MIPP Software Analysis

Systematic Error in Calculation of Ptot

Tom Matthews and Holger Meyer
Fermilab

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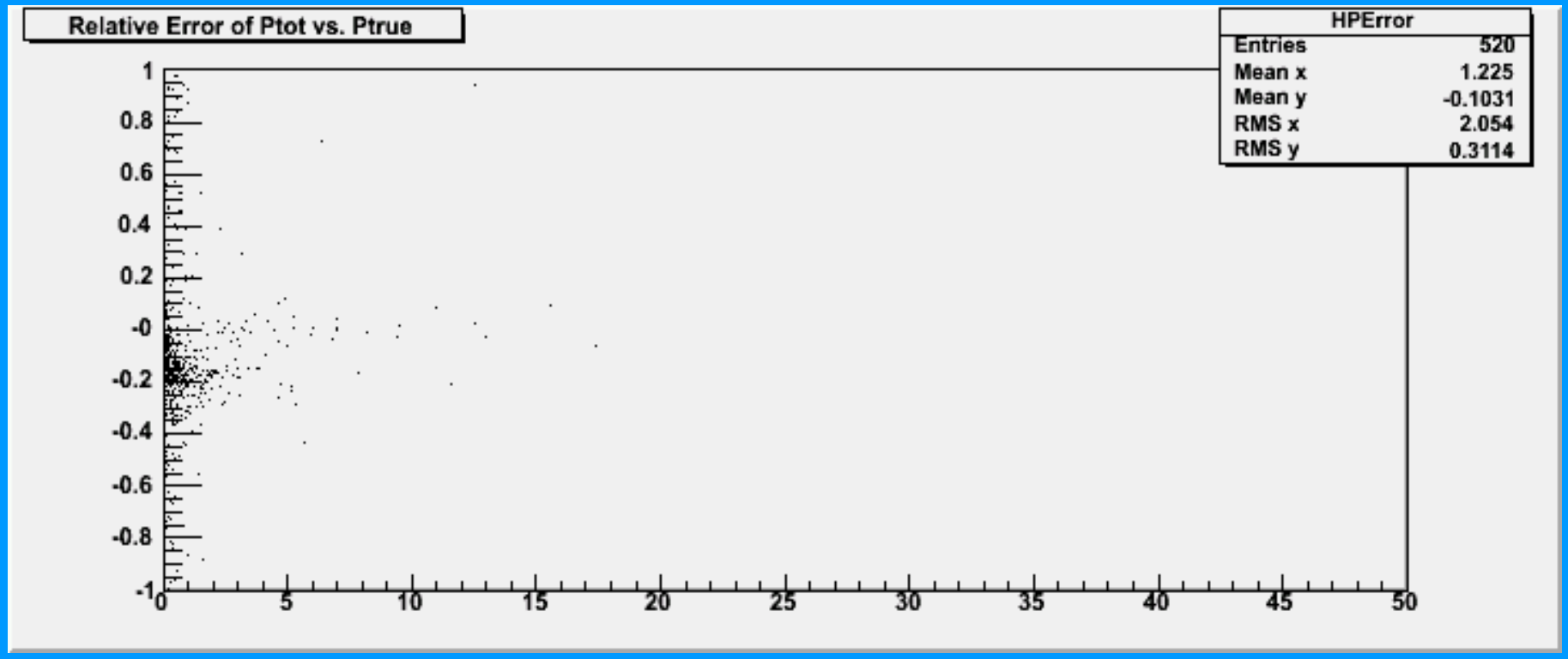
Overview

