

Temperature dependence of the signals from PbW04 crystals

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Temperature scans in single PbWO_4 crystal, 50 GeV electrons

- 13 angular scan performed at different temperatures
- Each angular scan contains a different number of runs (7-30)
- Taken more than a scan at the same temperature

- *Temperature controlled measurements with crystal 2*

Angular scans at different temperatures. Logbook pages 42-44, 46-61

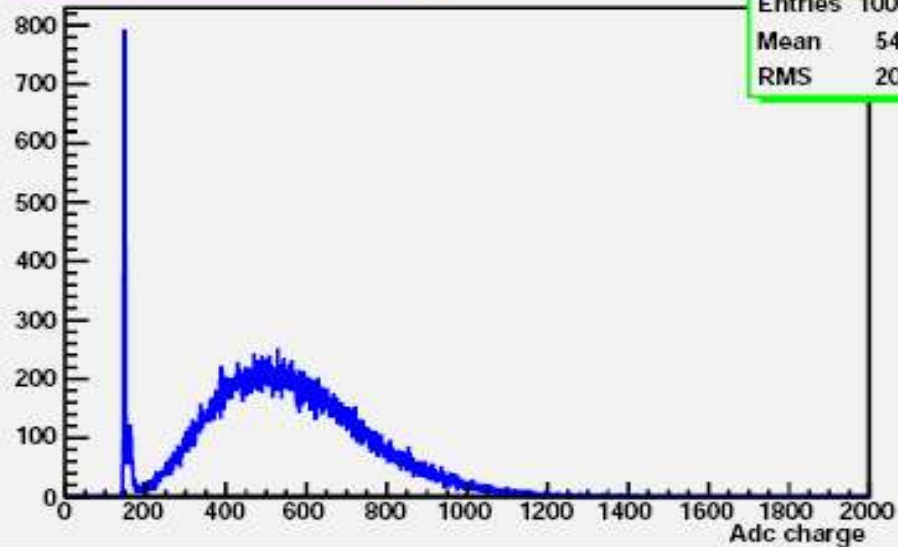
NB. No information from downstream beam chamber for runs 597-6

- Runs 597 - 625, $T = 35^\circ\text{C}$, $\theta = -60^\circ$ to $+60^\circ$
- Runs 627 - 635, $T = 40^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 636 - 663, $T = 43^\circ\text{C}$, $\theta = -60^\circ$ to $+60^\circ$
- Runs 664 - 671, $T = 40^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 672 - 679, $T = 35^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 682 - 688, $T = 30^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 692 - 698, $T = 25^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 699 - 705, $T = 20^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 706 - 712, $T = 15^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 713 - 743, $T = 12^\circ\text{C}$, $\theta = -60^\circ$ to $+60^\circ$
- Runs 744 - 752, $T = 15^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 753 - 759, $T = 20^\circ\text{C}$, $\theta = -35^\circ$ to $+35^\circ$
- Runs 760 - 790, $T = 25^\circ\text{C}$, $\theta = -60^\circ$ to $+60^\circ$

