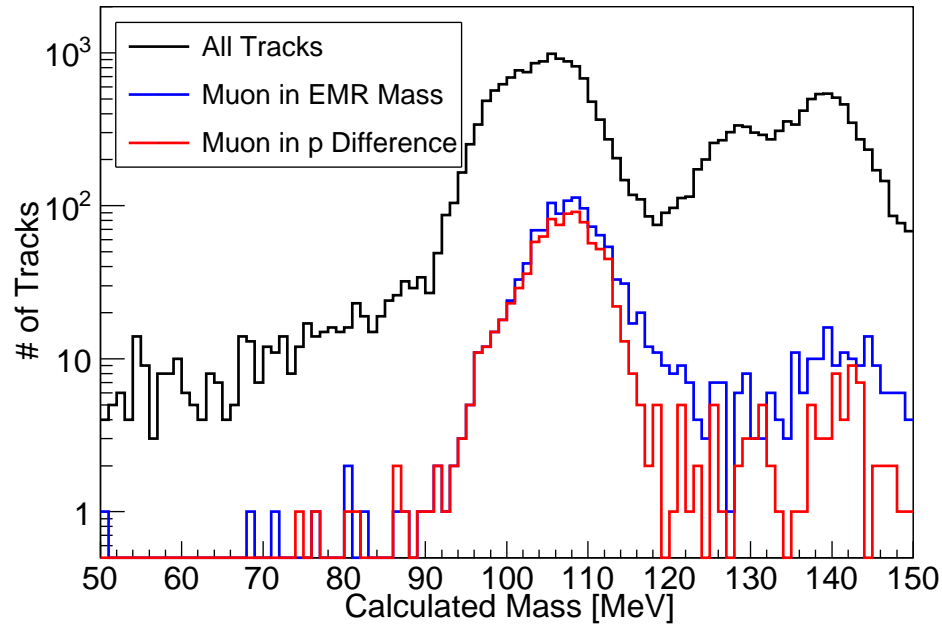
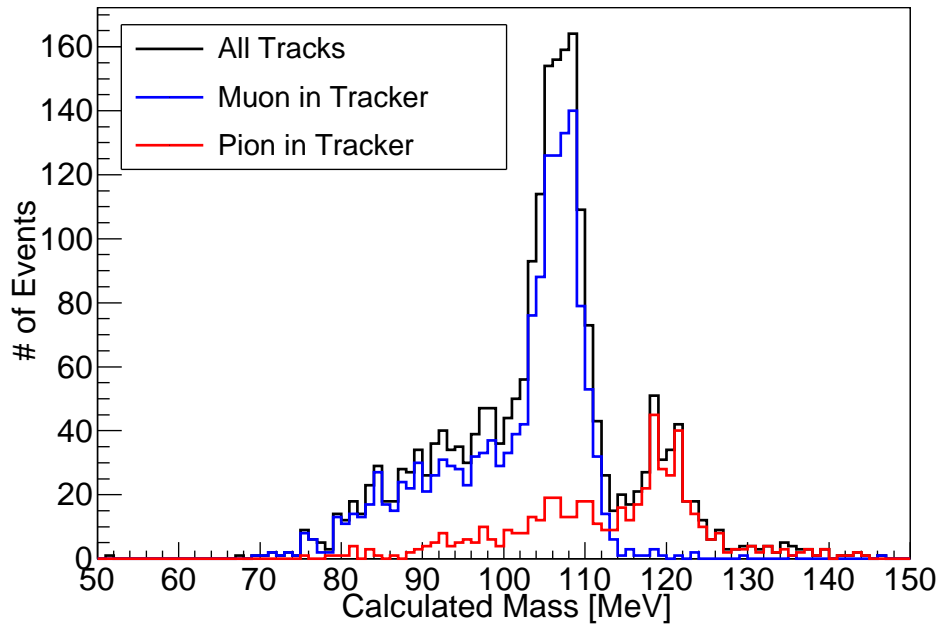


