

# Cherenkov Reconstruction

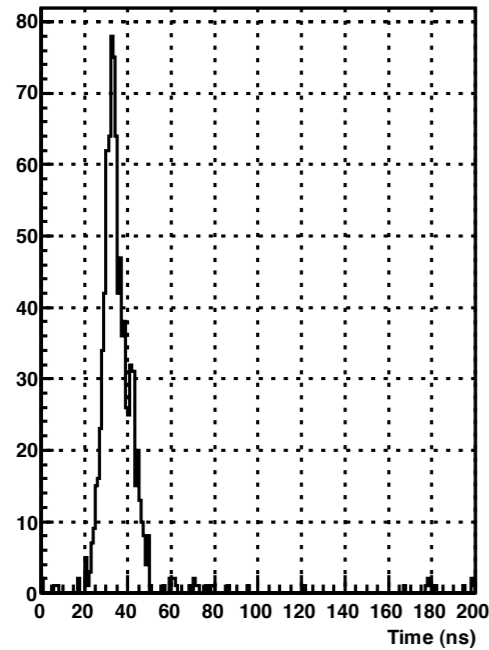
Gene Kafka

IIT

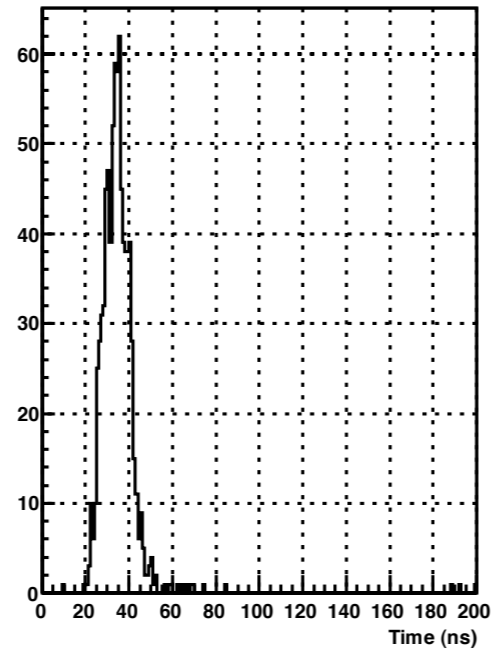
February 9th, 2012

# Time of Arrivals