ADC Fit: convolution Gaus+Landau, only the peak, dynamic

fit: [MaximumBin-130, MaximumBin+450] ADC counts

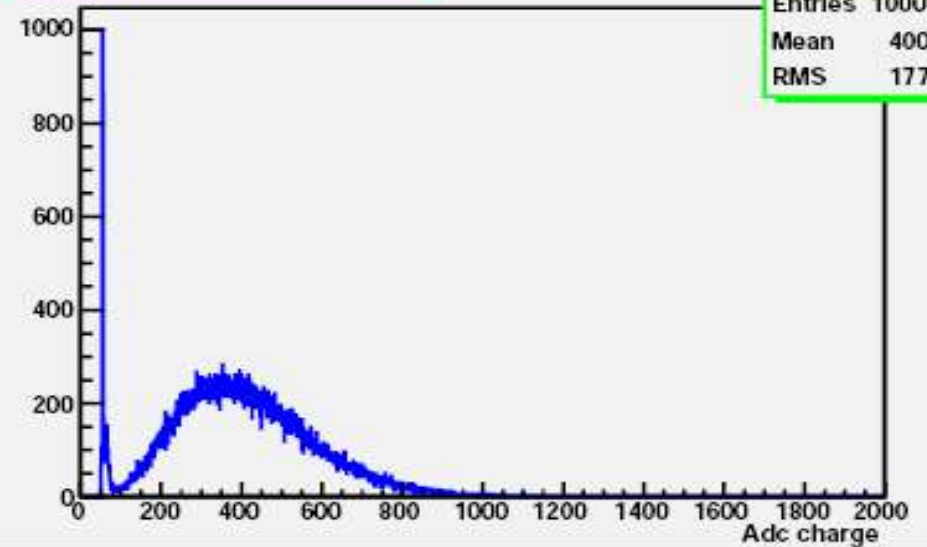
AdcL distribution for scan2



adcL_scan2

Entries	100000
Mean	547.2
RMS	201.2

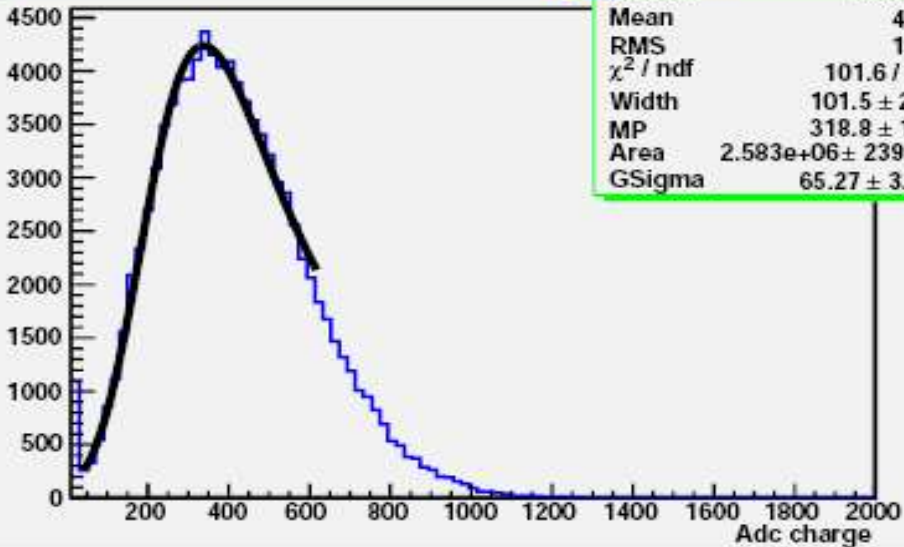
AdcR distribution for scan2



adcR_scan2

Entries	100000
Mean	400.4
RMS	177.6

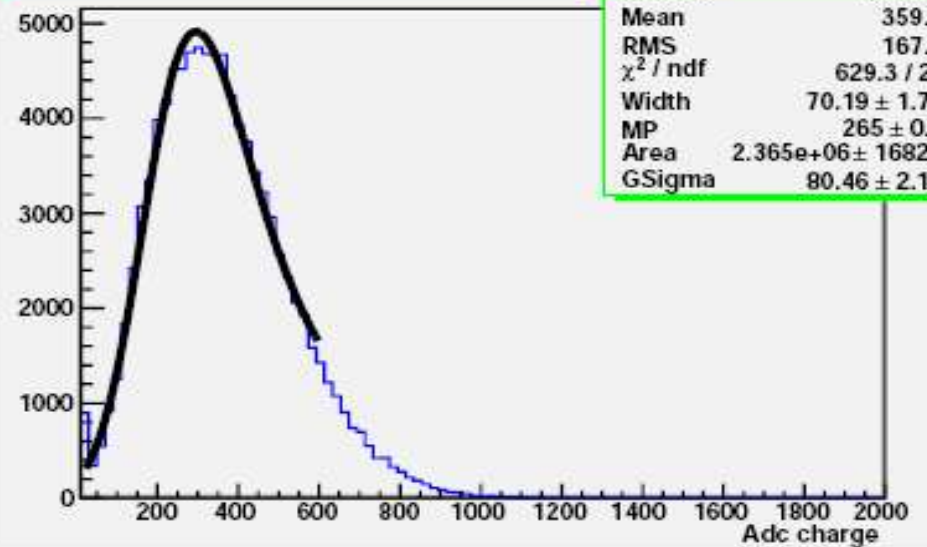
AdcL pedestal subtraction for scan 2



adcL_ped_sub_scan2

Entries	100000
Mean	414
RMS	190
χ^2 / ndf	101.6 / 25
Width	101.5 \pm 2.3
MP	318.8 \pm 1.3
Area	2.583e+06 \pm 23926
GSigma	65.27 \pm 3.31