Attempts to Measure PID Purity

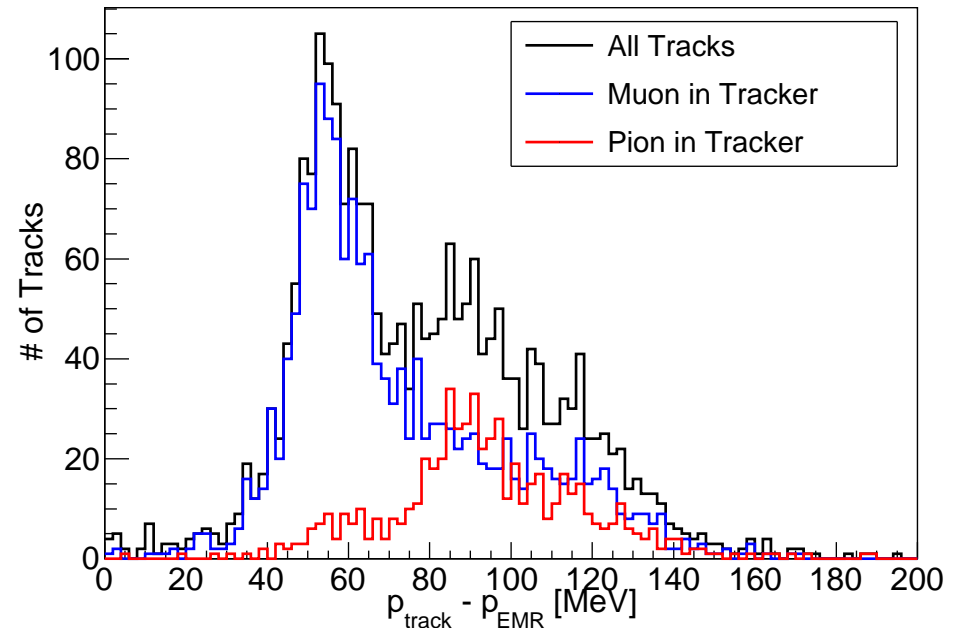
Mass From Tracker Momentum and TOF01



Mass From EMR Range and TOF12



Run 7475 Momentum Difference

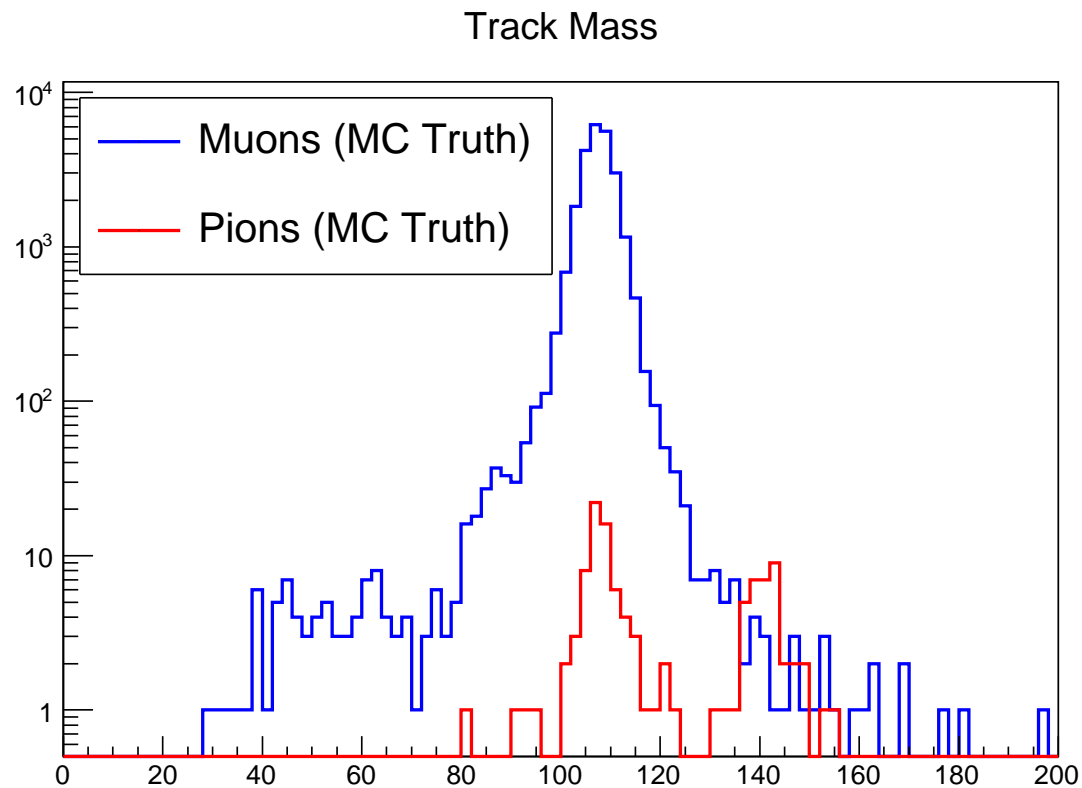


Performance Comparison of Downstream PID

Downstream Algorithm	Run 7475 μ	Mis-IDed	Run 7469 μ	Mis-IDed
No PID	1803	23.2%	1794	2.4%
EMR m_{calc}	1470	14.7%	1758	1.9%
$p_{\text{track}} - p_{\text{EMR}}$	1009	7.9%	1306	0.3%