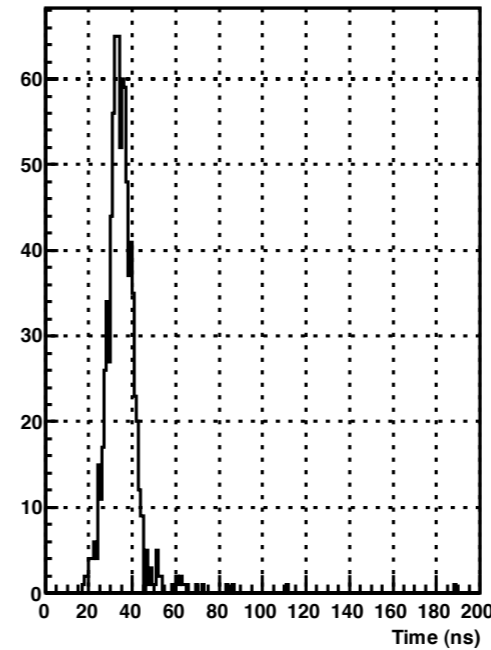
Arrival Times0



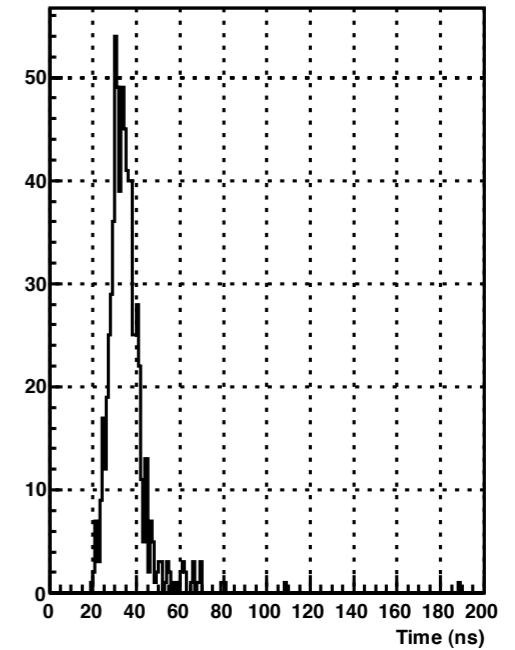
Arrival Times1



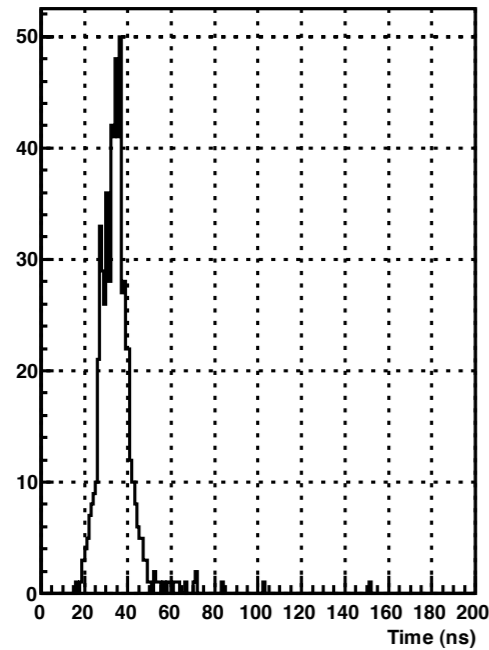
Arrival Times2



