

# MIPP Update

MINOS Collaboration Meeting  
ANL March 2005

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03/20/05

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*for the MIPP E907 Collaboration*

Detector:

TPC

ToF

DCKov

RICH

Momentum:

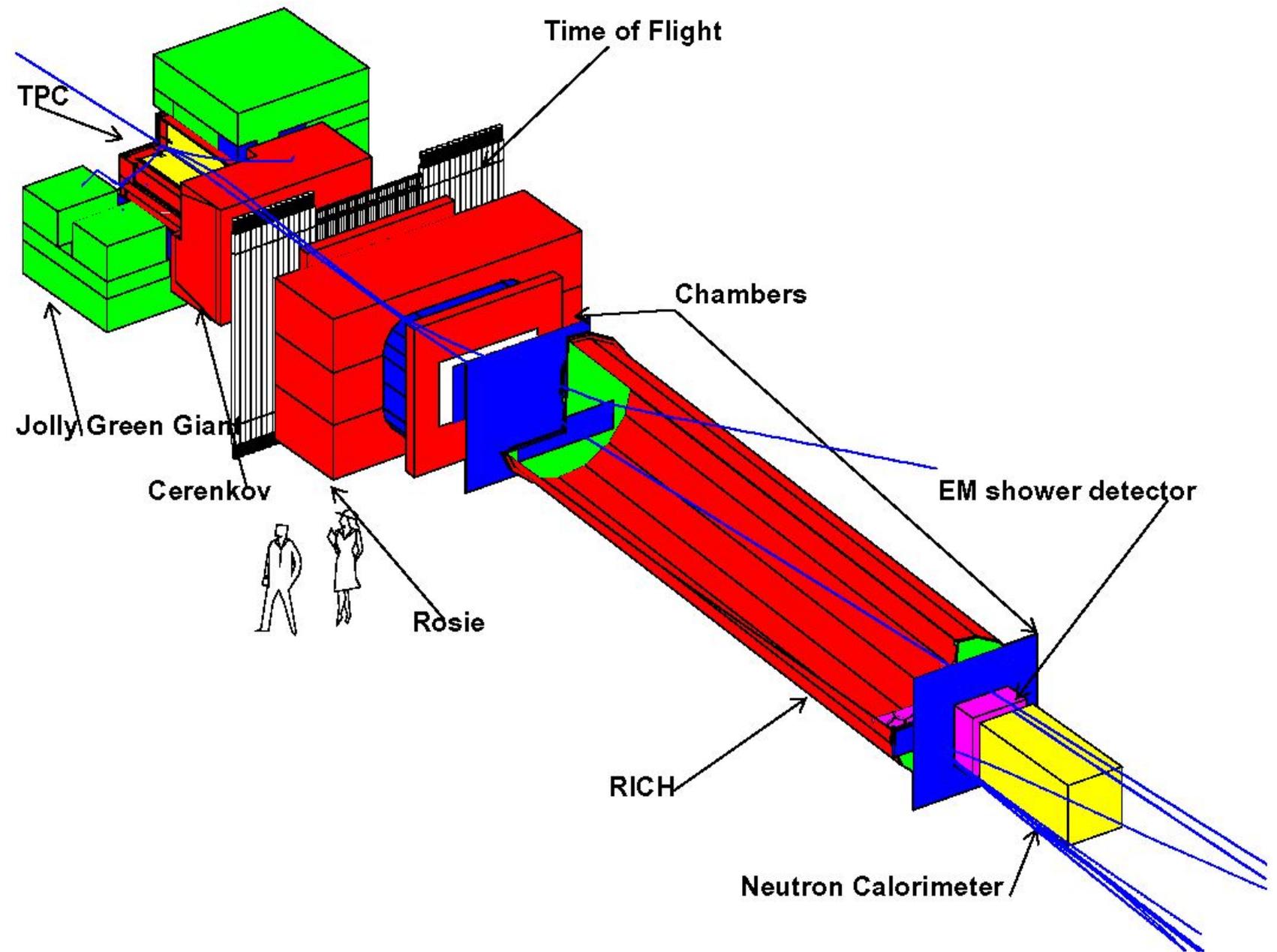
< 1 GeV/c

1-3 GeV/c

3-17 GeV/c

20-80 GeV/c

Horizontal cut plane



## E907 Status

- Physics-quality data collection began at the end of December, 2004.
- Liquid hydrogen target was installed at the end of February, and we began taking physics-quality data on this target in early March.
- Work-in-progress:
  - determining and improving the efficiency\*<sup>1</sup>purity of our trigger system.
  - studying various beam tunes that will lower the amount of scraping in the secondary beam-line without significantly diminishing our momentum resolution.

# Data Collected As of 03/18/05

Target						Total
Z/Element	15	20	30	40	50	
Empty			0.14		0.81	0.95