- “Mis-IDed” assumes the upstream PID is correct
- Similar calculation for upstream PID not as useful
(downstream PID definitely not as pure as upstream)

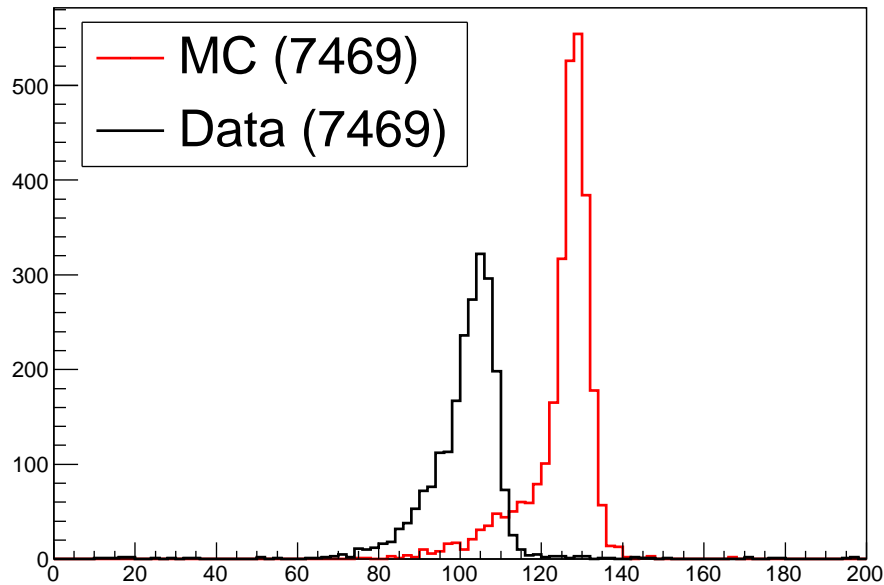
Measuring Purity in MC



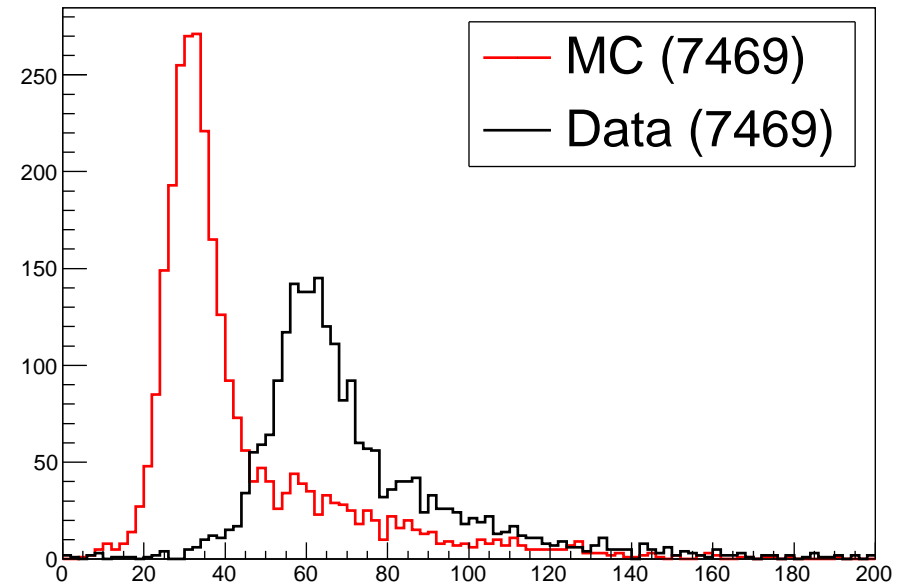
- Working on getting MC matching working
- I'm checking MC truth too early, and some pions have decayed into muons by this point.