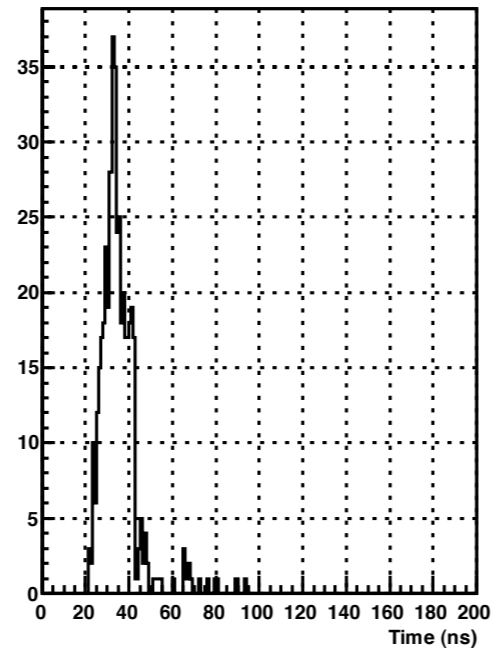
Arrival Times3



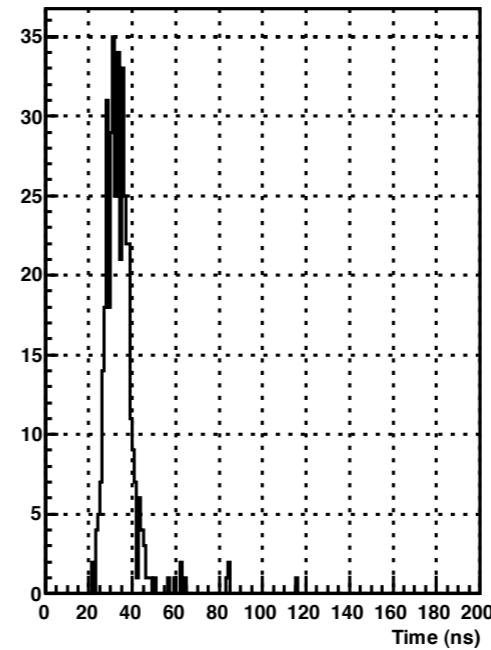
Arrival Times4



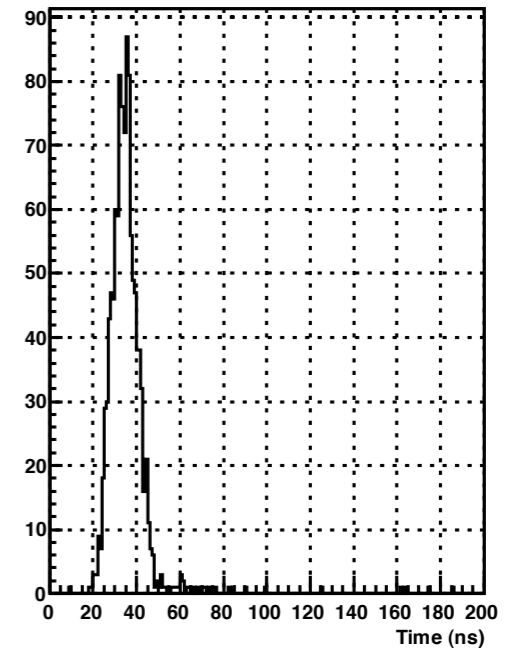
Arrival Times5