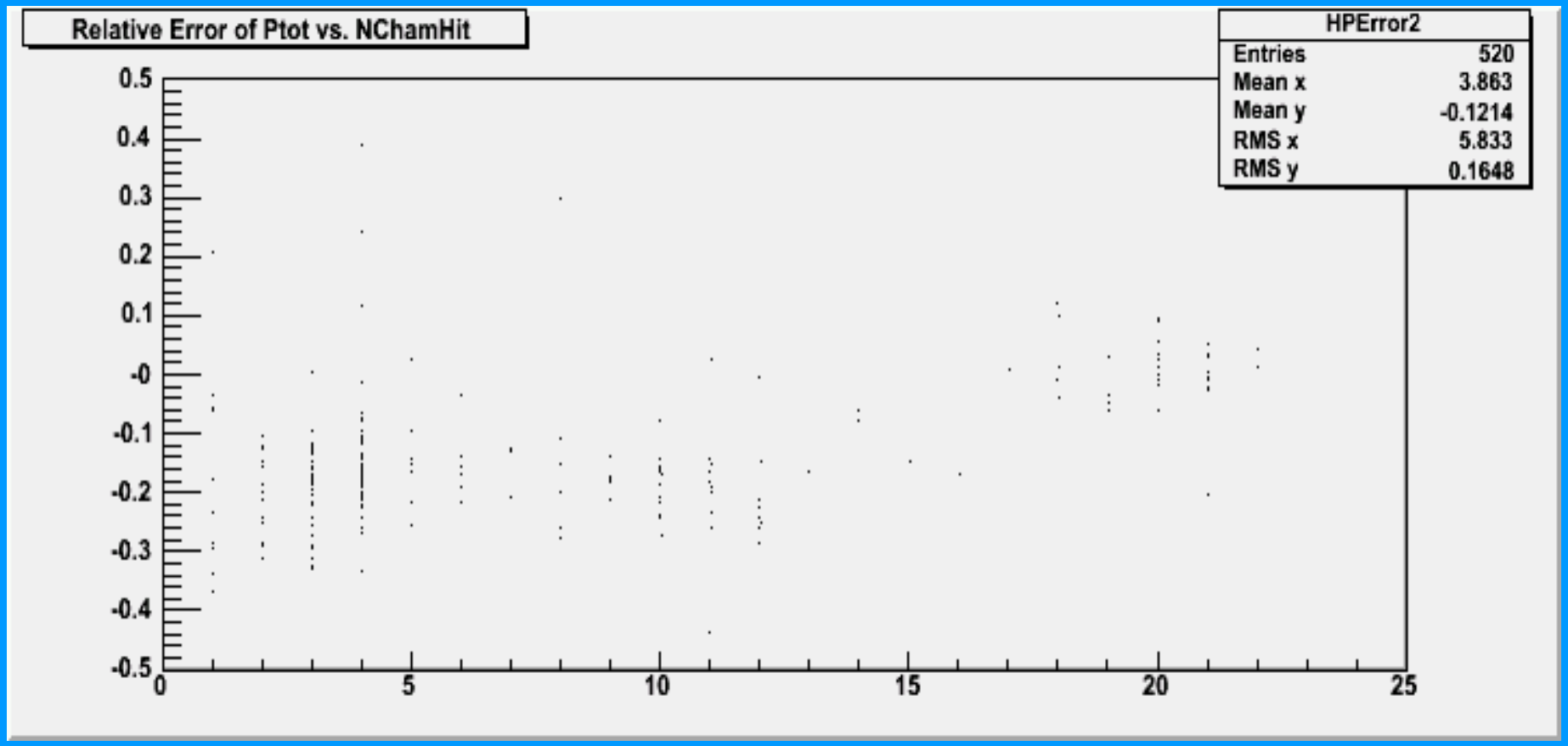
- Summer Student working on MIPP
- Couple interesting observations when making Histograms of DST and MC data

Systematic Error for Electrons



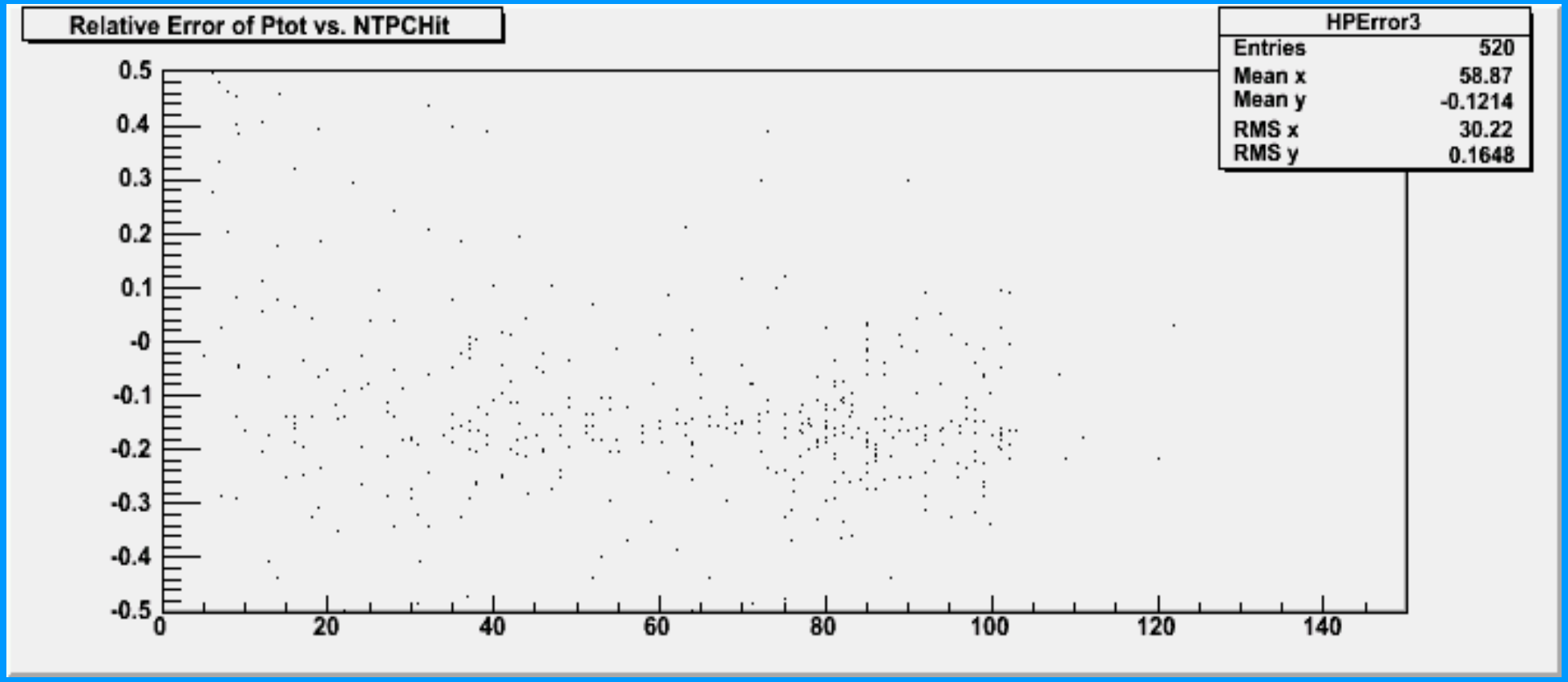
- Relative error of Ptot = (Ptrue – Preco) / Ptrue, where Ptrue is from the MC data and Preco is from the reconstruction of the MC digitalization