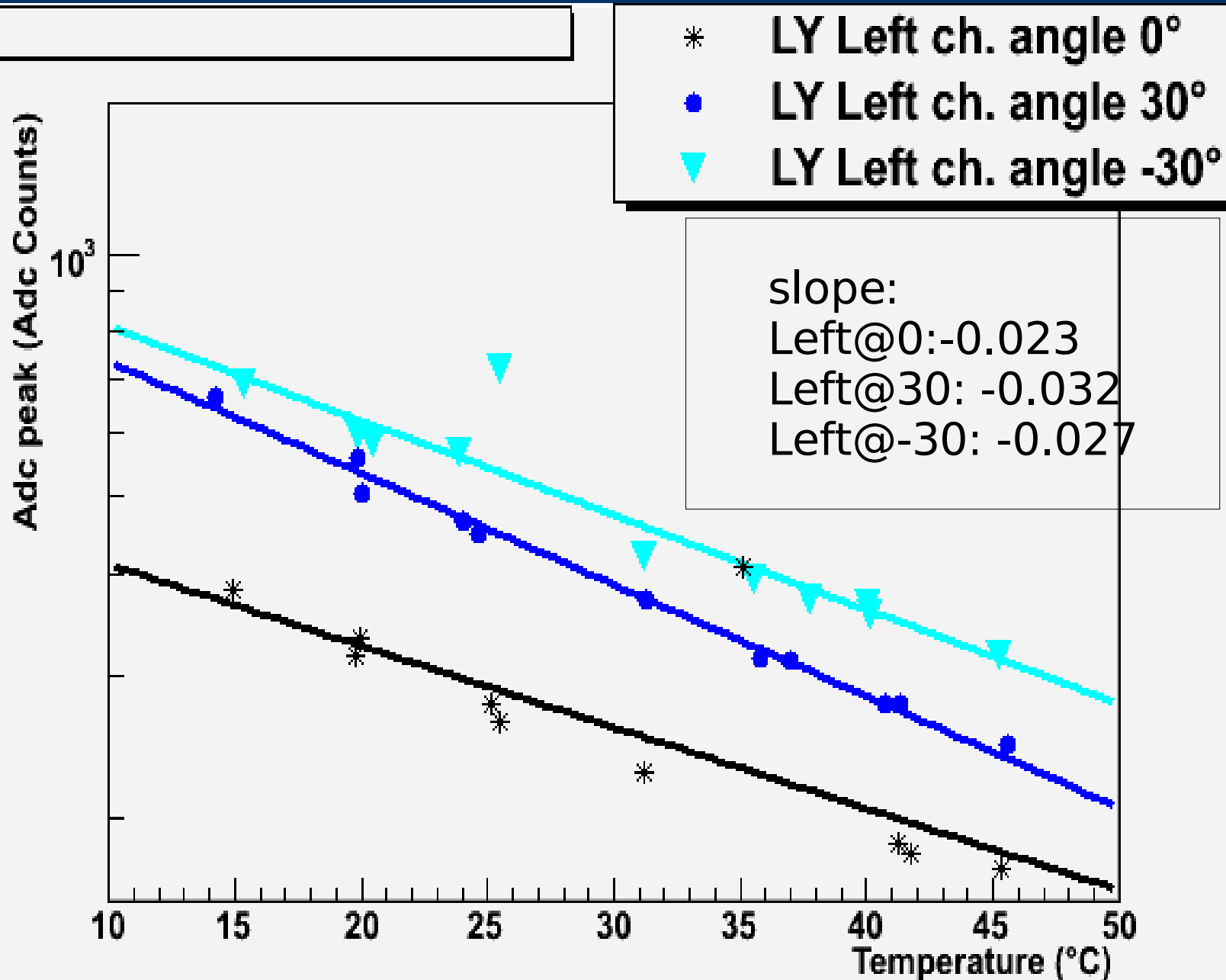
AdcR pedestal subtraction for scan 2



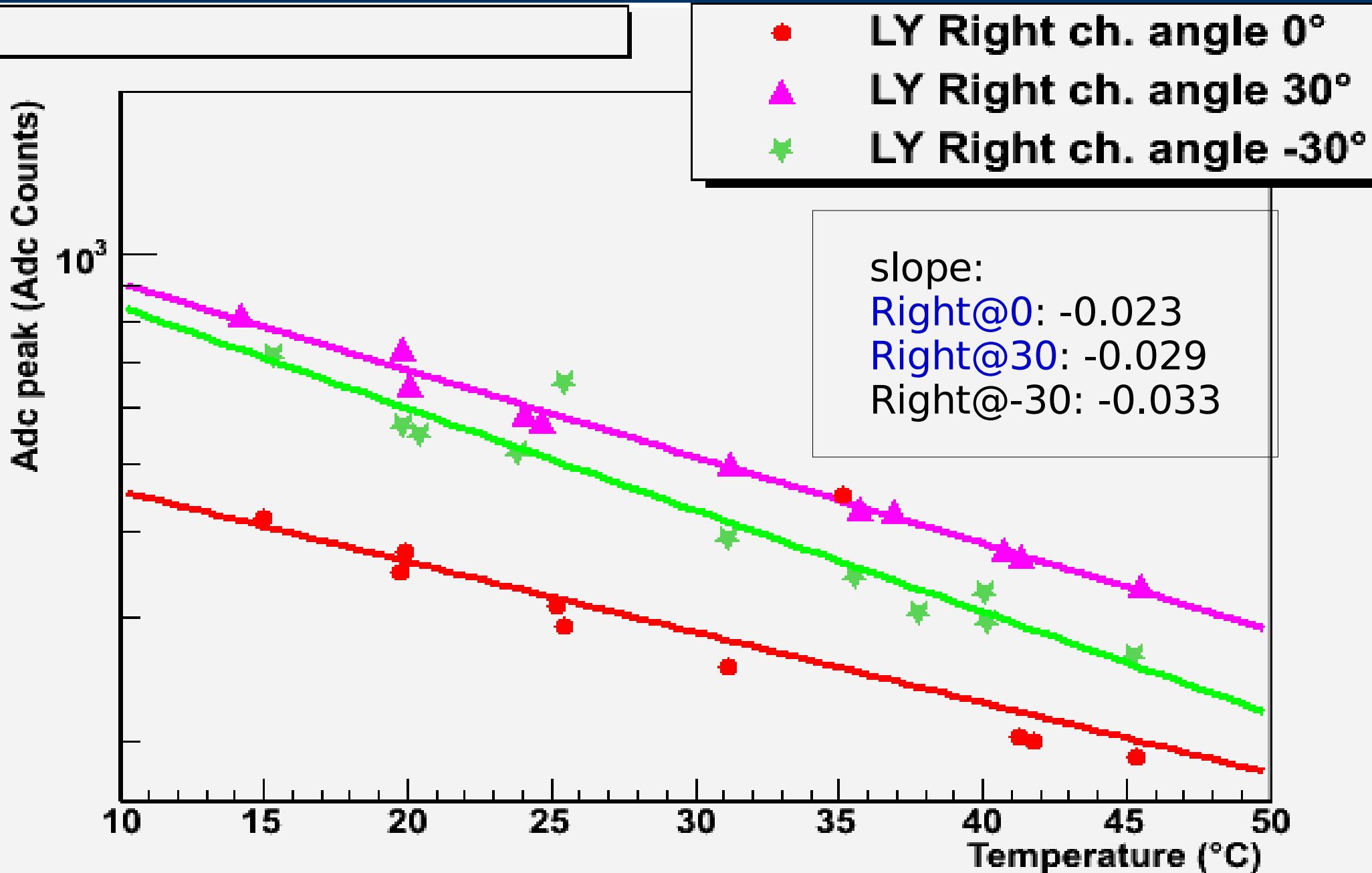
adcR_ped_sub_scan2

Entries	100000
Mean	359.4
RMS	167.5
χ^2 / ndf	629.3 / 25
Width	70.19 \pm 1.70
MP	265 \pm 0.7
Area	2.365e+06 \pm 16824
GSigma	80.46 \pm 2.14