Arrival Times6

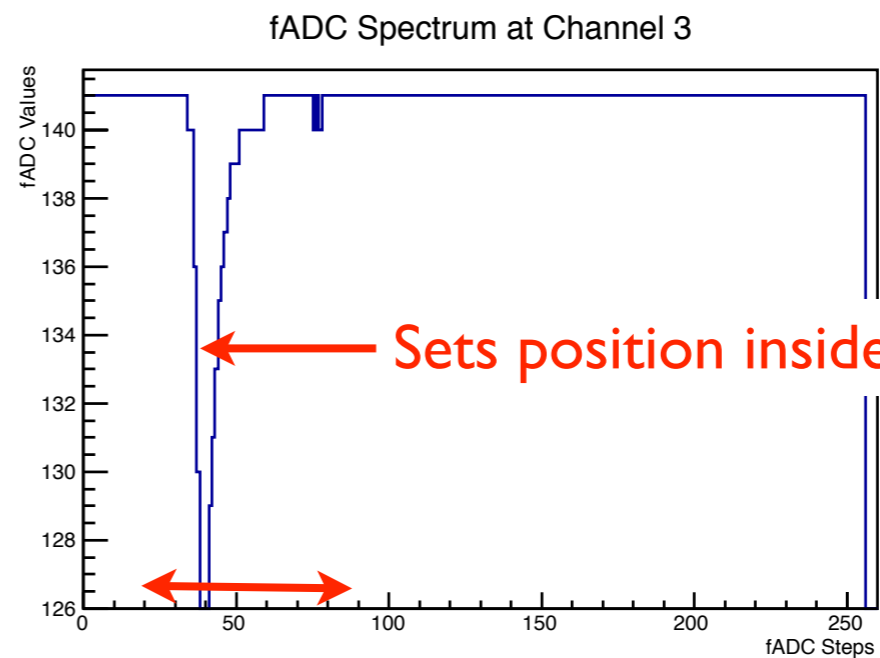
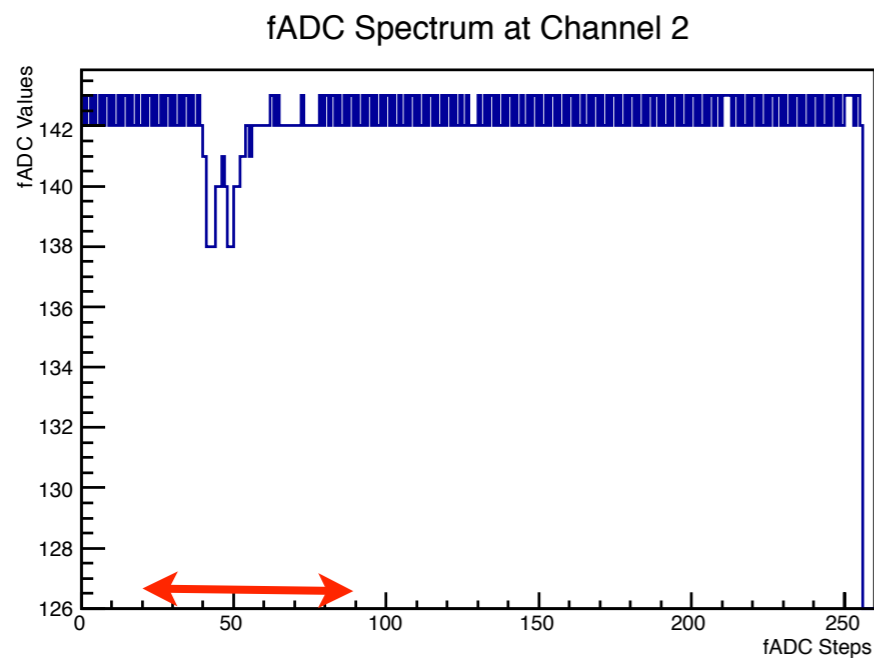
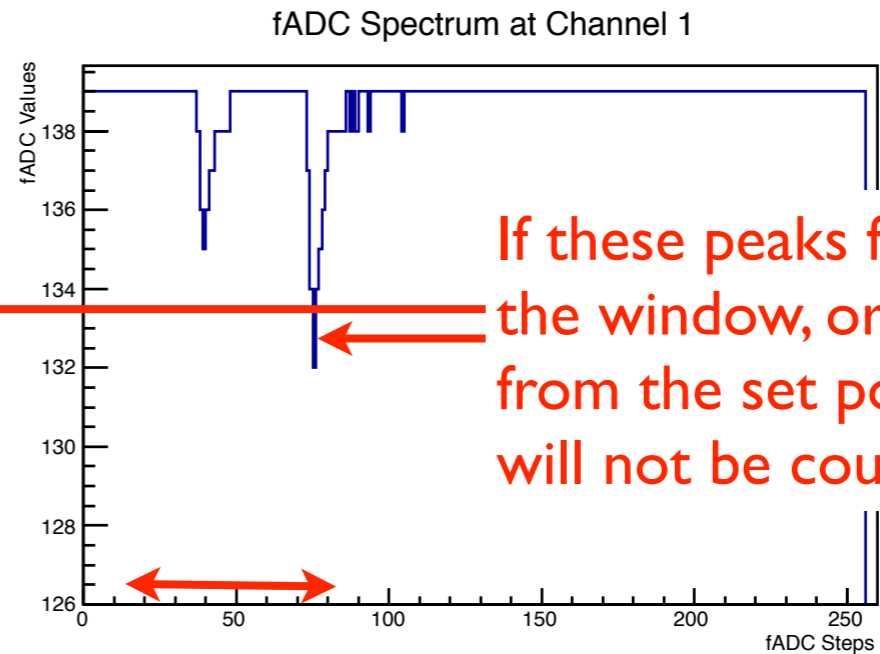
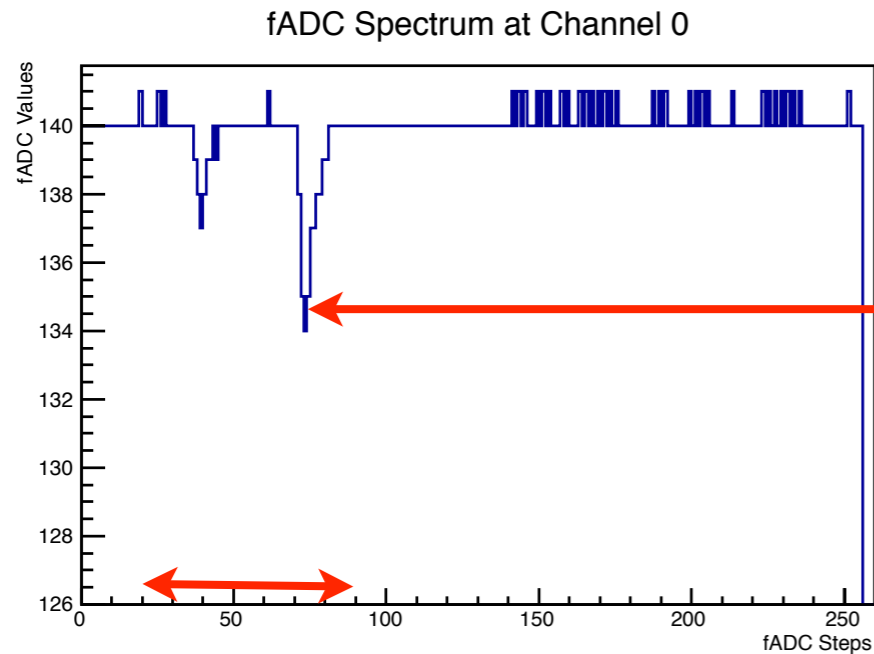


