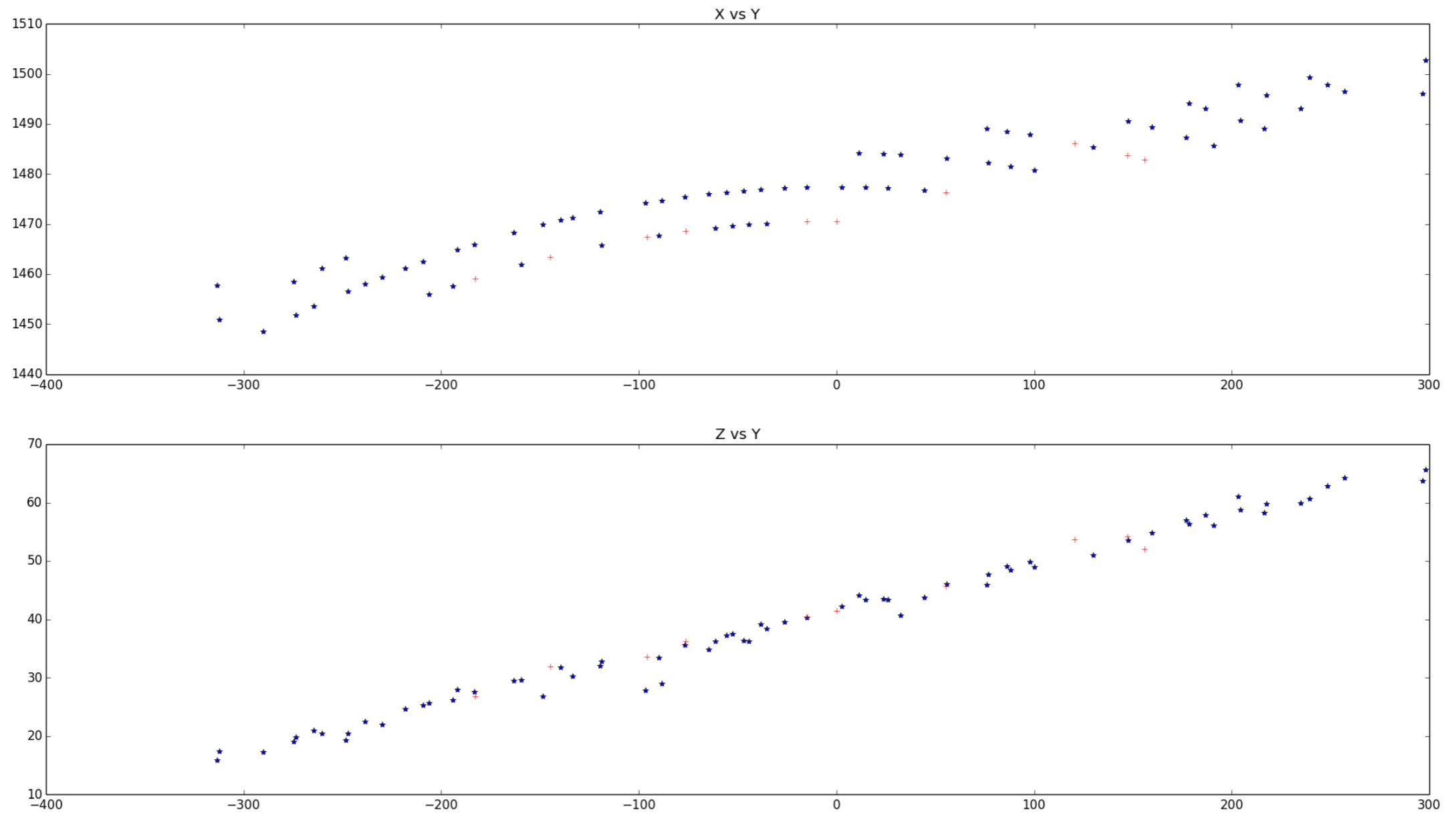
Example track (II)

*   hits on track

X vs Y

Z vs Y

Example track (III)

