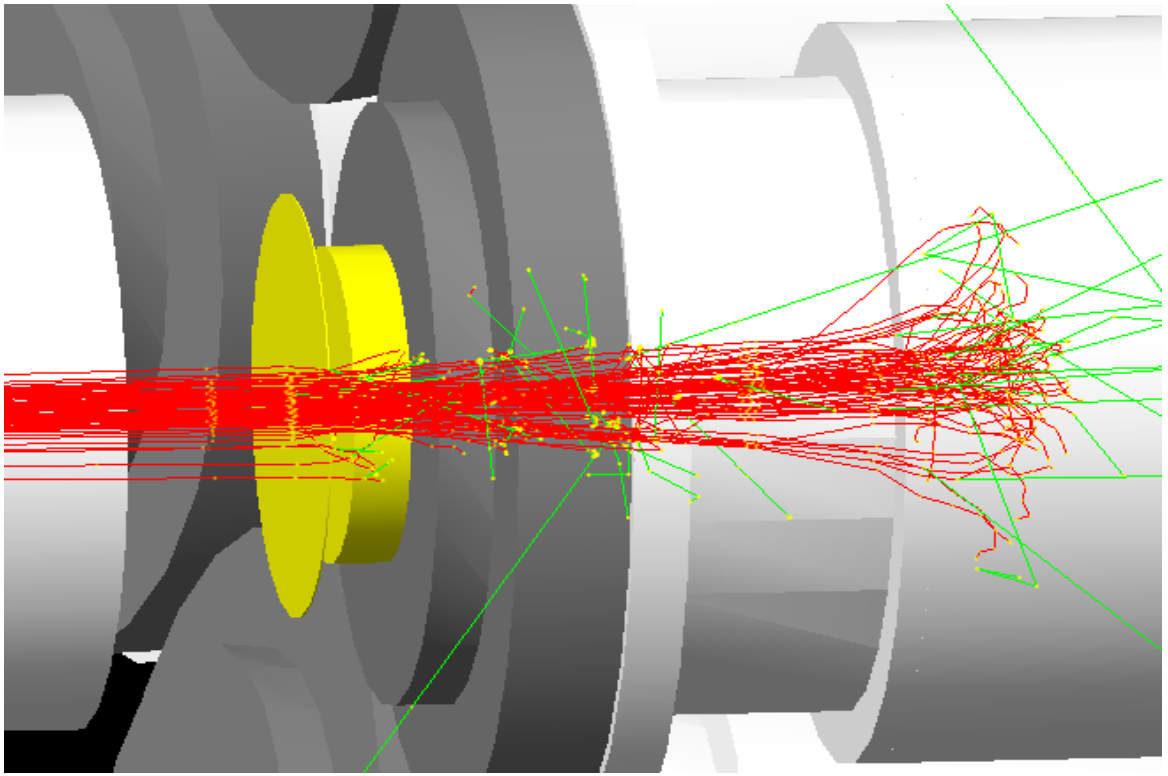
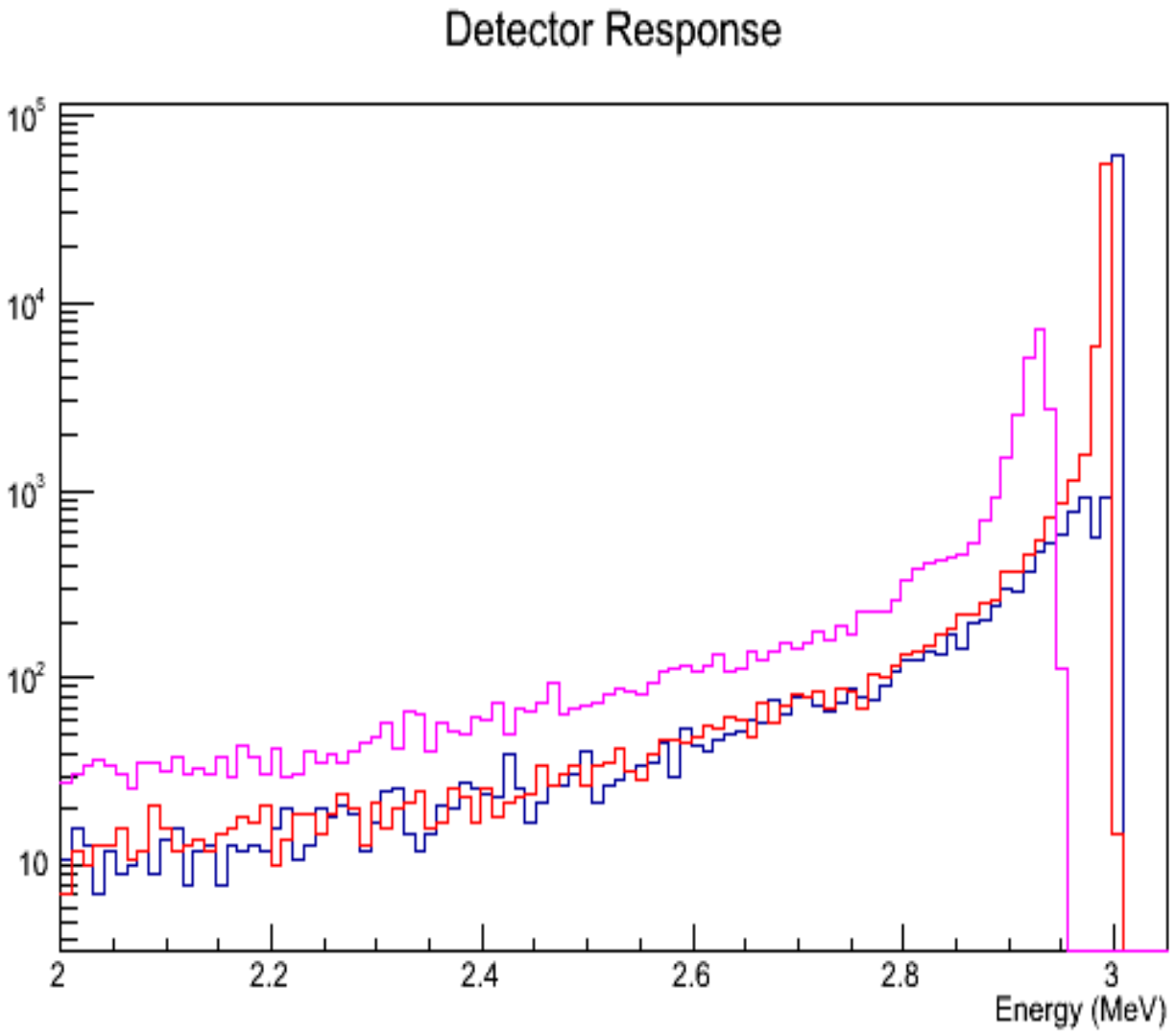
Simulation Update