Downstream PID in MC

Mass From EMR Range and TOF12



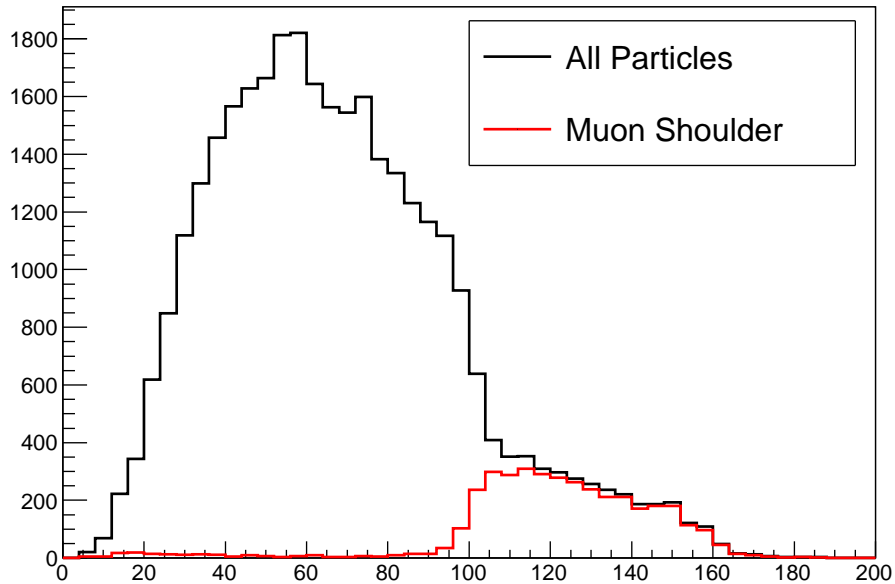
Tracker 0 Momentum - EMR Momentum



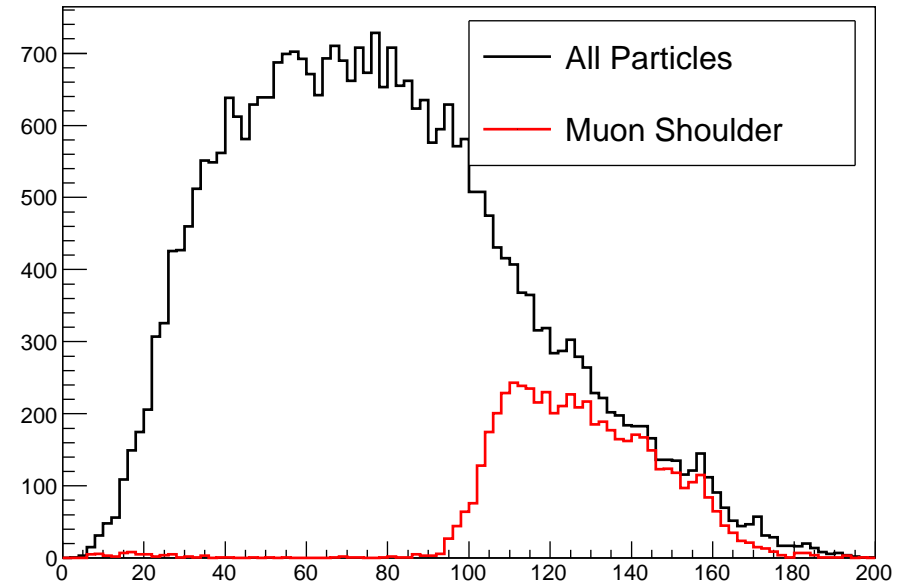
- My algorithms do involve a momentum correction from a fit
- Redoing this fit in MC probably required (would like more pion statistics for this)
- Mismatch could be due to incorrect material budget?

Shoulder from Diffuser

Maximum R in Tracker 0



Maximum R in Tracker 0 (MC)



- Above plot is simple calculation. Can we properly extrapolate track?
- Would involve accurate model of fringe field