1 / H					0.80	0.80
4 / Be			0.02		0.60	0.62
6 / C*			0.10		0.23	0.33
NuMI**						0.00
13 / Al			0.08		0.03	0.11
29 / Cu	0.01	0.02		0.02	0.02	0.04
83 / Bi			0.50		1.06	1.56
Total	0.01	0.02	0.84	0.02	3.55	4.40

\* Thin C and Al data are useful to compare NuMI target data to, not to mention that these are common beamline elements...

\*\* We hope to begin taking NuMI target data middle of April...

# Data Reconstruction and Analysis

## Reconstruction Software Status:

- Existing reconstruction for:
  - Beam wire-chambers (straight line fits).
  - TPC (simple track (helix) and vertex fitting).
  - Drift-chambers (tracking).
  - RICH (ring fits).
- Still to-do
  - TPC:
    - ExB corrections
    - Drift-time and trigger offset calibration
    - yadda yadda yadda
  - Full tracking
  - Calibration of DCkov, ToF, Wire/Drift chambers, HCal, ECal, etc.

# Data Reconstruction and Analysis

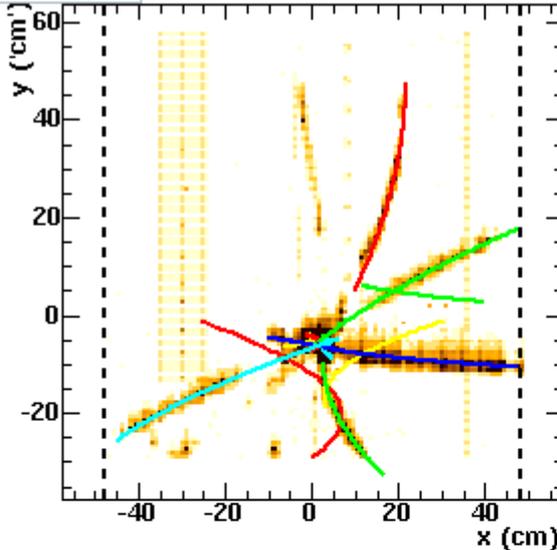
MIPP (FNAL E907)

