

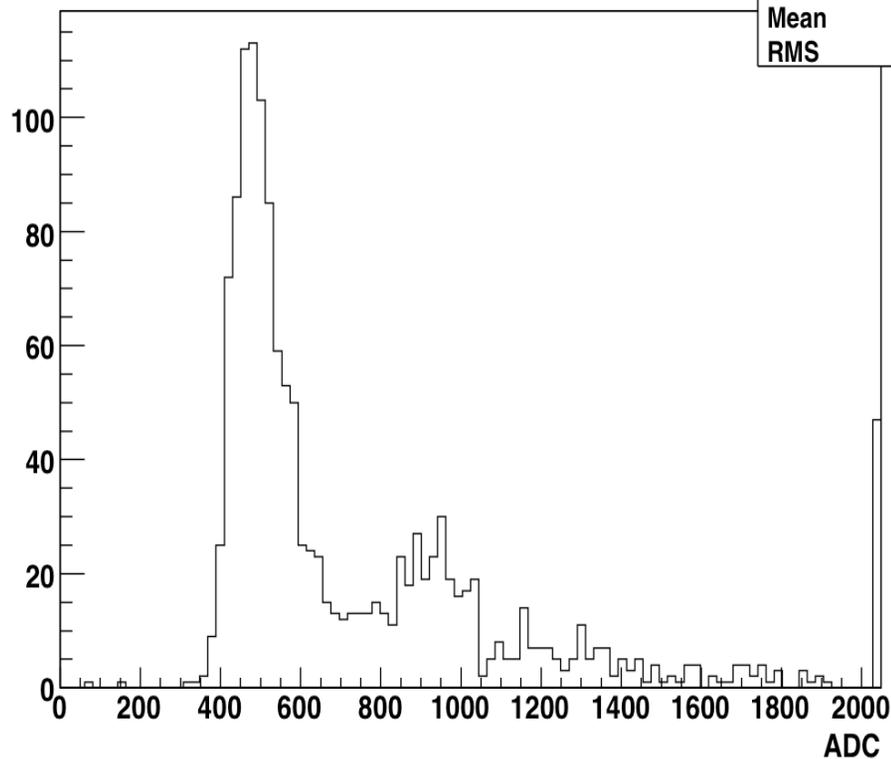
TOF ADCs and Timewalk

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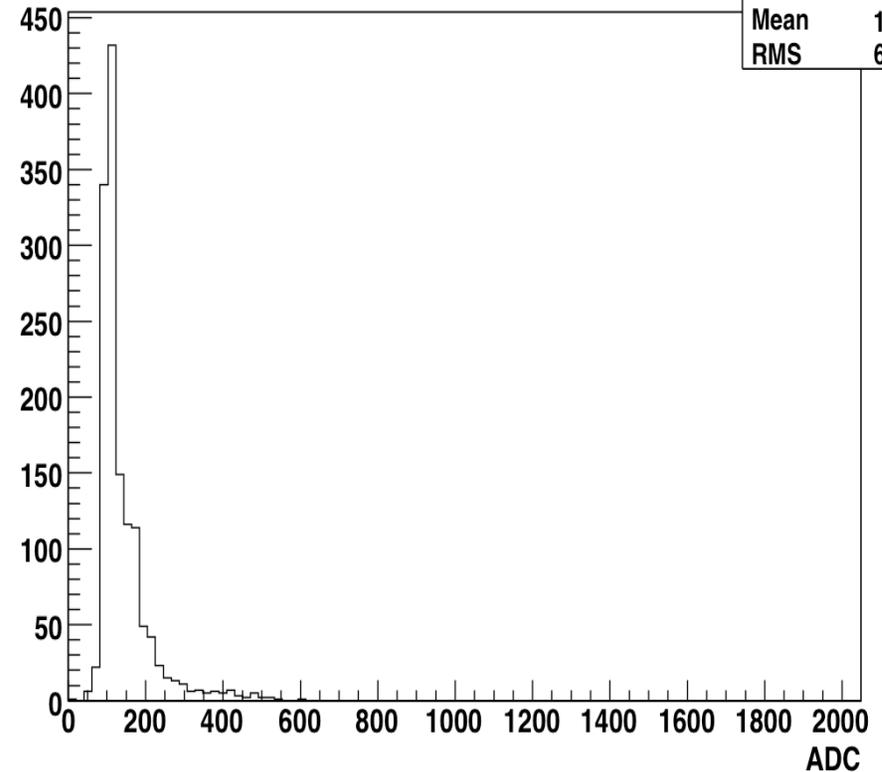
September 27, 2007

