# Time Walk Corrections

First look + Status

# How are they used?

- Time Walk Corrections are added in the THaScintPlane class. This is after the corrections for the offsets (the corrected time, known as lthit_time/etc). It is applied to the hit_tof, hit_tdiff, and hit_ypos variables.

$$FinalTime = CorrectedTime - Parameter * (ADC)^{Exponent} + Parameter * (Reference)^{Exponent}$$

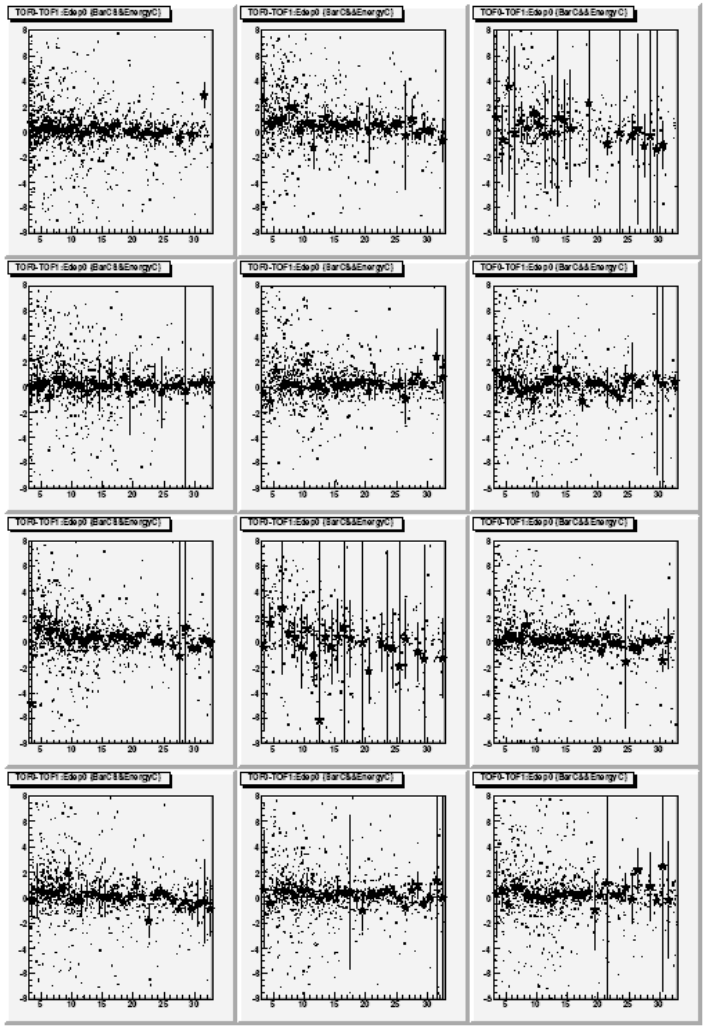
- Here the Parameter and Exponent are determined by fits, and the Reference term is taken as 0. The Exponent is currently -1.

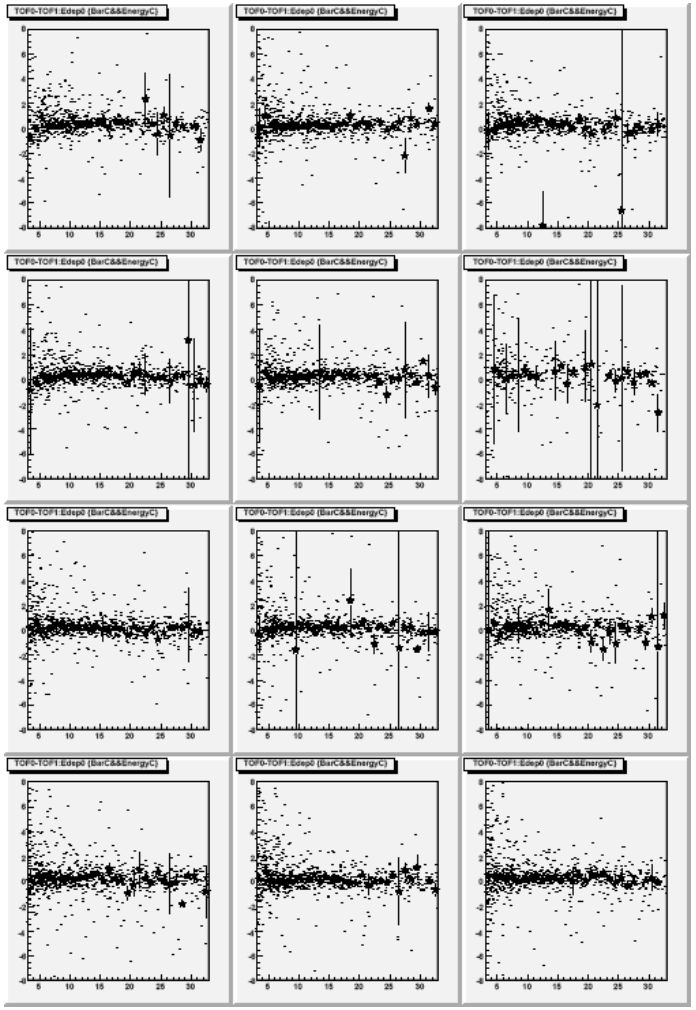
# How are these parameters determined?

- Plot: (hit_tof[0]-Parameter*(hit_Edep[0])^(Power) ) - (hit_tof[1]-Parameter*(hit_Edep[1])^(Power))
- Cuts: hit_bar[0]+1=hit_bar[1], hit_bar[0]=bar#, hit_Edep[0]>0, hit_Edep[1]>0
- All Power values were picked to be -1.

# Quick Current Results (selection)

Planes N1 and N5 beginning with detector 4





# Current Status of Calibration

- Confusion with creation of database. (was also an issue a week ago, I think I have everything cleared)
- For a single detector in plane 1, sigma can go between .2 and .45 ns. Additionally, the shape of the peak can look a bit different (still looks like a good fit to me).
- Have created several databases, will send Rob final databases for kin3 tomorrow.