Systematic Error for Electrons



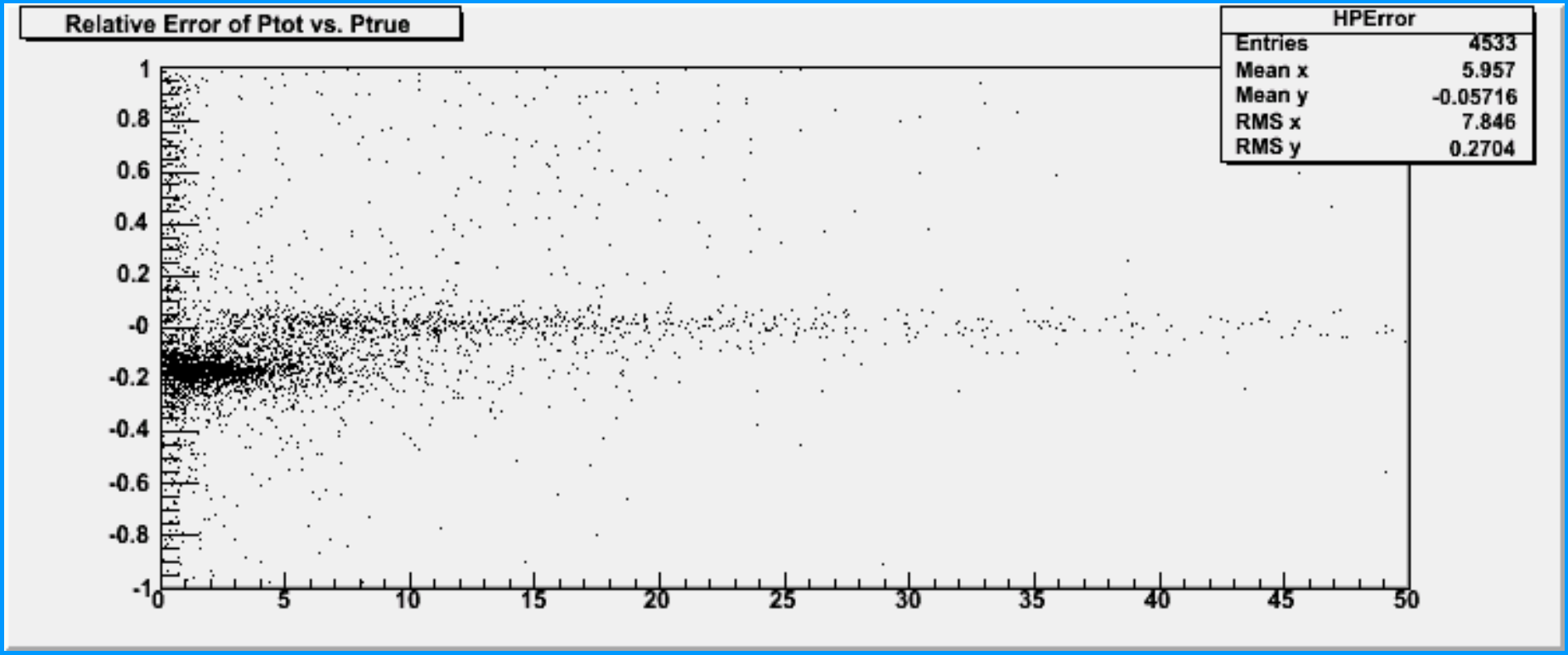
- NChamHit = # of hits in Drift Chambers
- Apparent systematic error for NChamHit < 15