PMT ADC Top 320



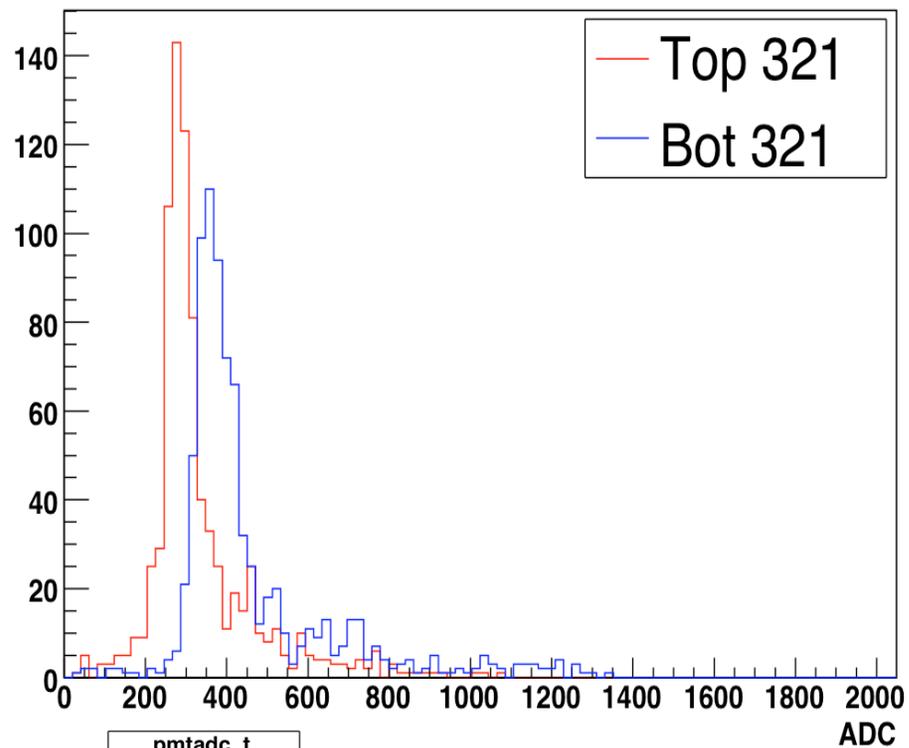
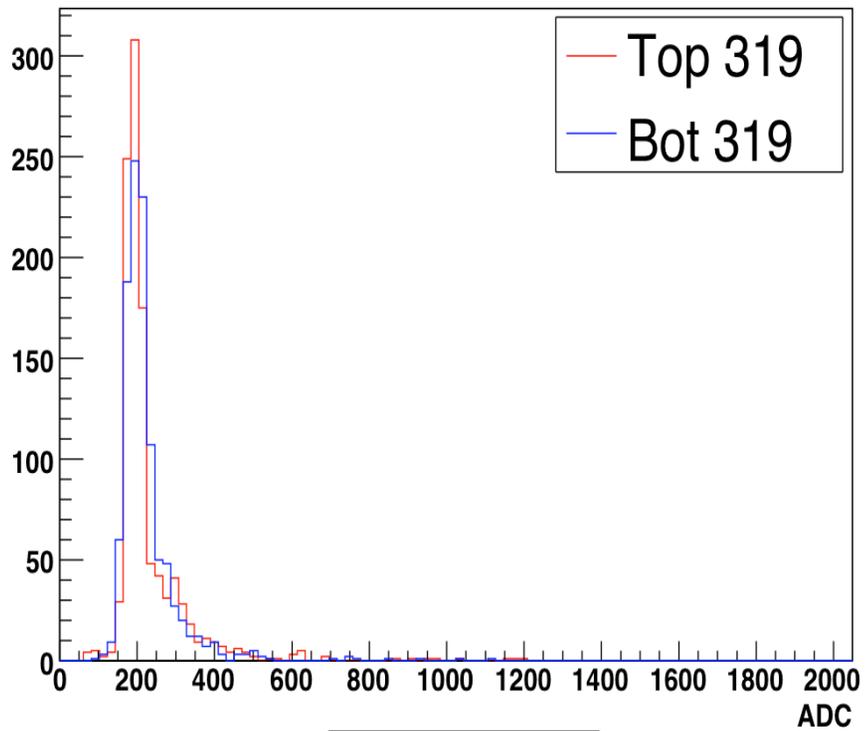
pmtadc_t	
Entries	1
Mean	74
RMS	39