Arrival Times7



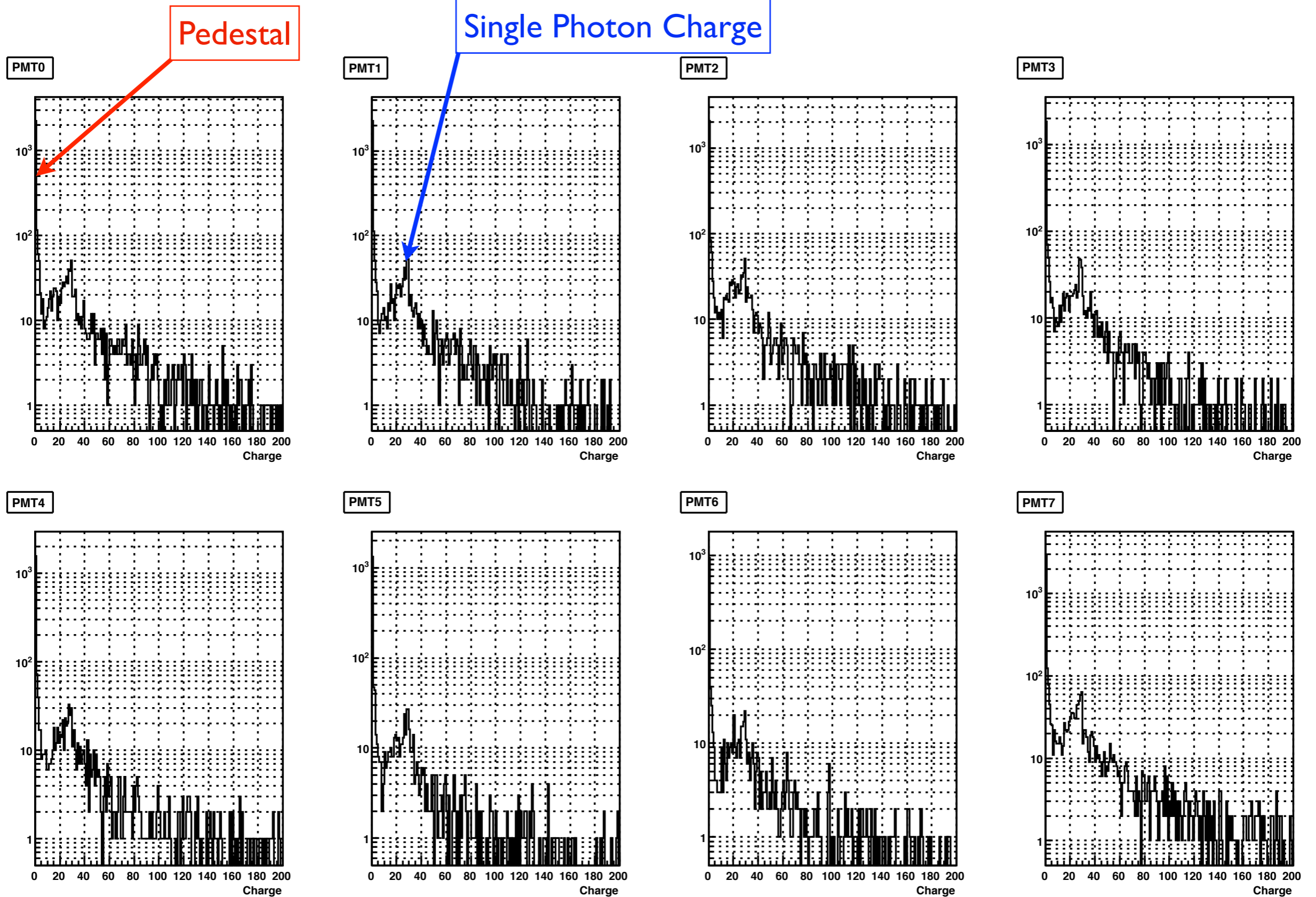
- Time of arrivals is used to set a fixed window for finding signals.
- Most of the peaks fall between 20 and 80 ns.

# fADC Samples



- All peaks outside the fixed window are thrown out.
- The largest peak is found within the fixed window for each PMT.
- The largest of the four sets a second threshold; peaks in the remaining 3 PMTs must fall within that range.