Systematic Error for Electrons



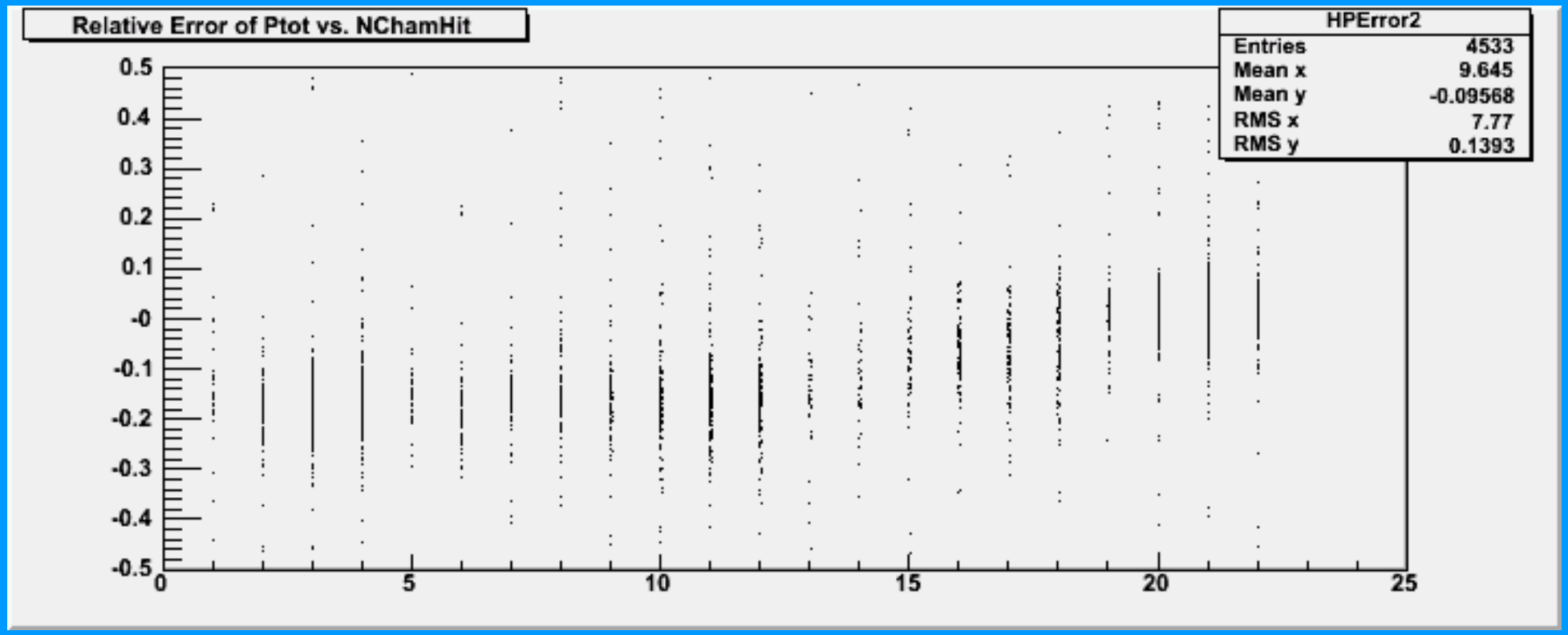
- NTPCHit = # of hits in the TPC
- Systematic Error independent of NTPCHit

Systematic Error for Muon



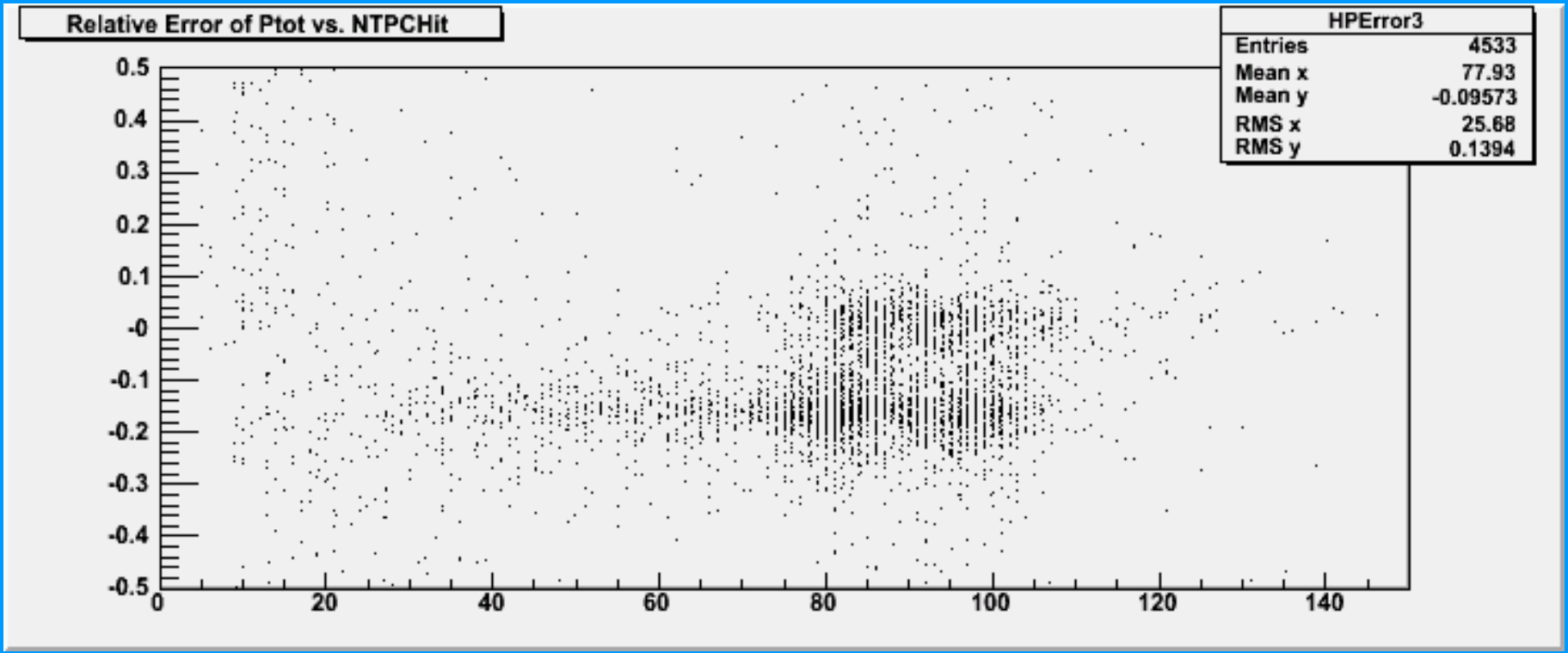
- Two well-defined bands
- Systematic Error for Ptrue < ~5 GeV/c