Left PM @ 30, 0, -30 degree

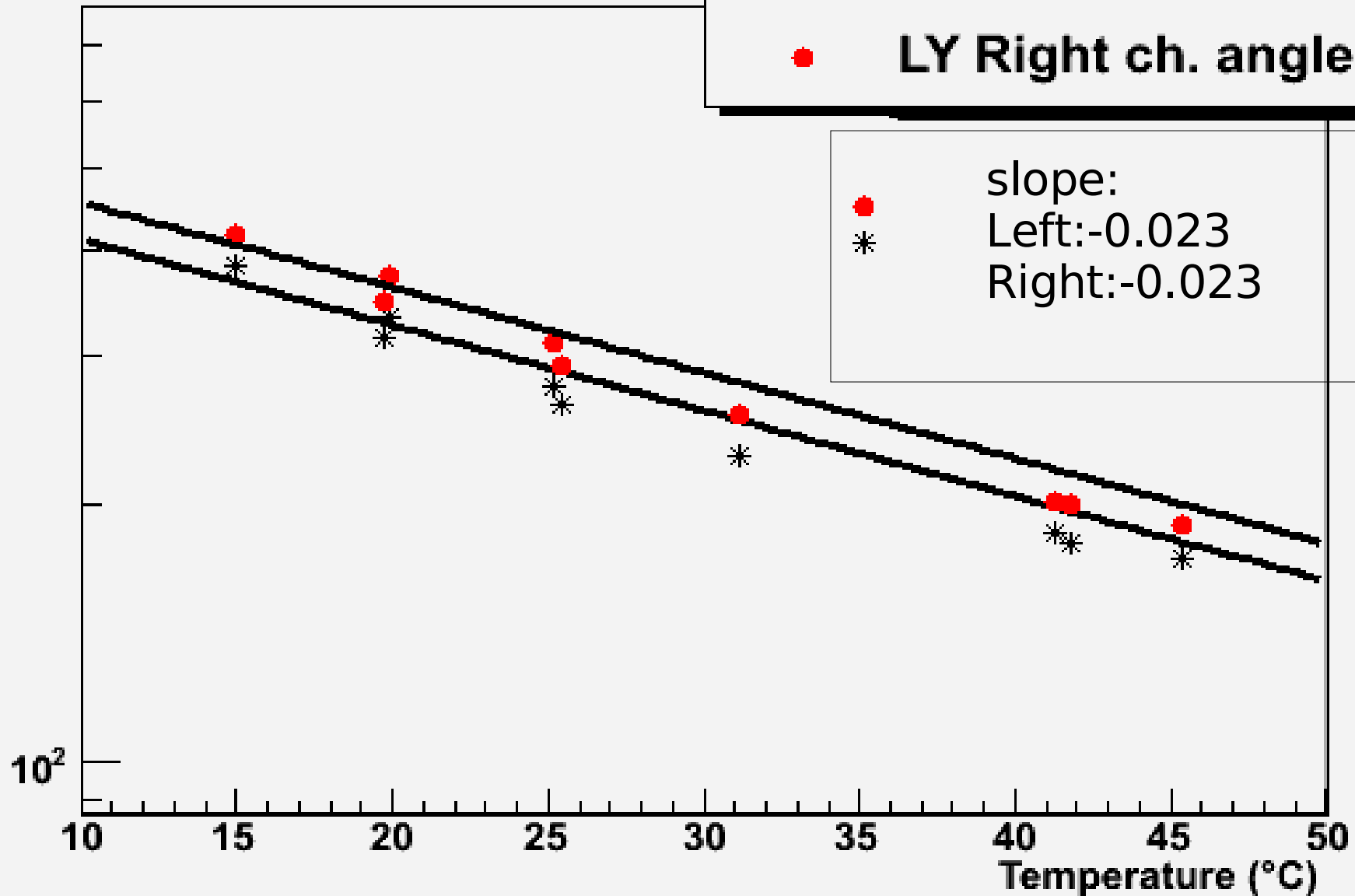


Right PM @ 30, 0, -30 degree

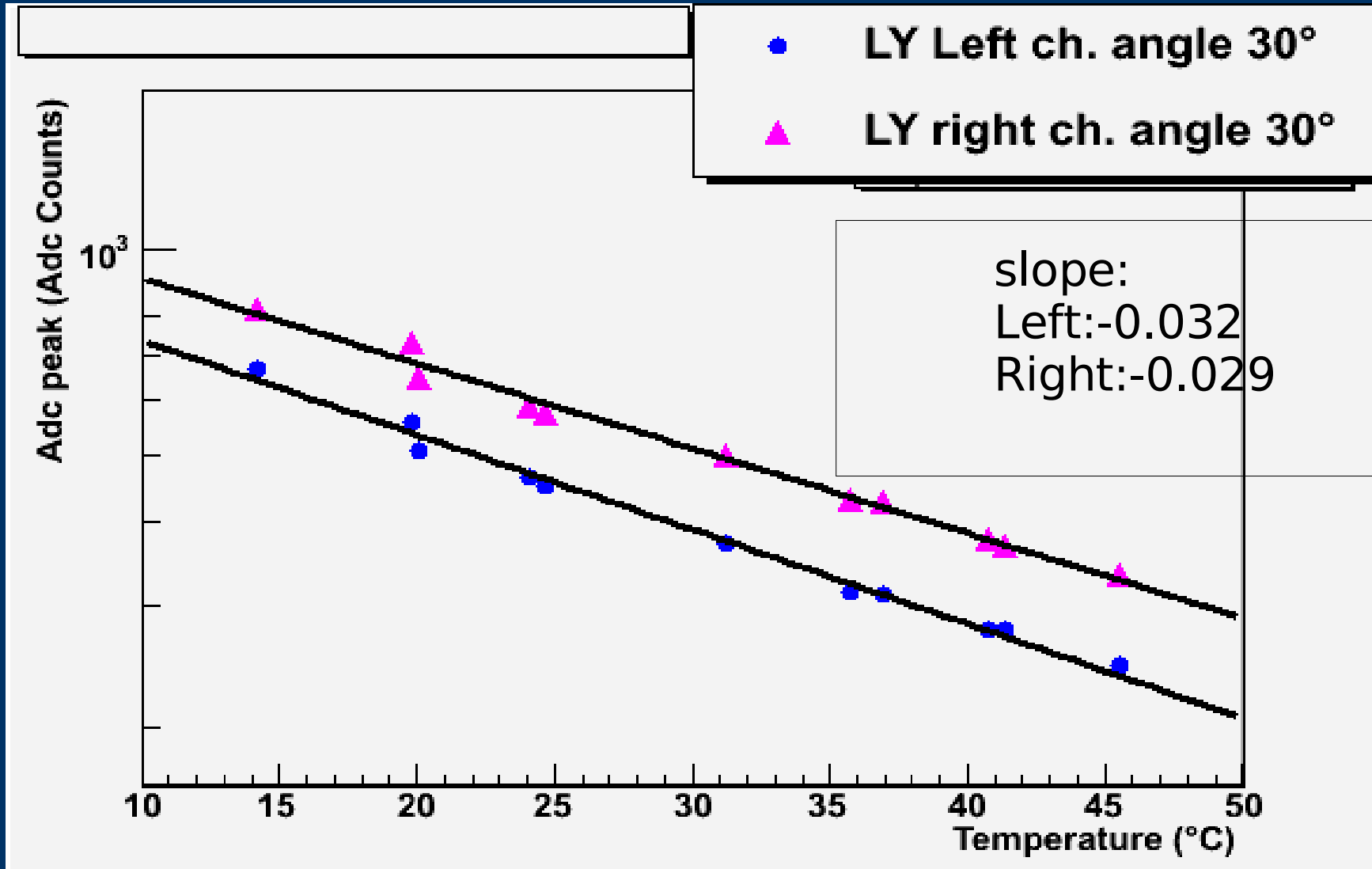


ADC Peak @ 0 degree , Left and Right PM

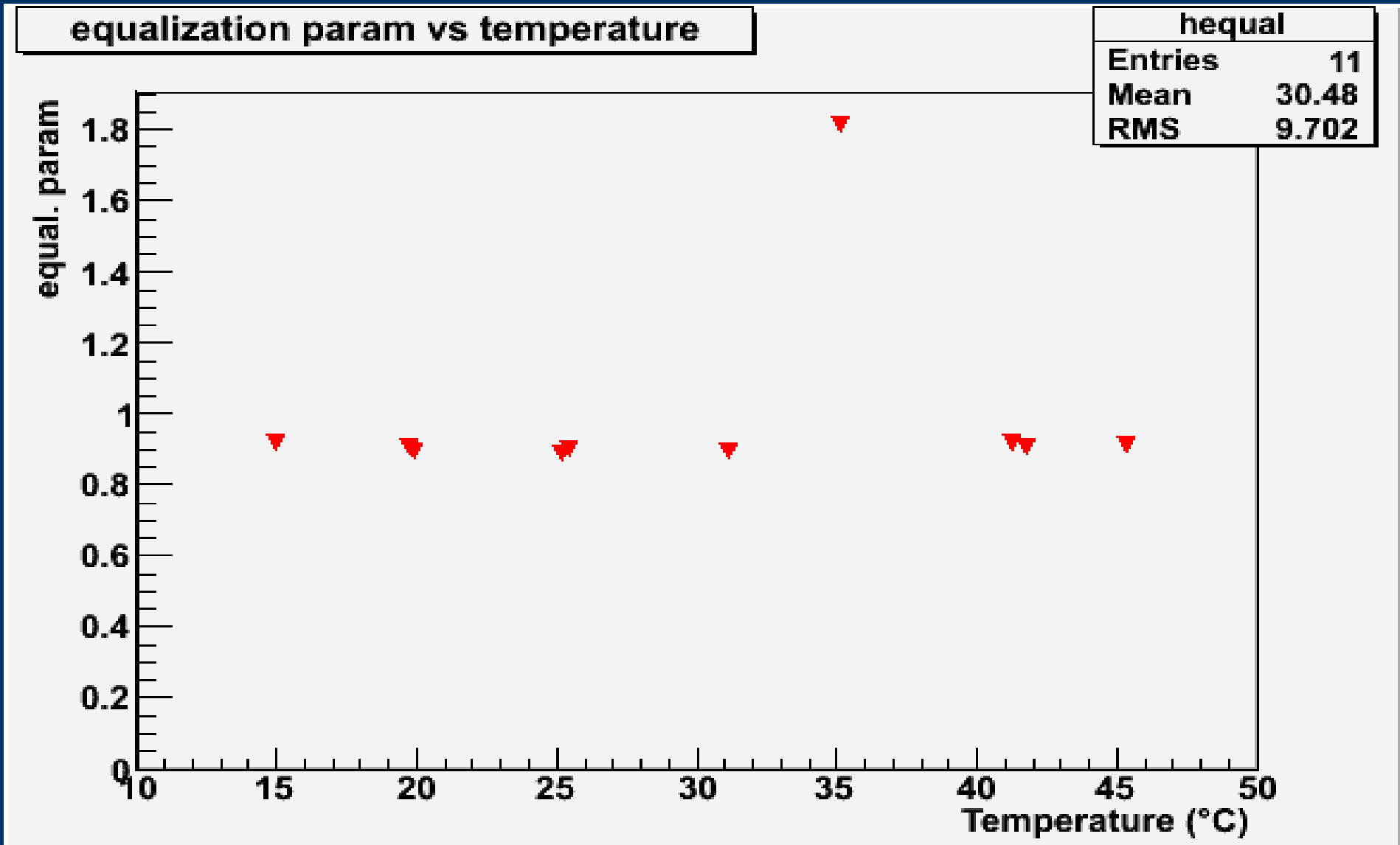
ADC peak (Adc Counts)