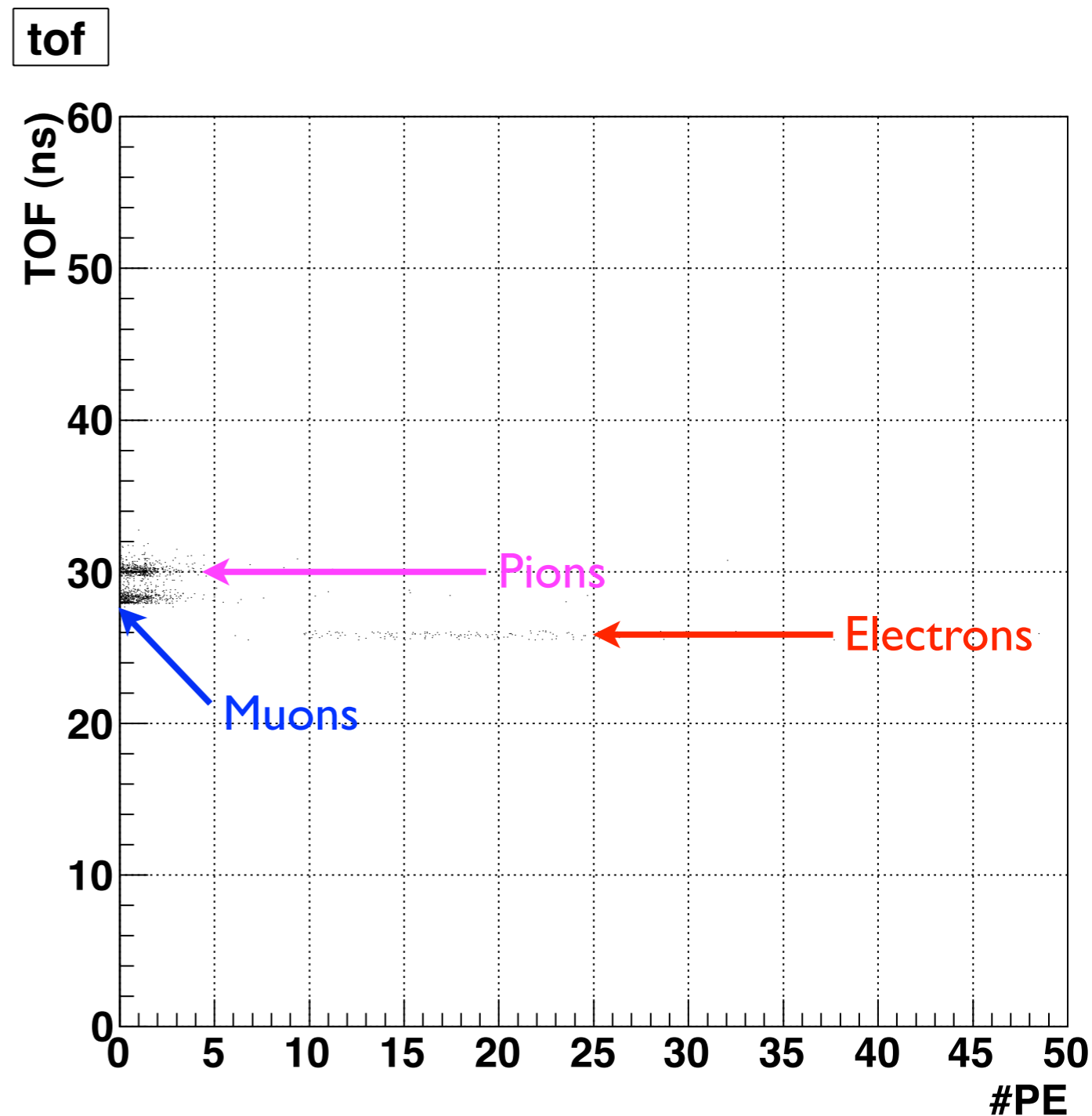
# Charge Distributions in Each PMT



# Momentum Estimations (Ckov B)

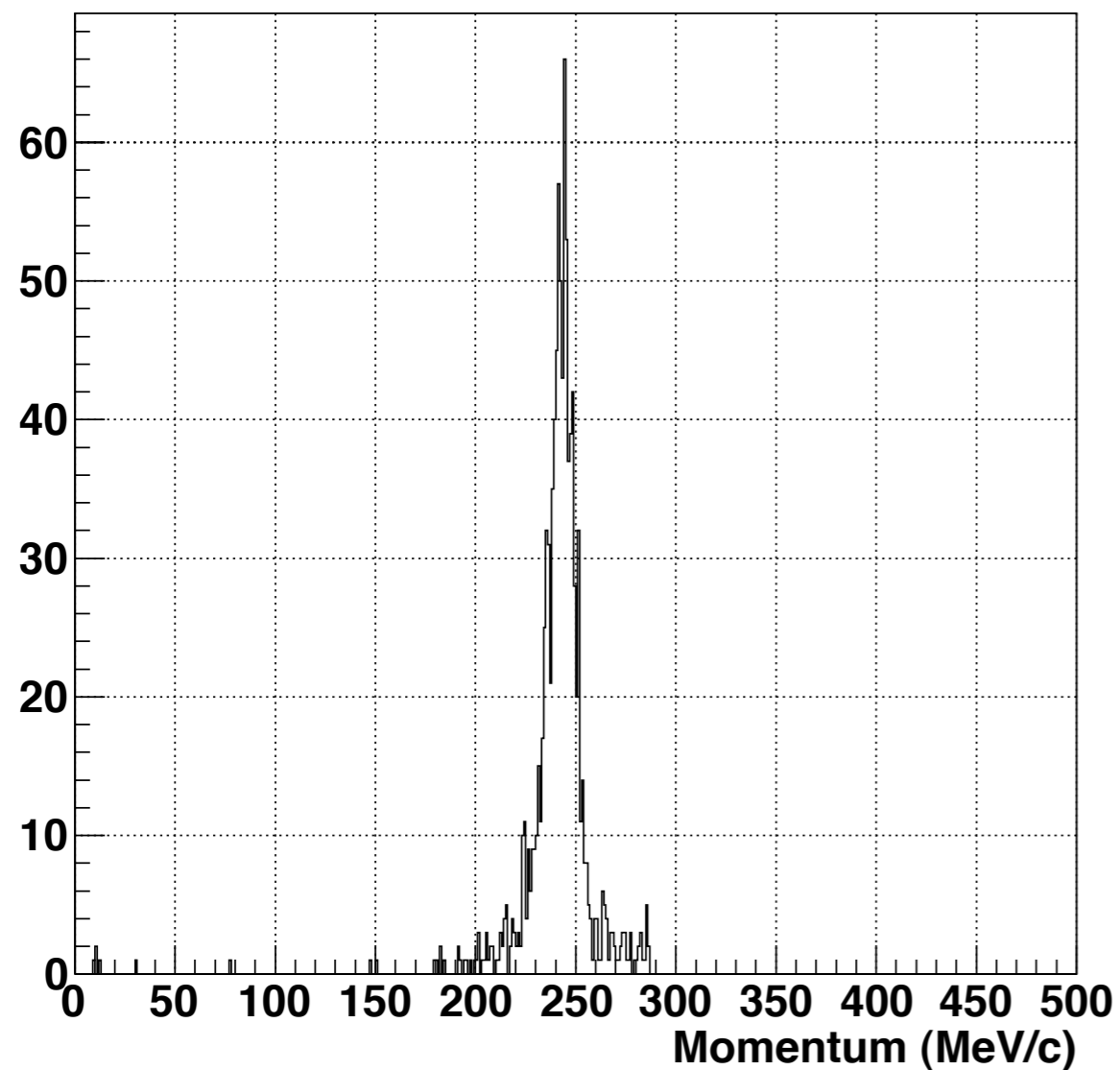
- Particles are well separated in time distributions
- Cuts on Momenta are made by eye (next step is to automate this)