Systematic Error for Muon



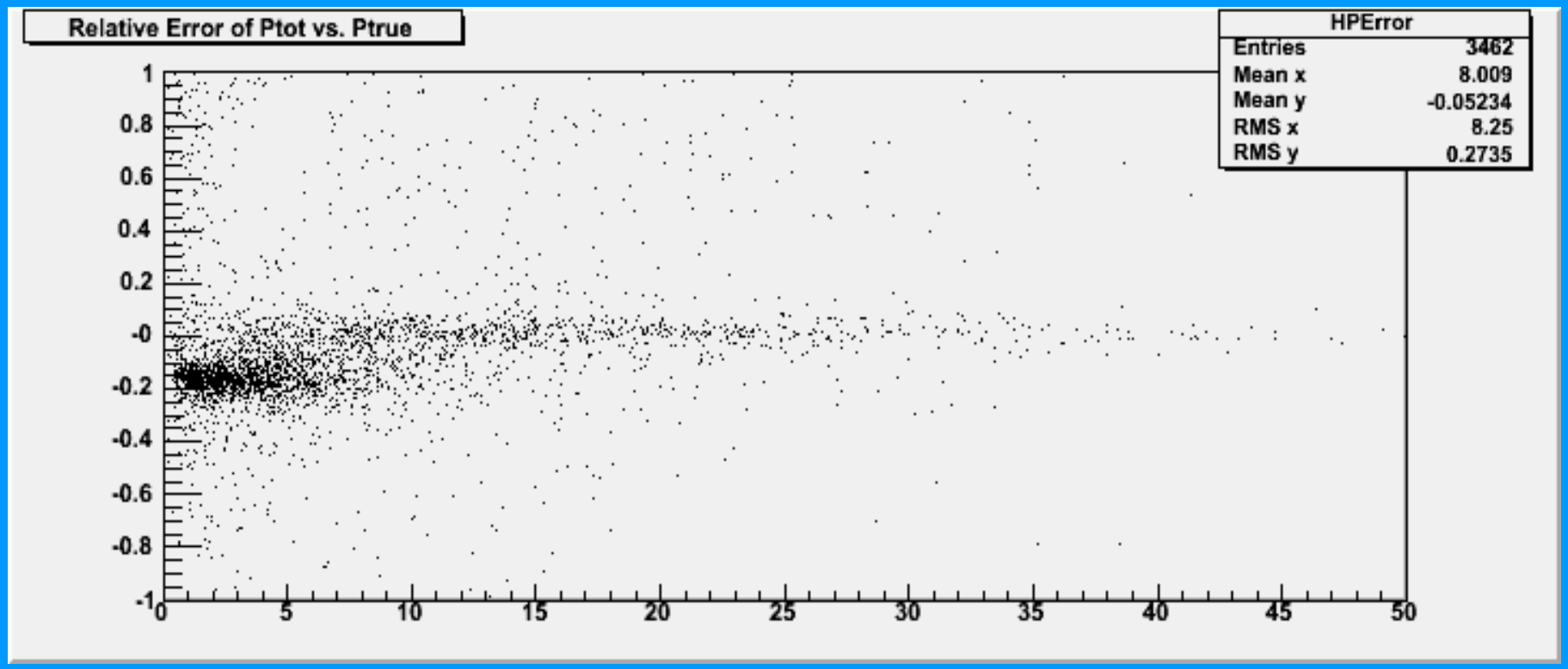
- Again, much lower systematic error for large NChamHit