ADC Peak @ 30 degree , Left and Right PM

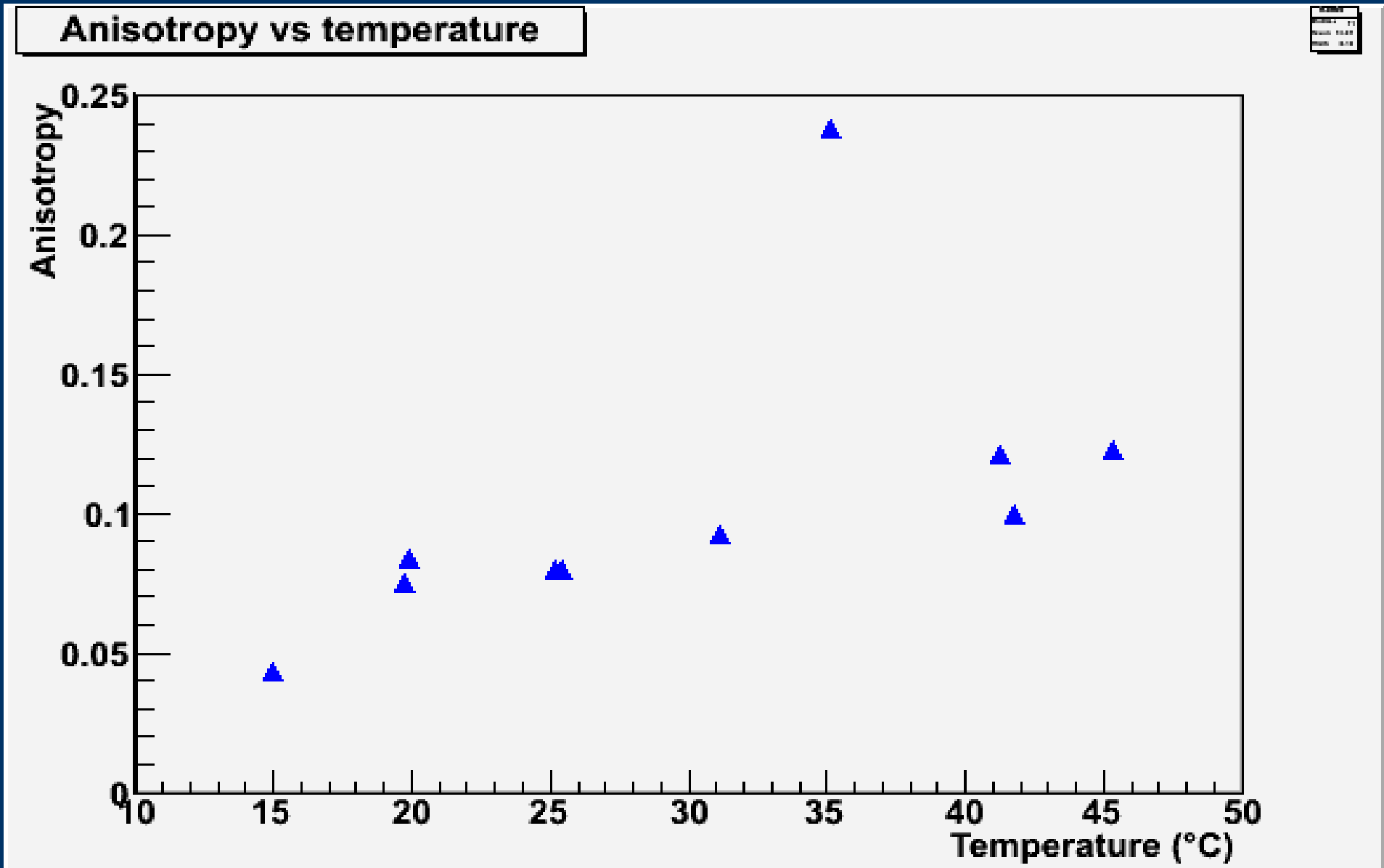


Equalization Coeff between PM_L & PM_R (*peak ADC_L/peakADC_R*)



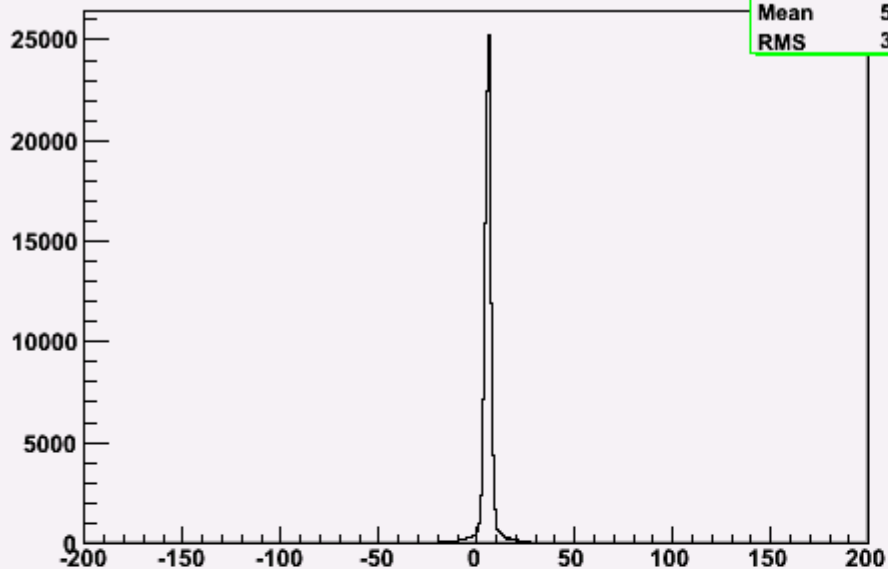
Anisotropy vs Temperature 30, -30 degrees

$$\text{Anis} = (R30) - (R-30) - (L30) + (L-30) / (R30) + (R-30) + (L30) + (L-30)$$