PMT ADC Bot 320



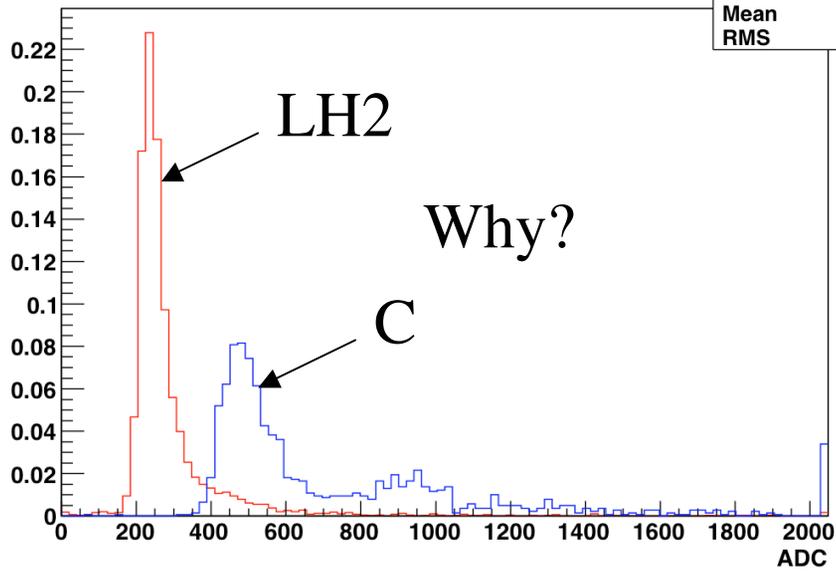
pmtadc_b	
Entries	1385
Mean	141.2
RMS	69.12

- Why are the ADCs for top and bottom are so different?
- Cuts:
 - Single track match to bar
 - Track momentum > 10 GeV
 - Track in a ± 10 cm spot at the bar
 - No “adjacent hits” (*this cut still makes me nervous*)