Run: 13267  
SubRun: 1  
Event: 6064

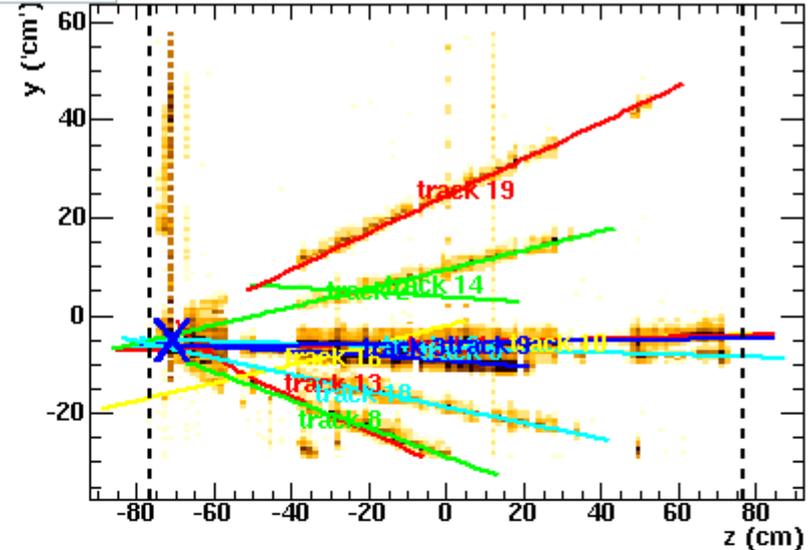
Fri Mar 11 2005  
22:00:25.397881

\*\*\* Trigger \*\*\*  
Beam  
Word: 0100  
Bits: C11F

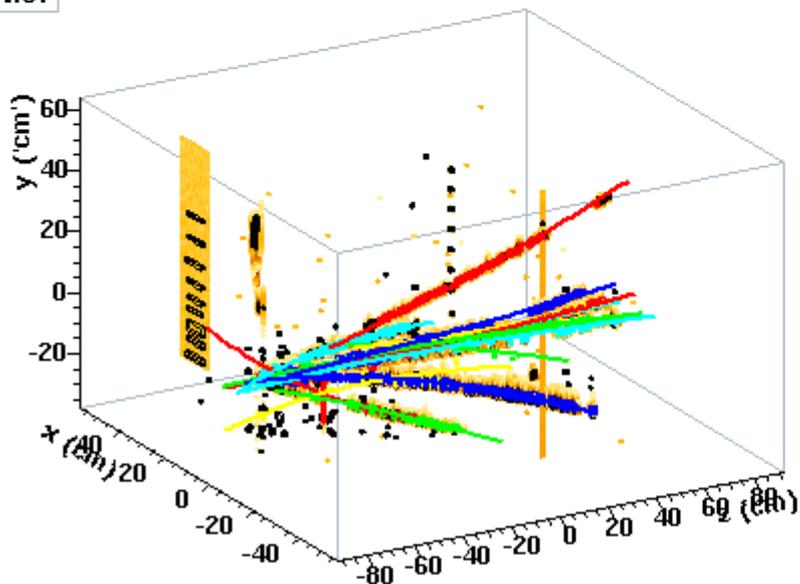
TPC Front



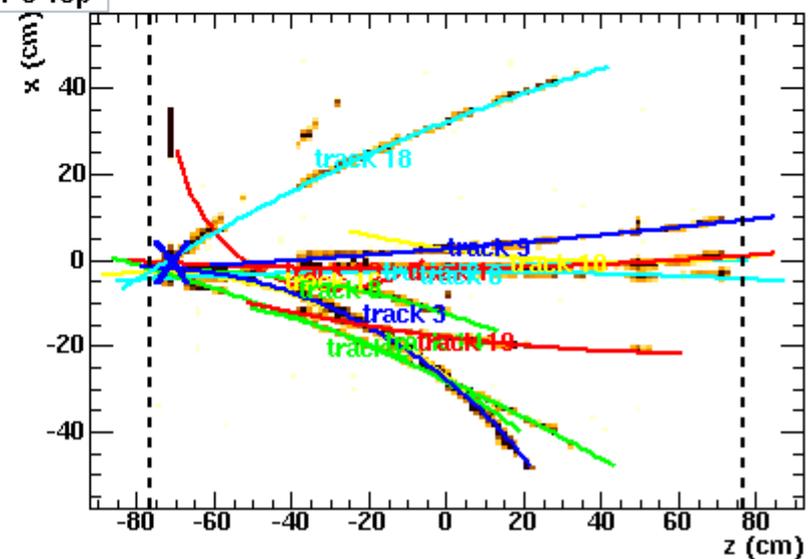
TPC Side



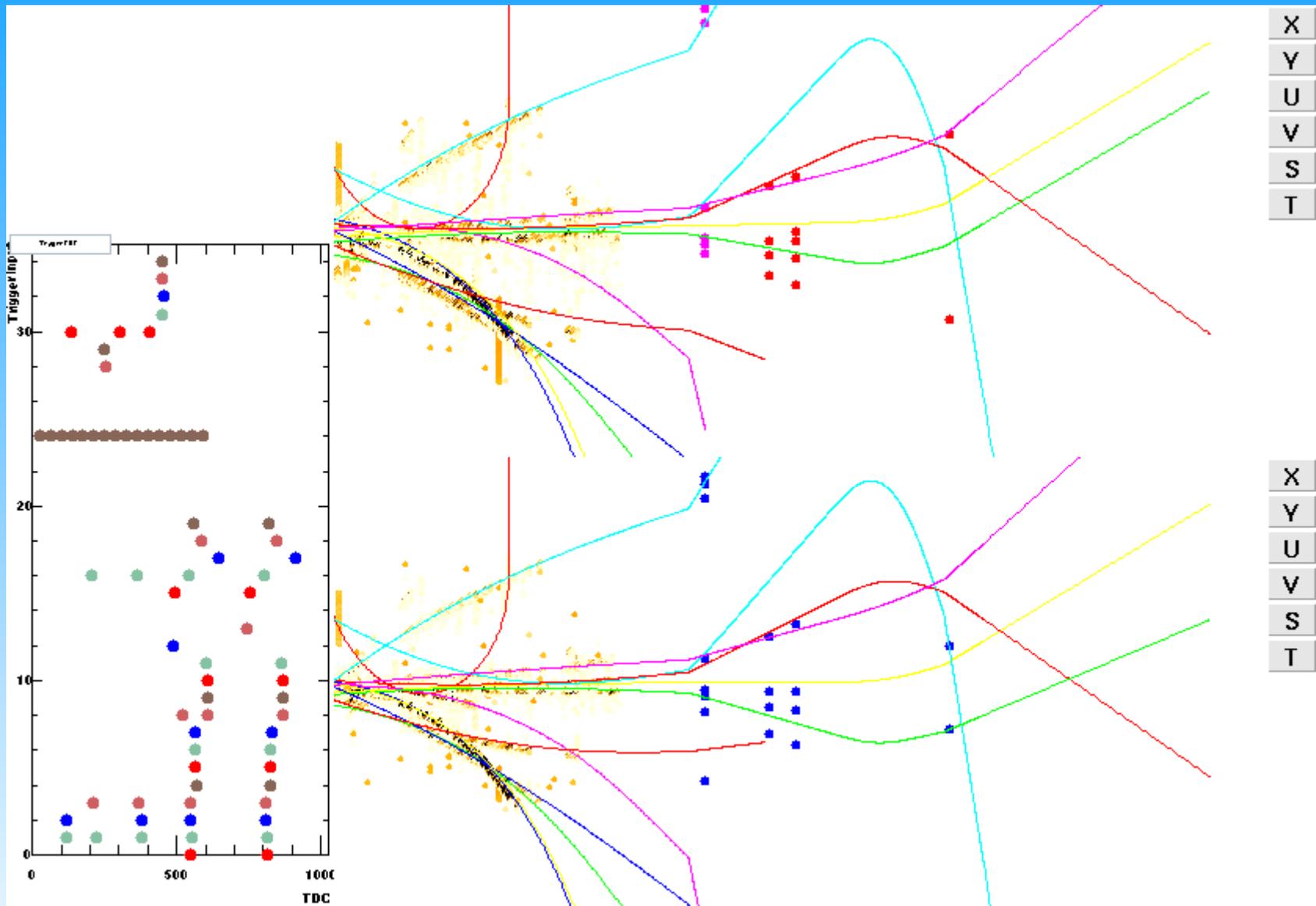
h31