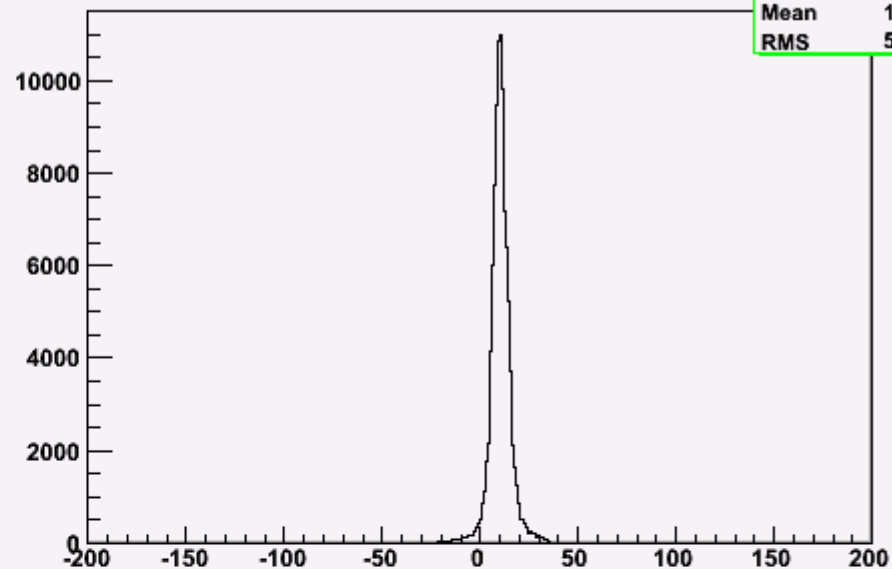


BEAM position

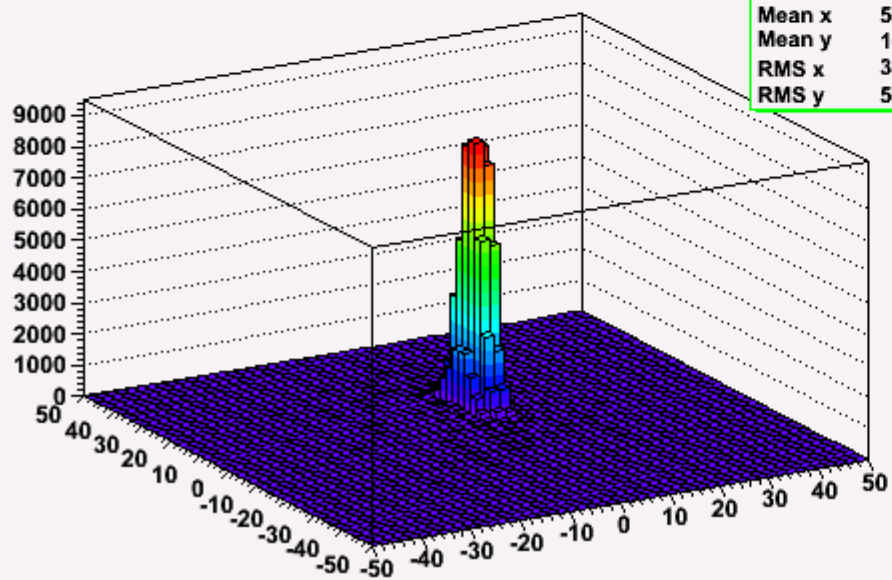
Position X1



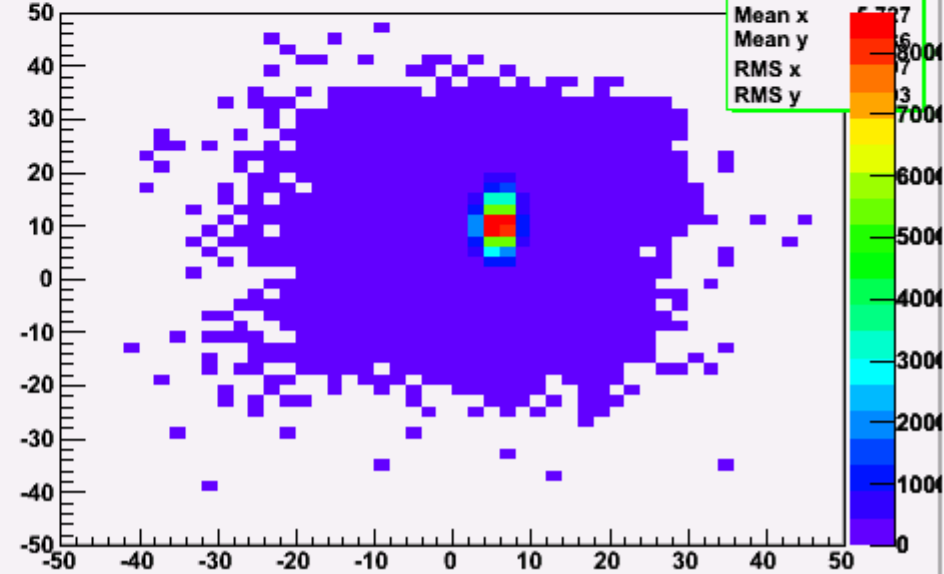
Position Y1