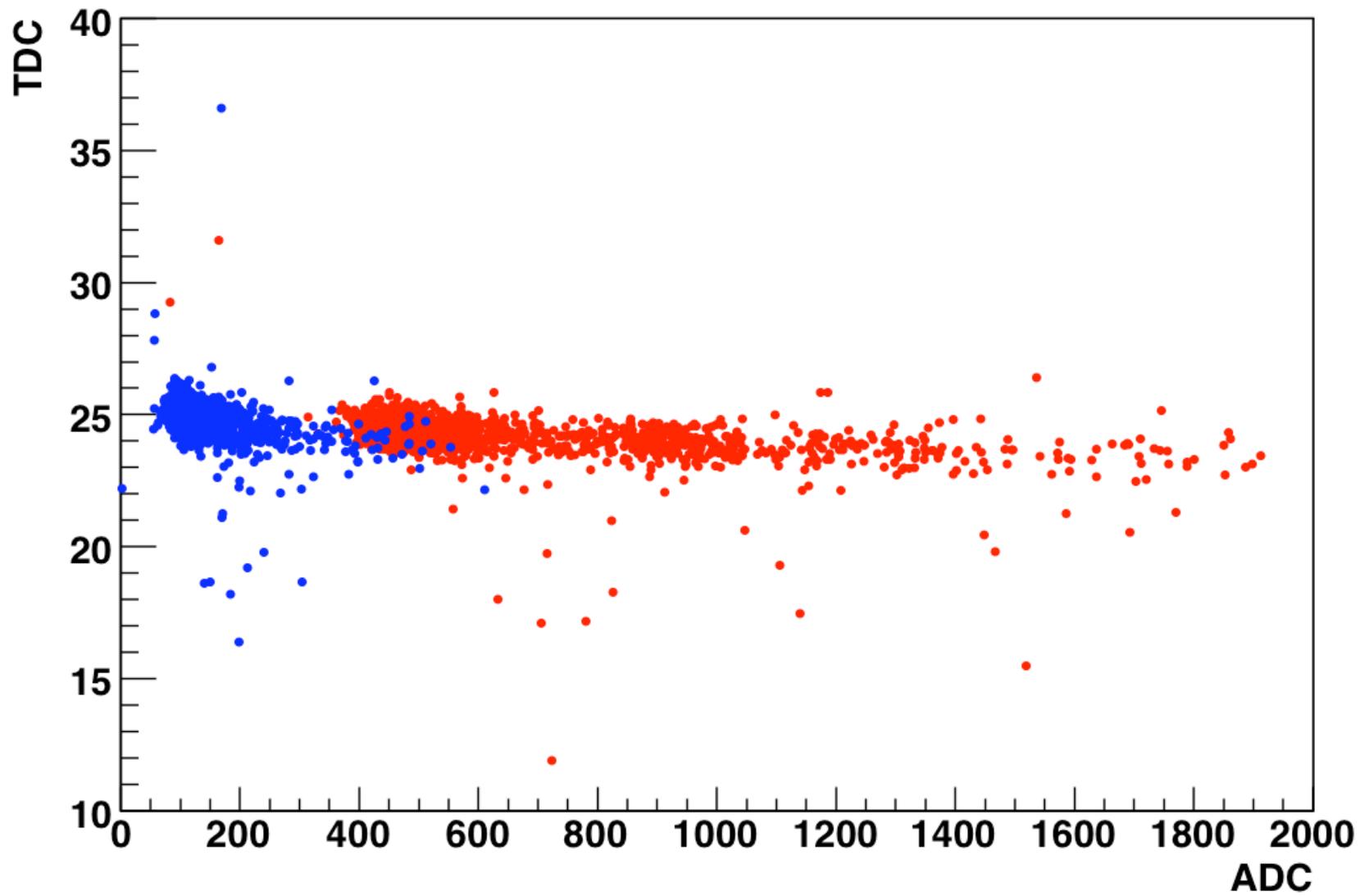


PMT ADC Top 320

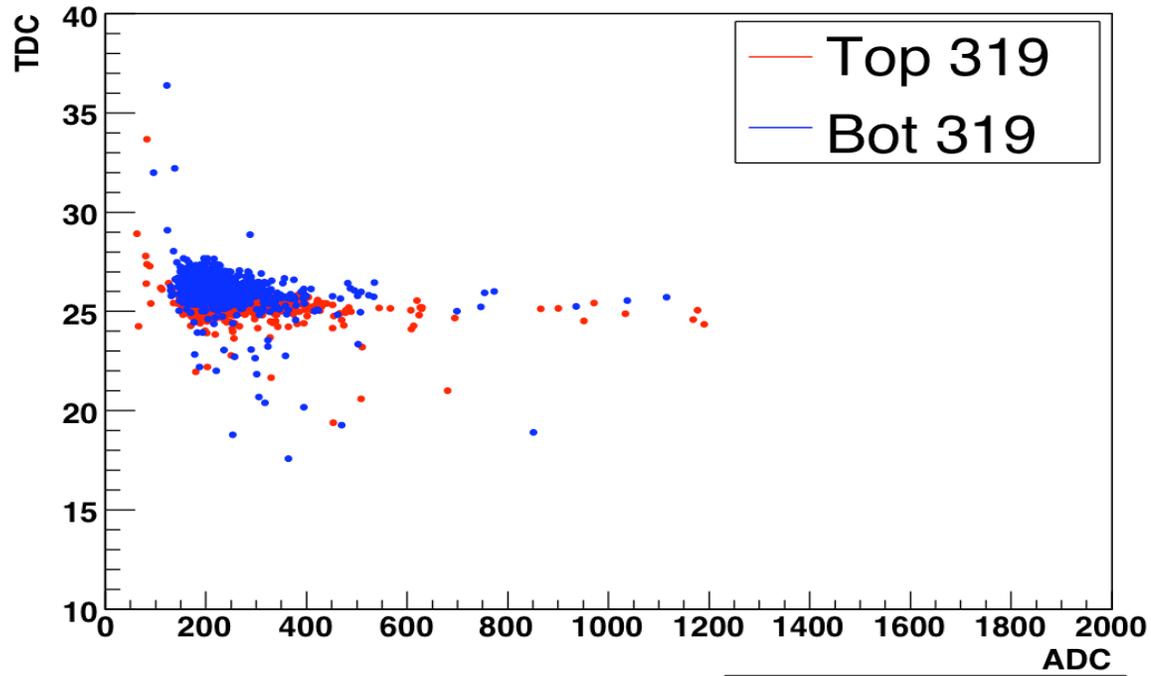
pmtadc t	
Entries	1385
Mean	741.2
RMS	393.3