Systematic Error for Muon

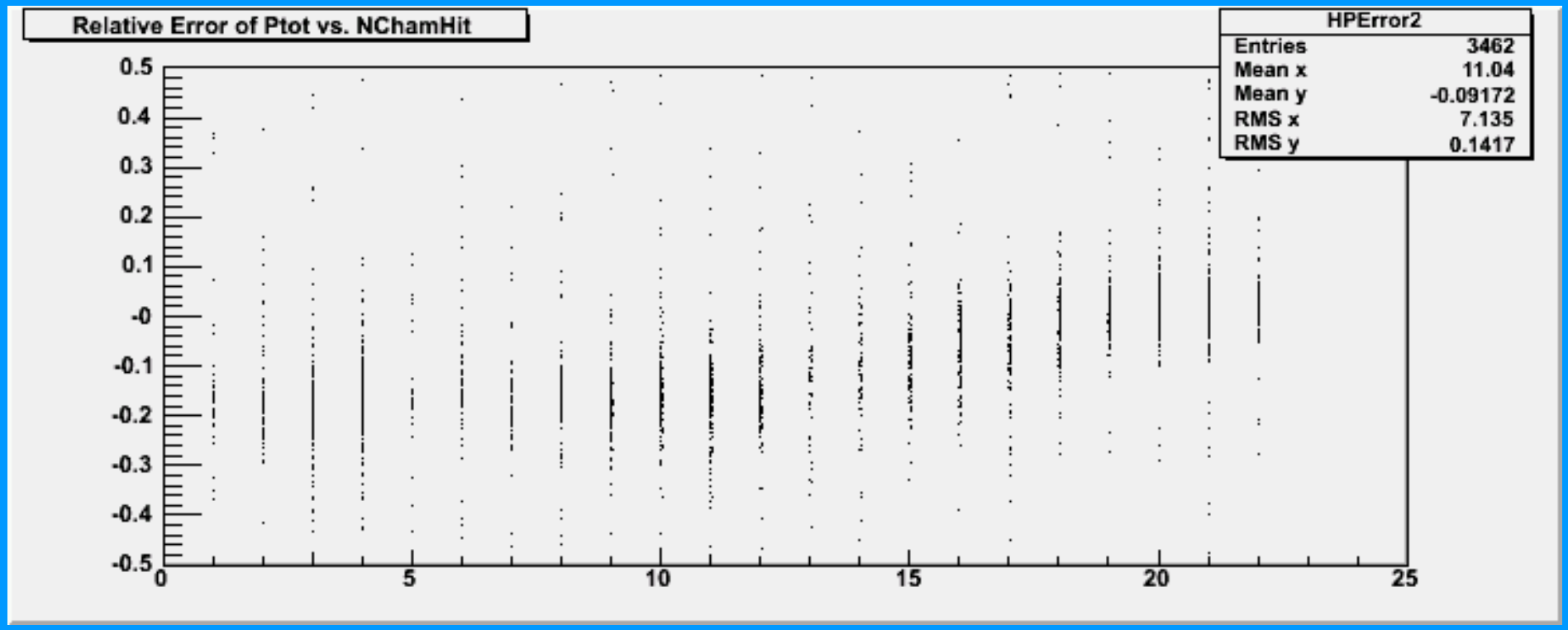


- Two apparent bands

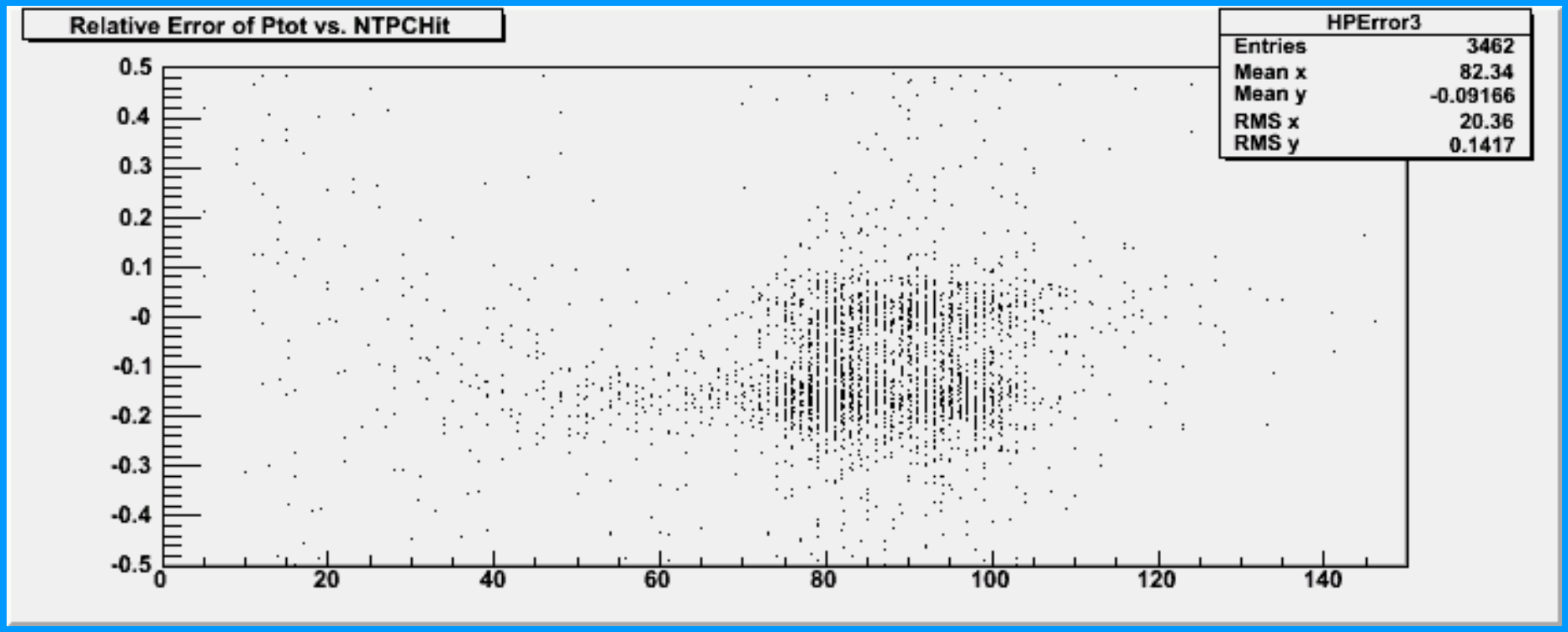
Systematic Error for Pions



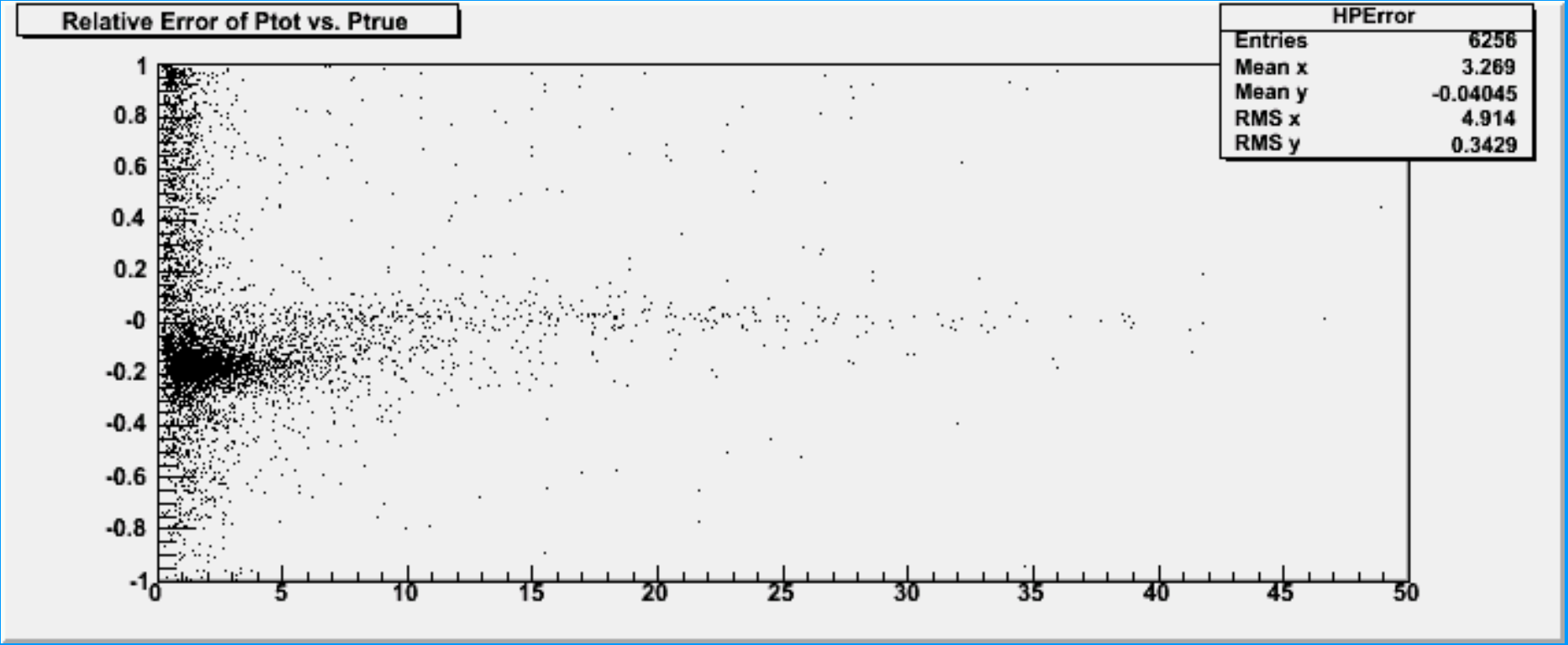
Systematic Error for Pions