Position XY

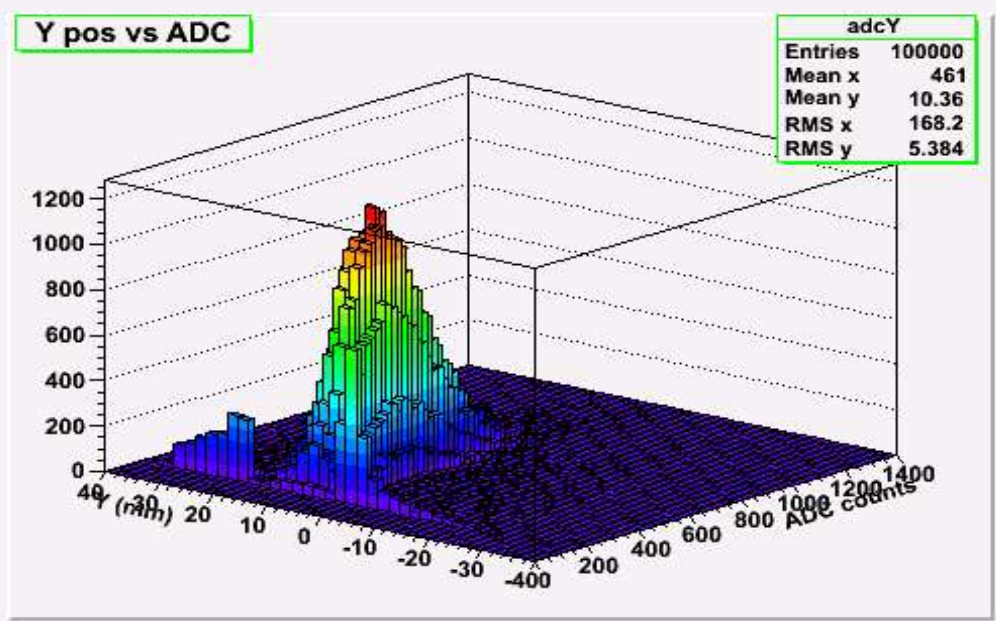
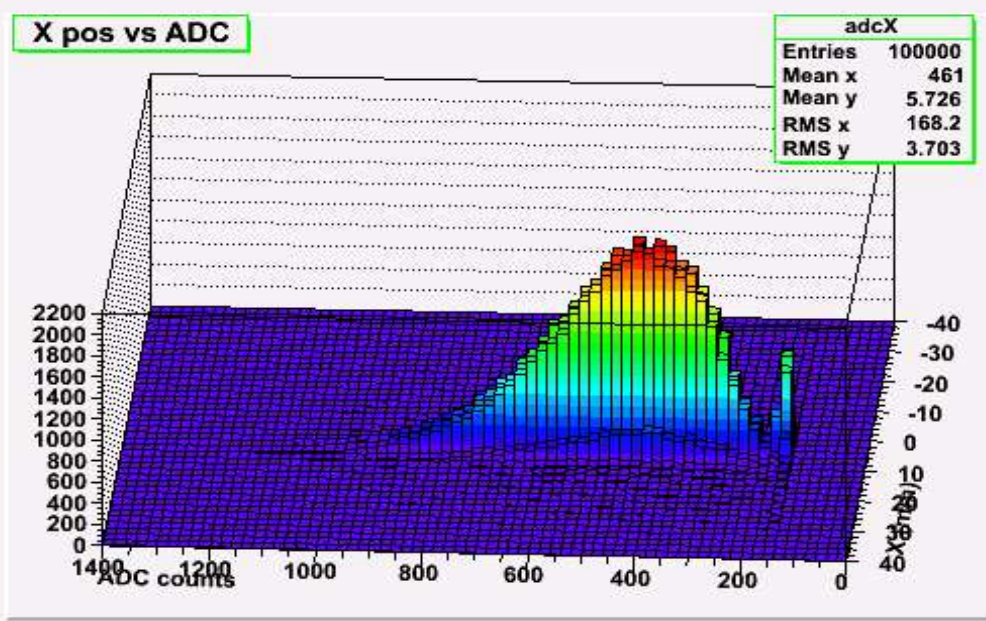
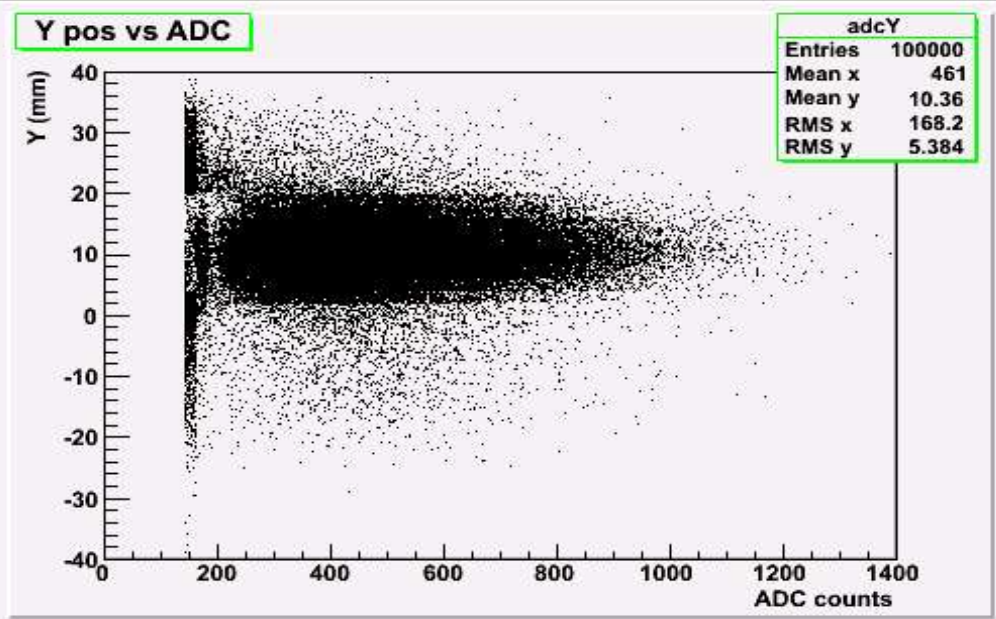
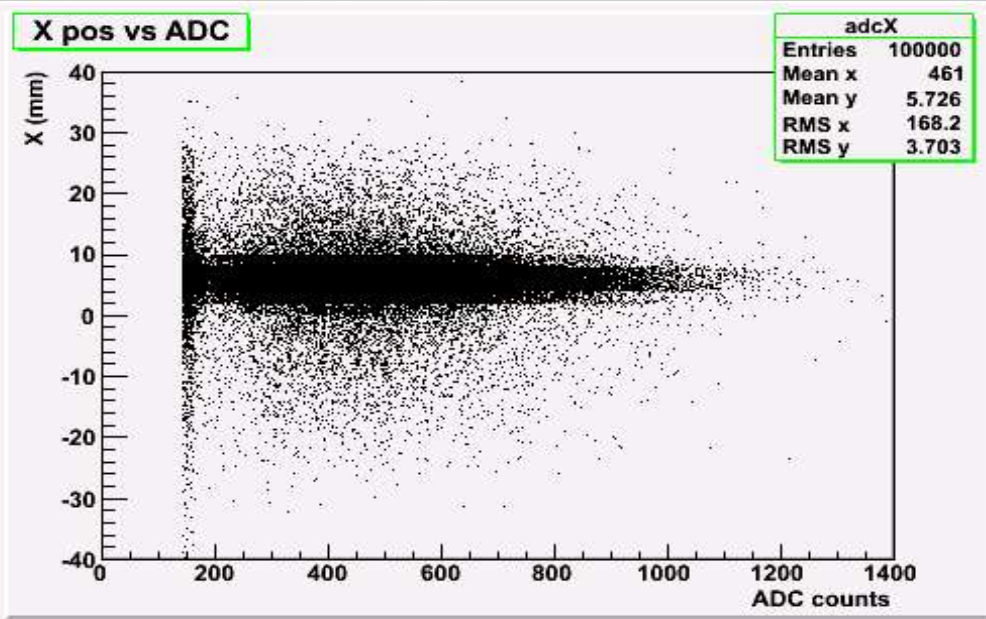