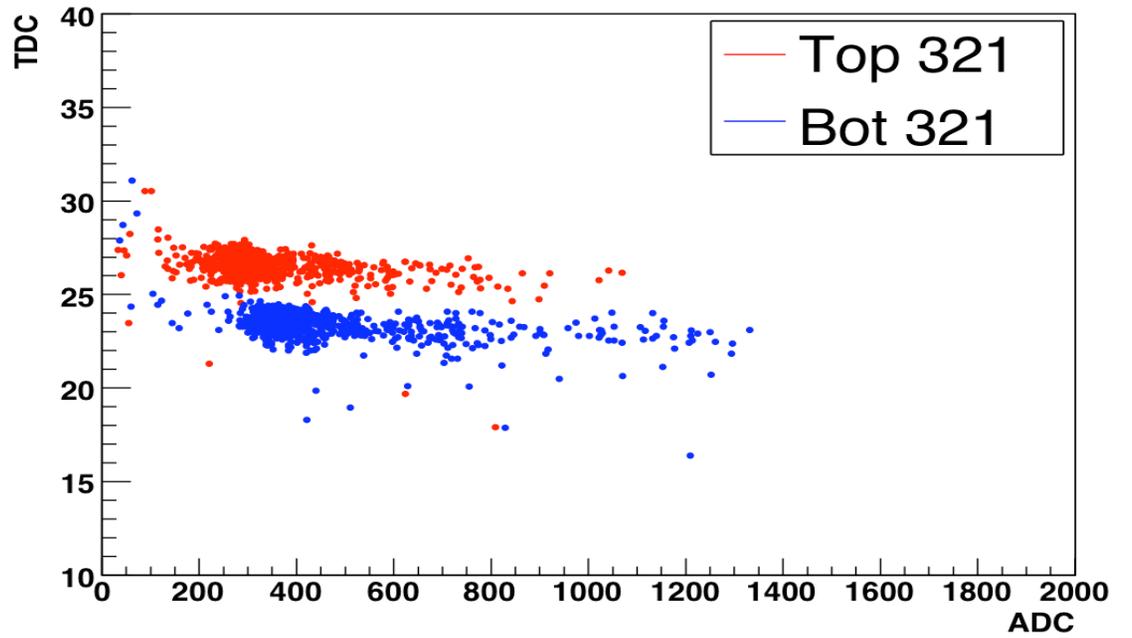
320 Top TDC vs ADC



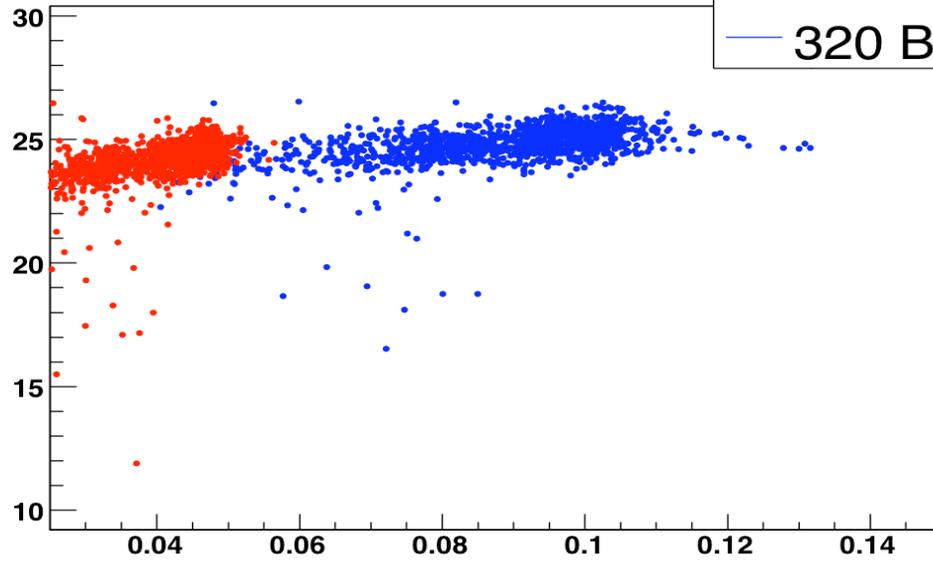
319 Top TDC vs ADC



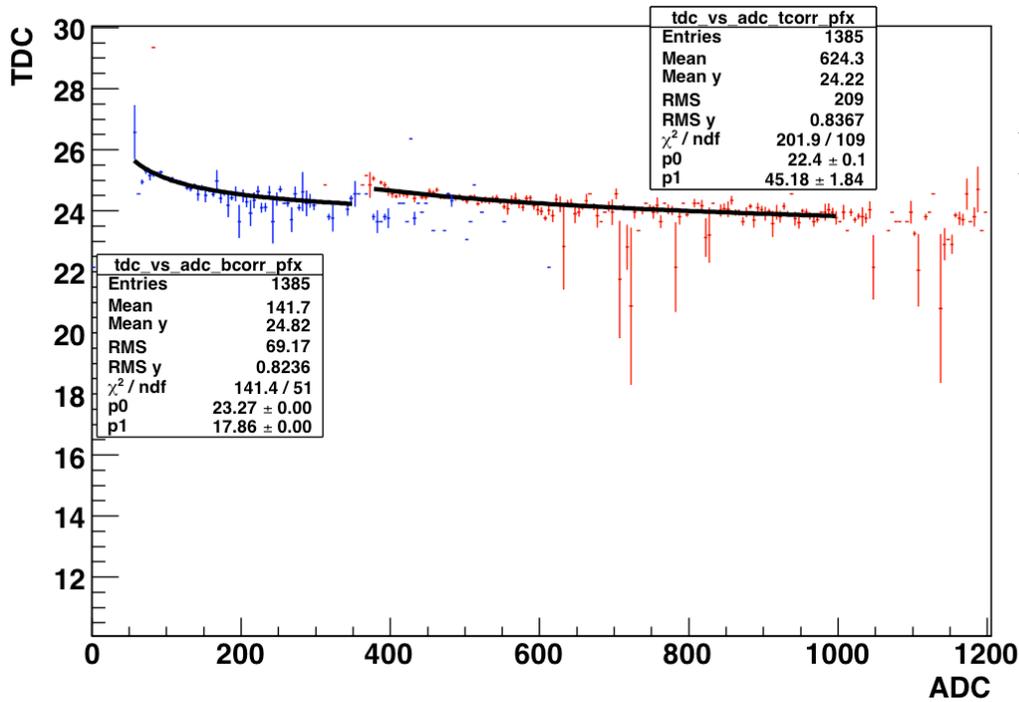
321 Top TDC vs ADC



