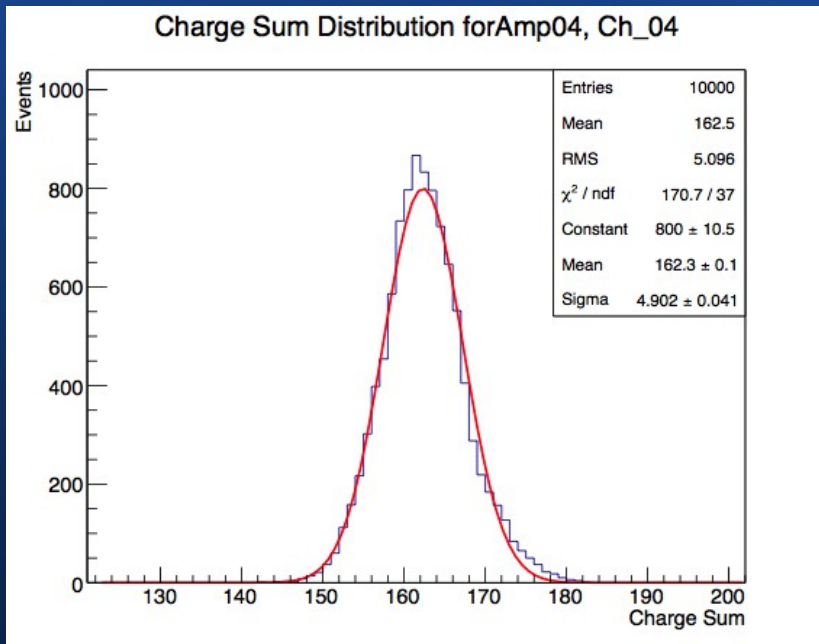# Strategy for each channel

-Estimate the energy:

    -We integrate over the reco-ed pulse to find the sum charge.

    -Distribution of peak heights, the mean of which is energy estimated.

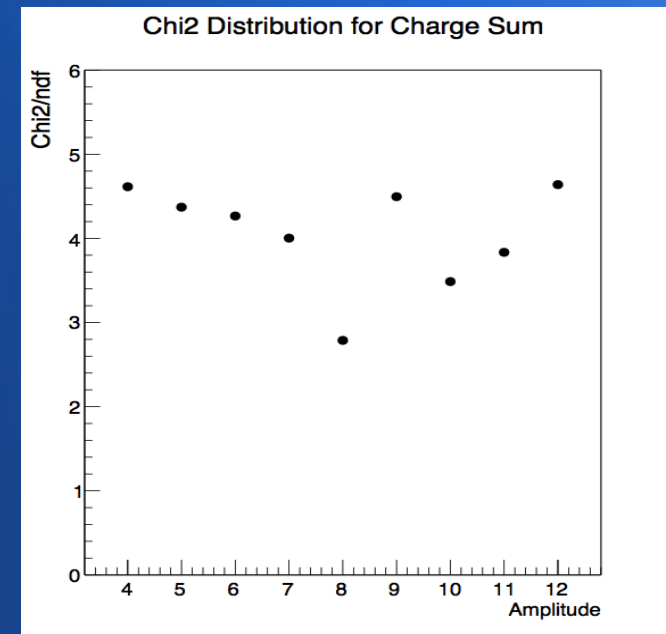-Plot mean sum charge and mean peak height against input signal amplitudes to check linearity.

-Fit straight line on the linearity plot to check.

Sum Charge

Charge Sum Distribution forAmp04, Ch_04

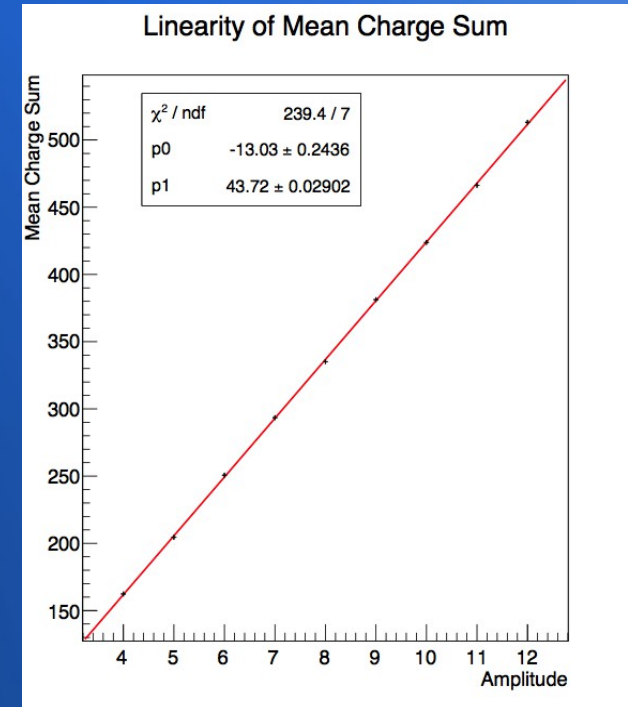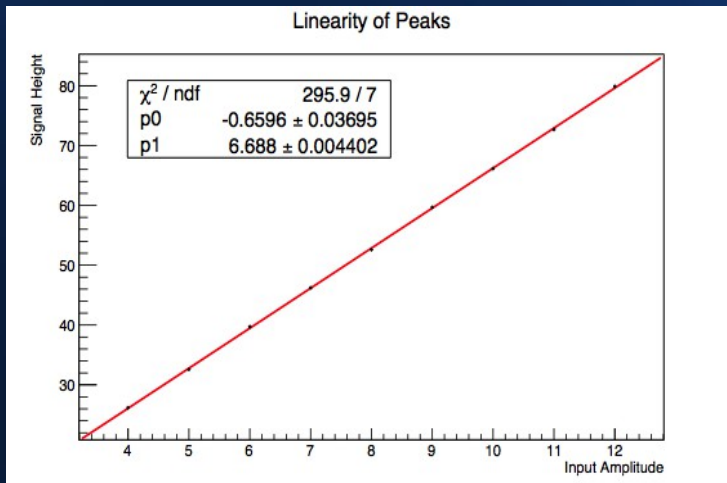| Entries	10000
Mean	162.5
RMS	5.096
χ^2 / ndf	170.7 / 37
Constant	800 ± 10.5
Mean	162.3 ± 0.1
Sigma	4.902 ± 0.041

- Example distribution from channel 4.

- Fitting gaussian shows that the events have a high energy tail.

Chi^2 distributions for the charge sum from other amplitudes are also relatively high; this skewing is not unique to amplitude 4.

Linearization of means

- Take the mean from the fitted gaussian on sum charge.

- Plot against input amplitudes 4-12 (top right: ch. 4)

- For the pulse peak linearity, use a simple mean and RMS(bottom right: ch. 4)

Linearity of Mean Charge Sum

χ^2 / ndf	239.4 / 7
p0	-13.03 ± 0.2436
p1	43.72 ± 0.02902

Linearity of Peaks

χ^2 / ndf	295.9 / 7
p0	-0.6596 ± 0.03695
p1	6.688 ± 0.004402

Peak Heights and digitization

- Peak heights here show why the gaussians may be somewhat off. They have multiple peaks—usually two or three.

- Due to digitization effect.

Peak Heights Distribution for ch_04

Peak Heights Distribution for ch_05