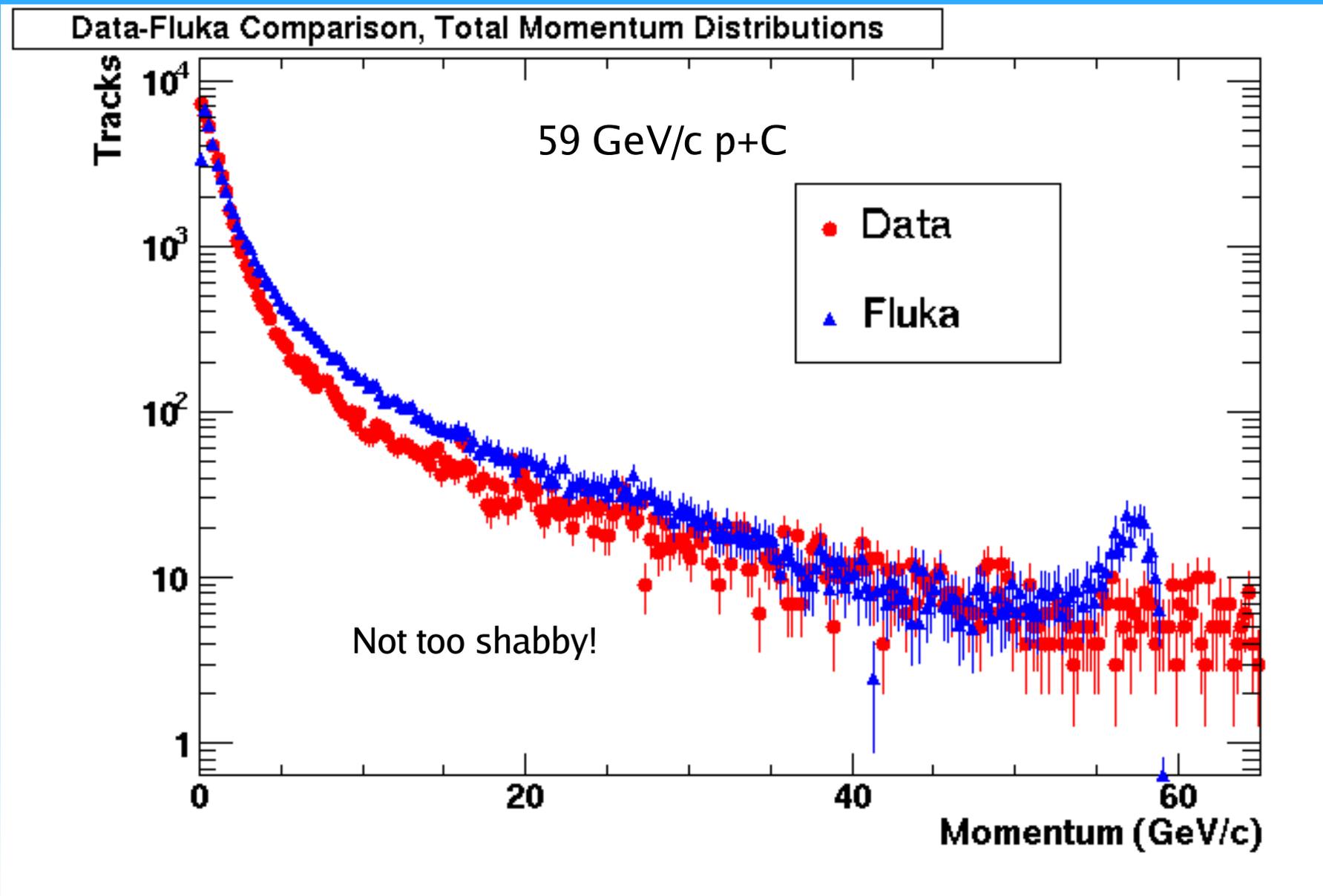
TPC Top



# Data Reconstruction and Analysis

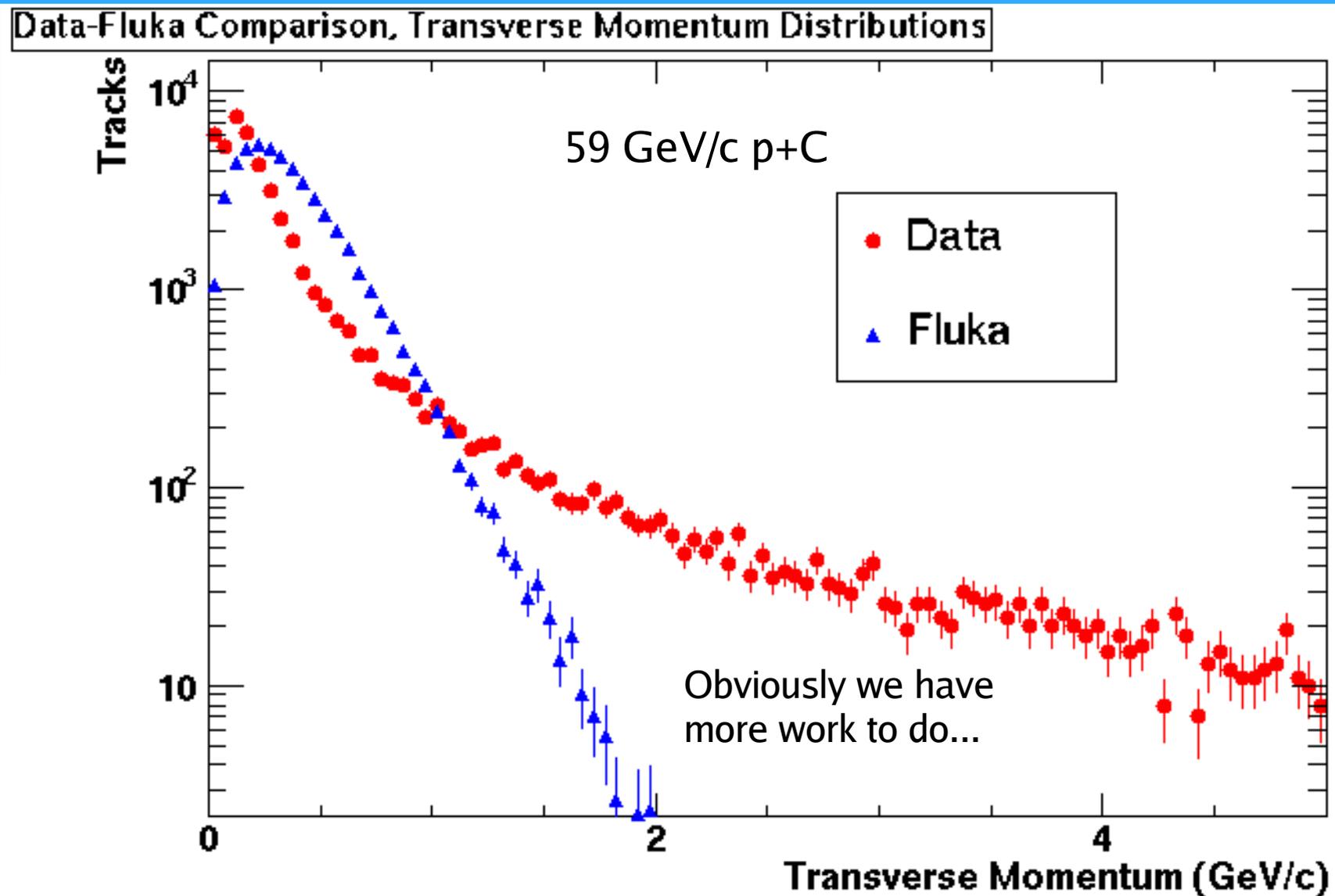


# Data Reconstruction and Analysis (Some Preliminary Plots)



Data courtesy of Nick Graf

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Data courtesy of Nick Graf

# NuMI Target Measurement

- We hope to begin taking NuMI target data sometime in mid-April.
- To do before we begin taking NuMI data:
  - Safety approval to run the 120 GeV beam down our line
    - Reduction of the flux in our beamline (<100k protons per spill)
    - Establishment of a beam tune
  - Mounting of the spare NuMI target in the E907 experimental hall (Jim Kilmer is working on this)
  - Special trigger system design and implementation
    - system should be very simple compared to the trigger system currently used in MIPP: take all protons within NuMI beam spot

# Conclusions

- All-in-all, things are running pretty smoothly.
- Data looks reasonable so far...
- NuMI target measurement will happen in about a month (?)