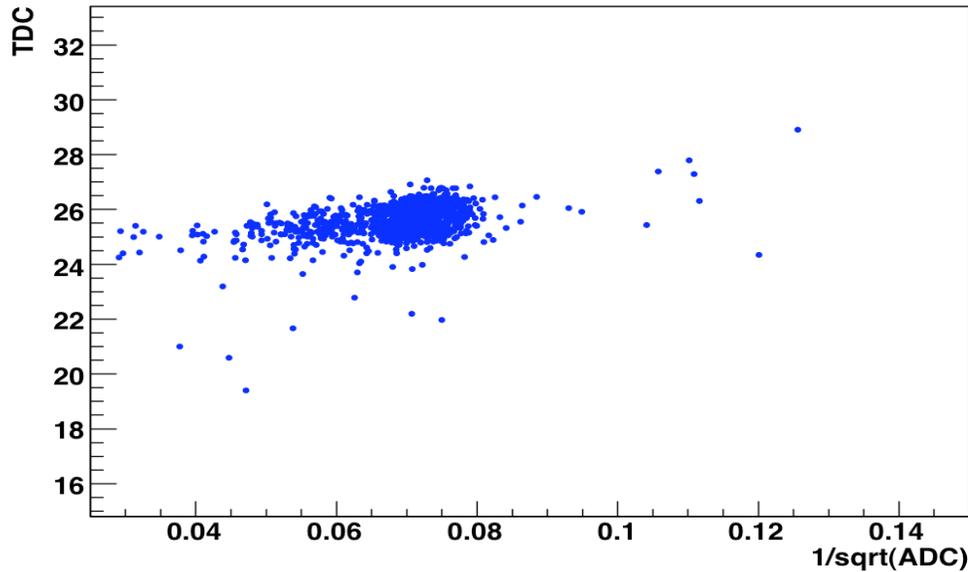
320 Bot TDC vs 1/sqrt(ADC)



— 320 Top
— 320 Bot

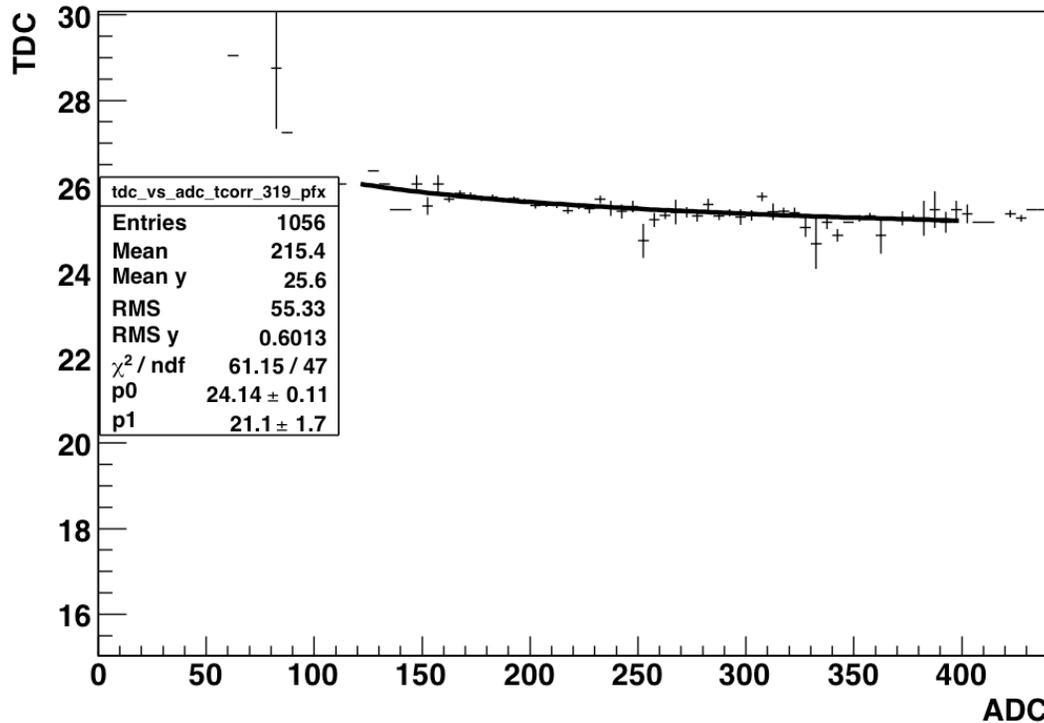


Fit to: $TDC = p0 + p1/\text{sqrt}(ADC)$



Most PMTs look like this:
 the TDC variation of 2-3ns
 occurs over $< 1/2$ of the
 ADC's dynamic range.

319 Top TDC vs ADC



Fit to: $TDC = p0 + p1/\text{sqrt}(ADC)$