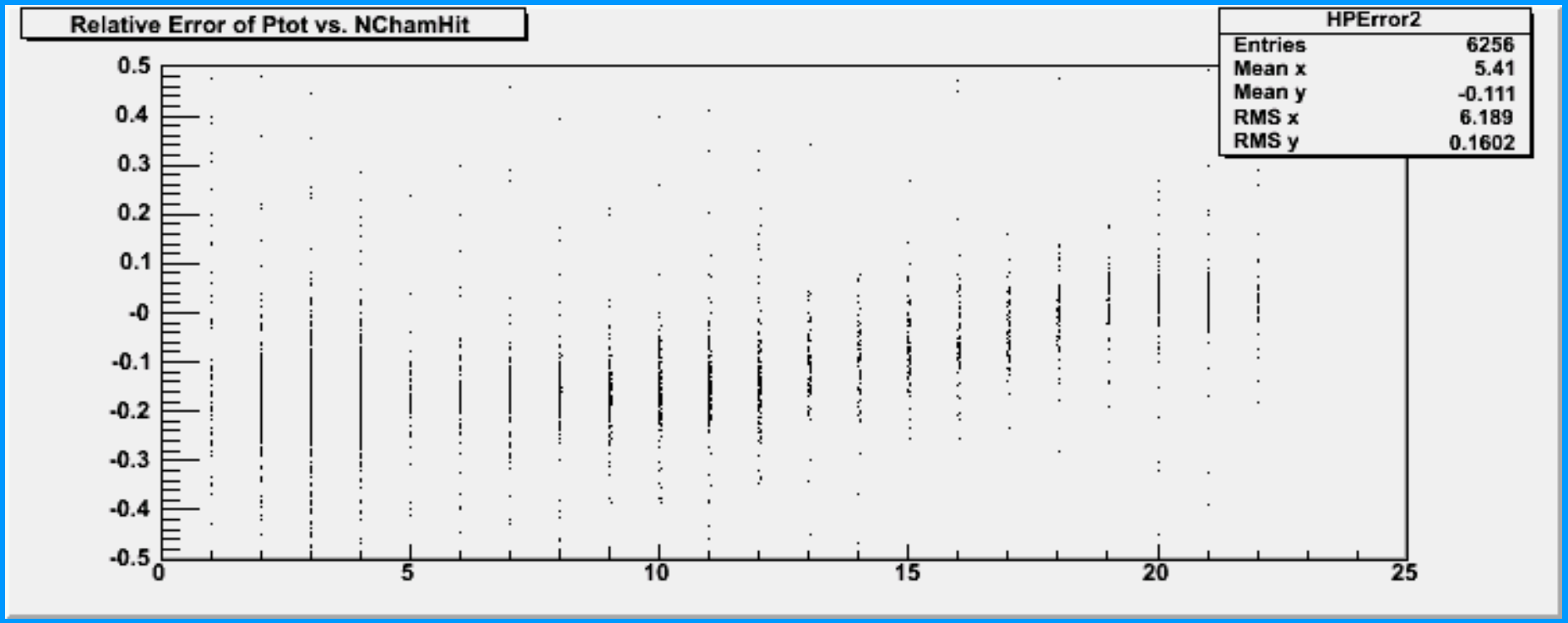
Systematic Error for Pions



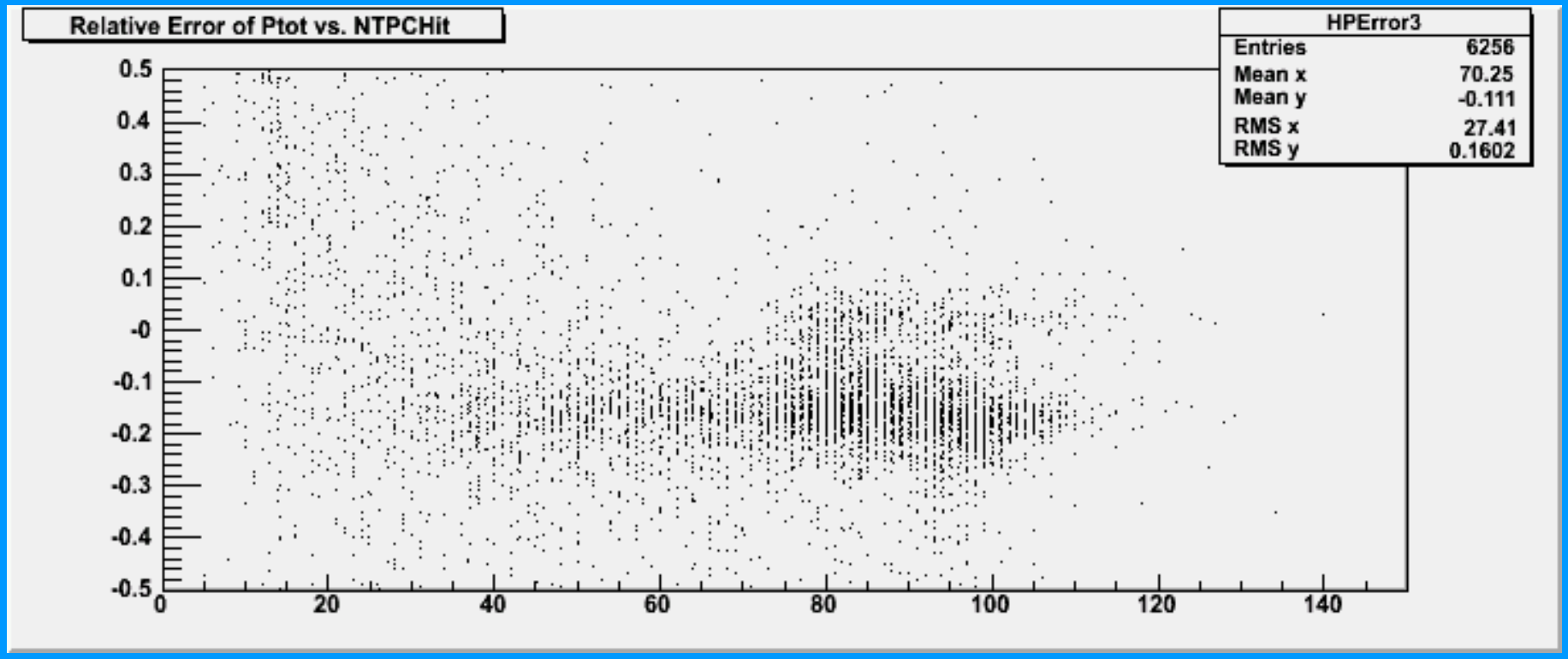
Systematic Error for Kaons



Systematic Error for Kaons



Systematic Error for Kaons



Conclusions

- Different particles overall very similar
- Not sure of the reason for these apparent errors:
  - Difference in reconstruction between those particles that pass through Rosie and those that do not
  - Different specification of magnetic fields for MC data