Position XY



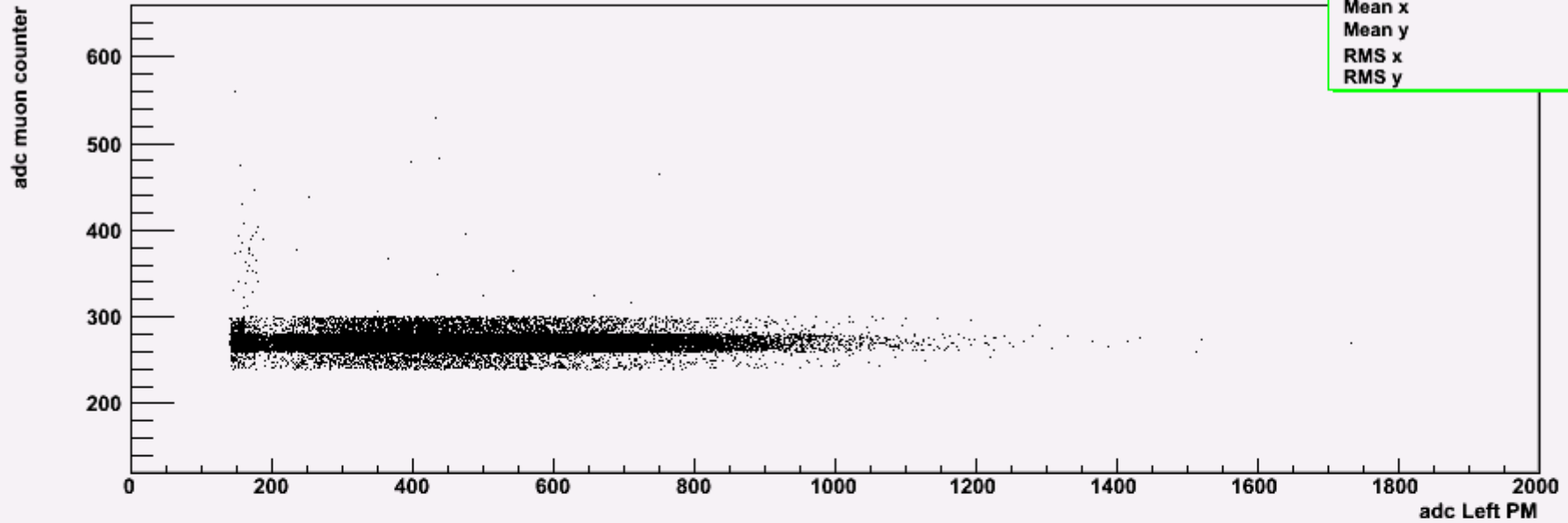
ADC vs beam position

run 182@0degree, PMleft



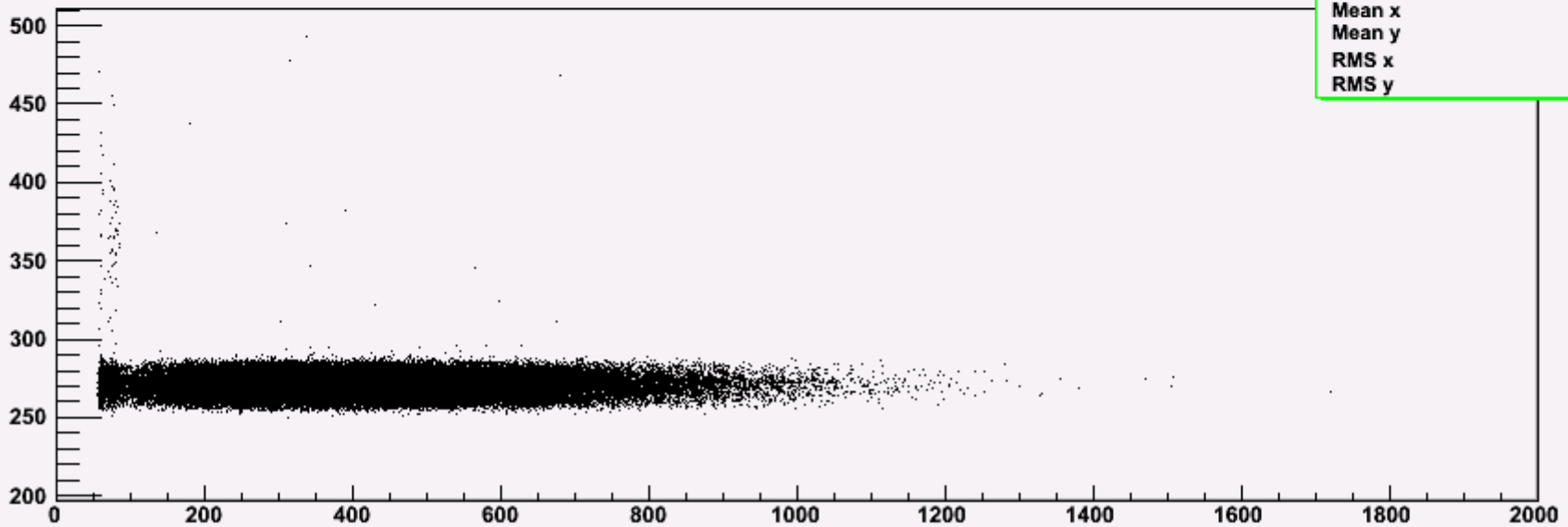
ADC Muon Counter (Downstream vs ADC signal)

Charge eL - Charge mu_1



AdcemuL_1	
Entries	100000
Mean x	461.5
Mean y	270.8
RMS x	168.6
RMS y	7.265

Charge eR - Charge mu_1



AdcemuR_1	
Entries	100000
Mean x	400.4
Mean y	270.9
RMS x	182.1
RMS y	6.623

ADC with only muons (cut on ADC Downstream > 300)