* hits on track

Track quality

448 tracks
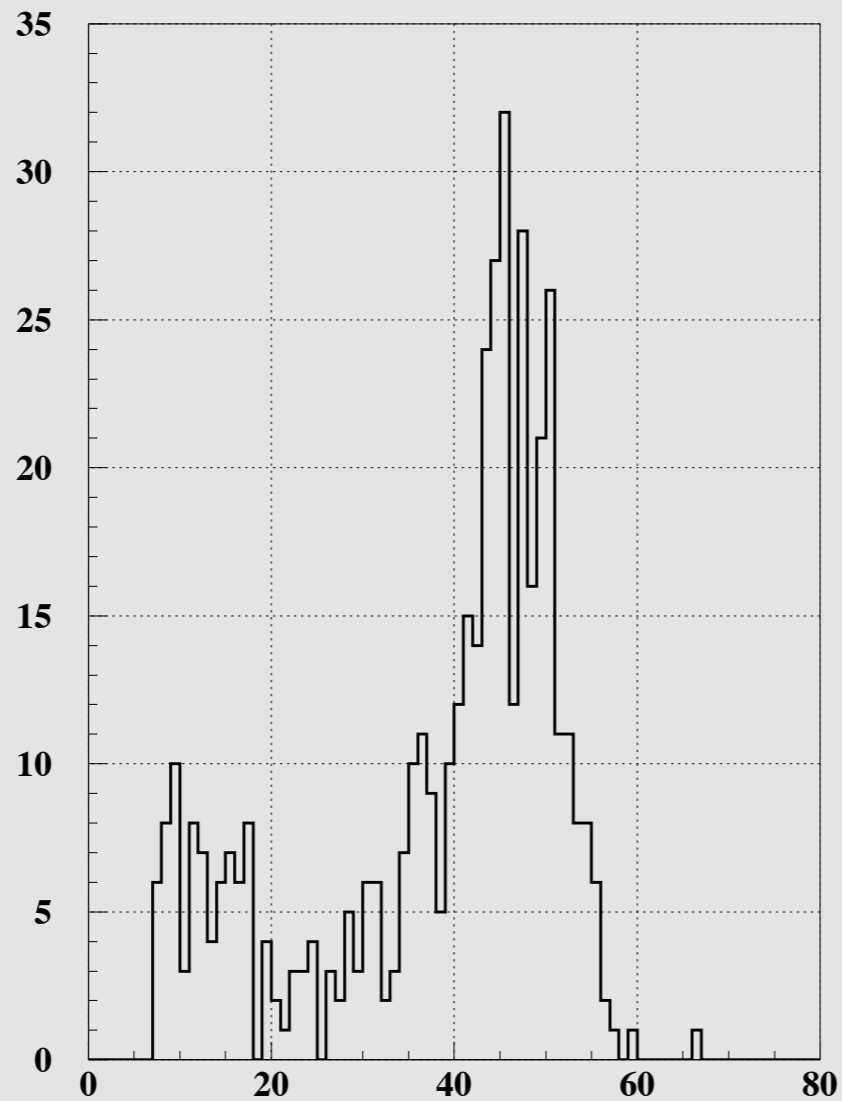
369 tracks with >20 hits

Mean 1.07

hits on track
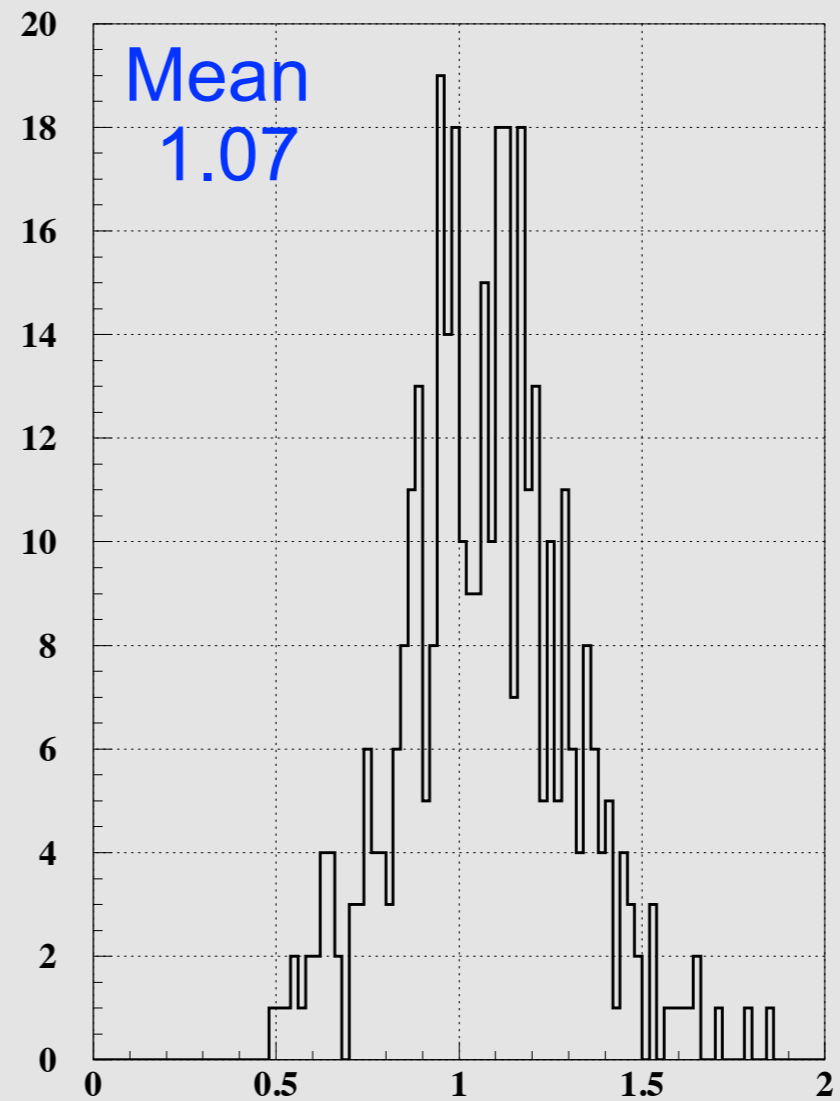
χ^2/ndf

Summary

★ FHT with X(Y), Z(Y)

  ‣ Finds track in about every second event

★ Radial hit error

  ‣ Fairly consistent with row distance / sqrt(12)