Run 03240  
272.42 MeV/c @ trg.  
265.98 MeV/c @ D2



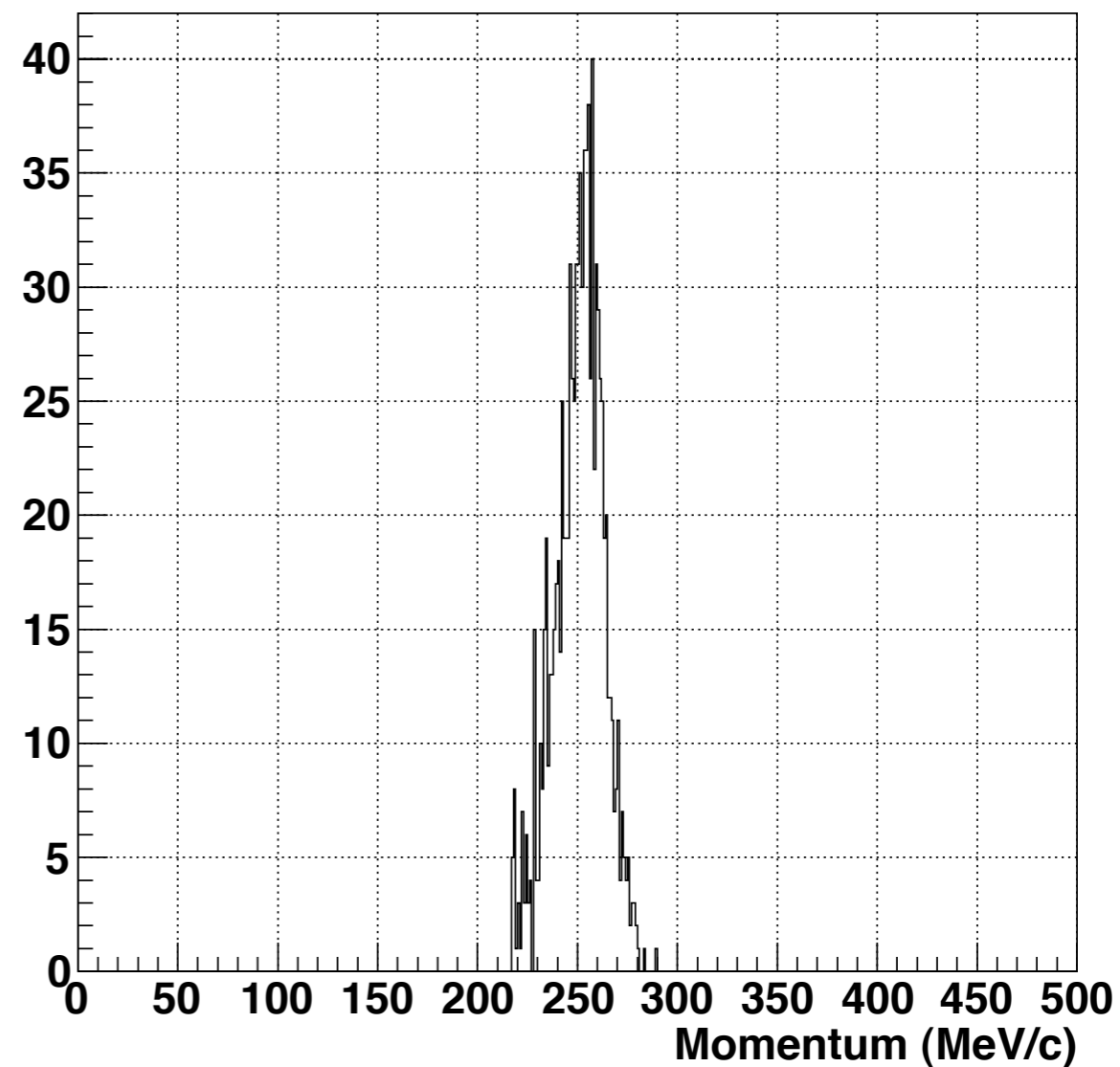
# Momentum Spectra

hPPi



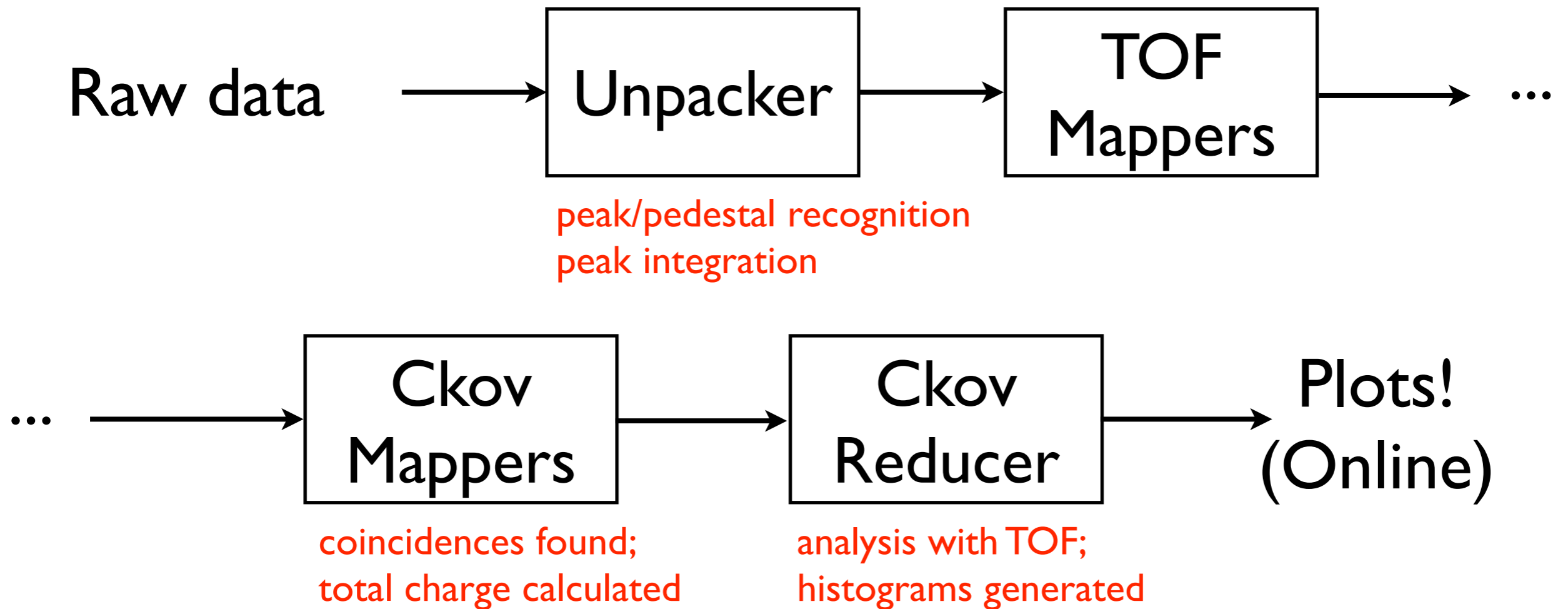
Selected Pions

hPMu



Selected Muons

# Ckovs in MAUS



...Can take up to 3 hours to process (depending on size of data files)

# Next Steps

- Automate cuts to select for particles;
- and plot #PE for given momentum
- Generate .root files in addition to .eps files
- Merge current code with trunk before  
March running