- Partially complete optical processes. Create Cerenkov but don't collect yet.
- Added Aluminium window 8 mil thick.



3 MeV



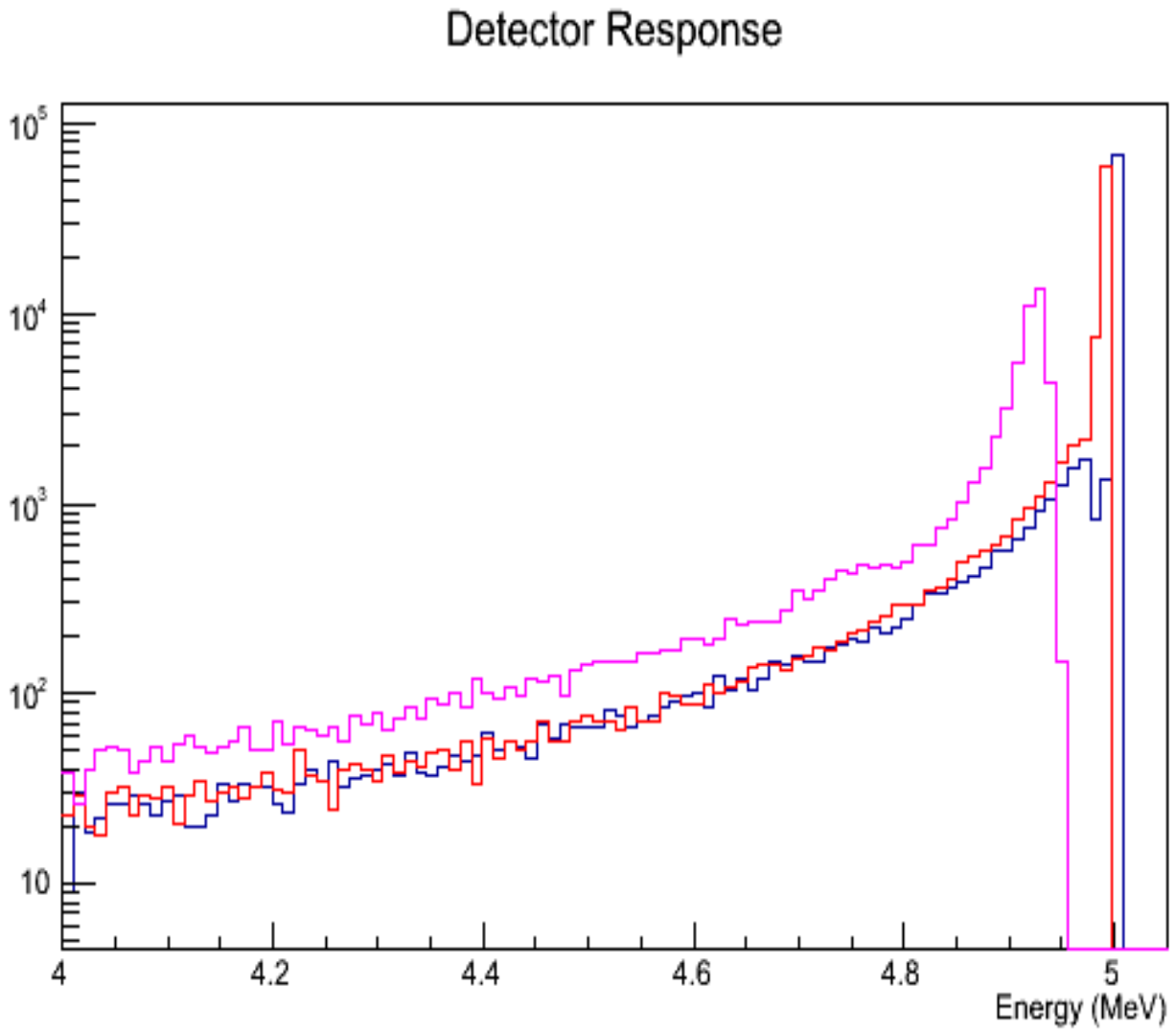
For 100k events rolled:

Vacuum → 71499 hits

Air → 72010 hits

Al+Air → 33875 hits

5 MeV



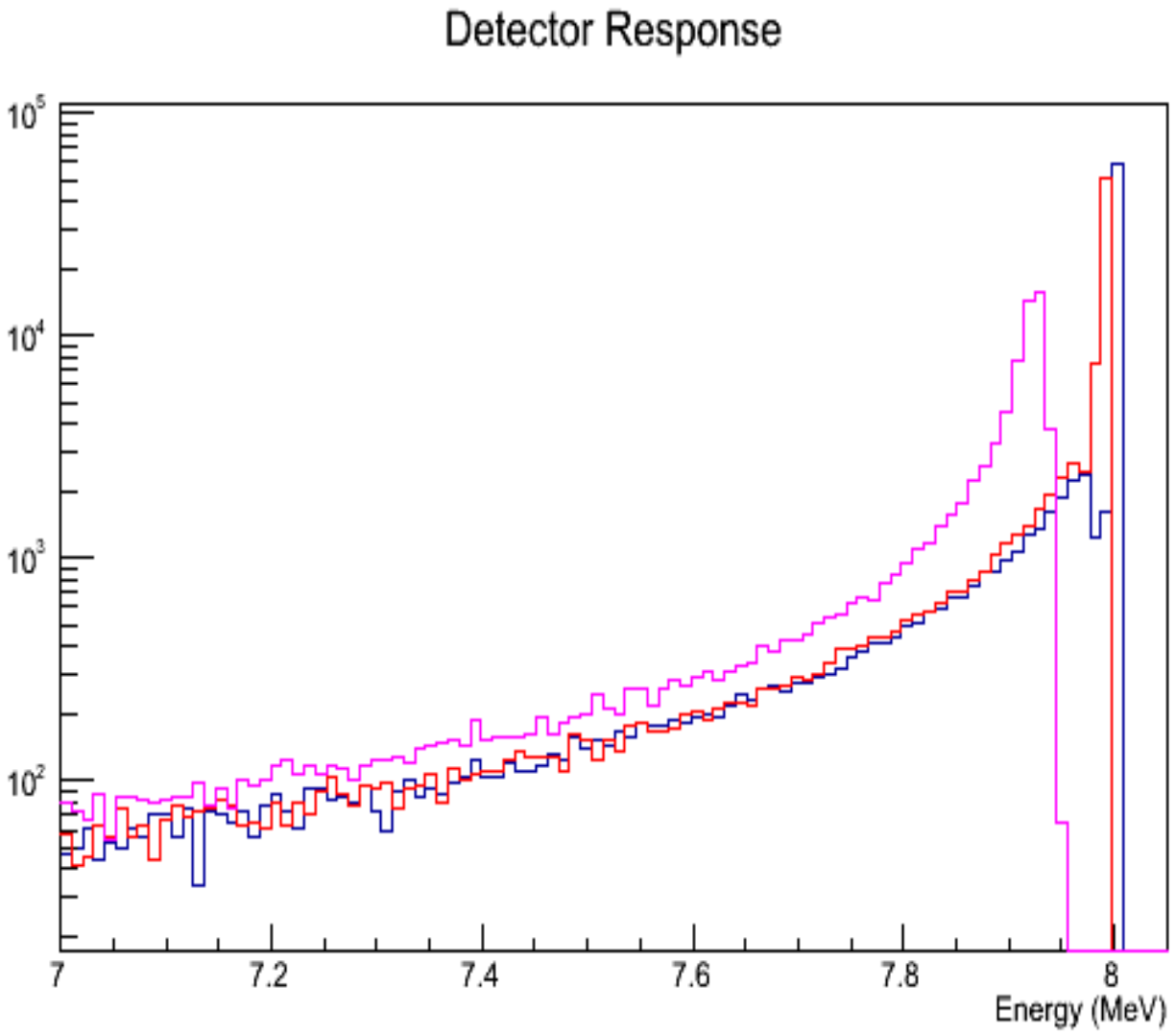
For 100k events rolled:

Vacuum → 89509 hits

Air → 89697 hits

Al+Air → 64852 hits

8 MeV



For 100k events rolled:

Vacuum → 96267 hits

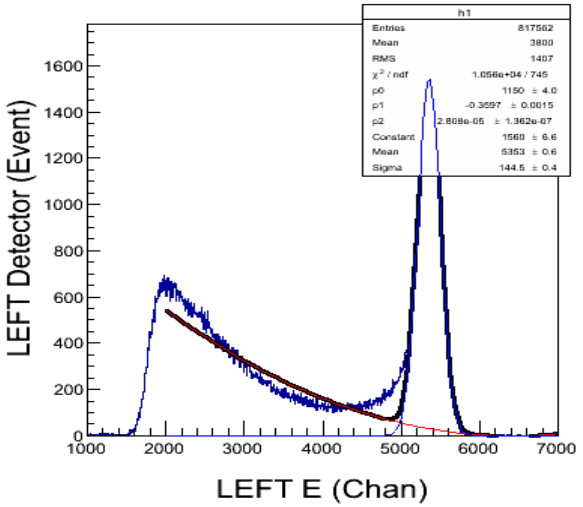
Air → 96374 hits

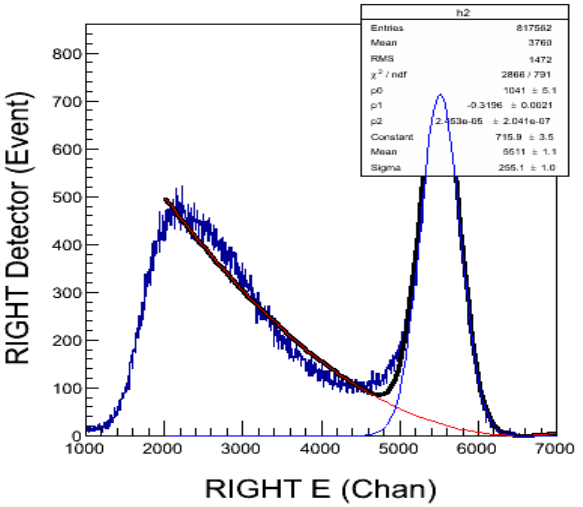
Al+Air → 88298 hits

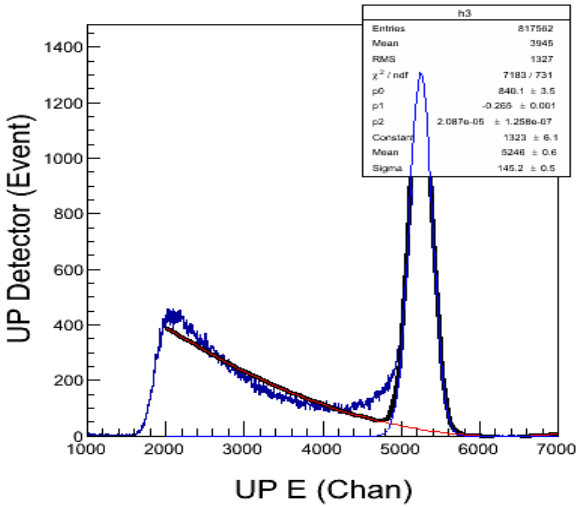
Analysis Update

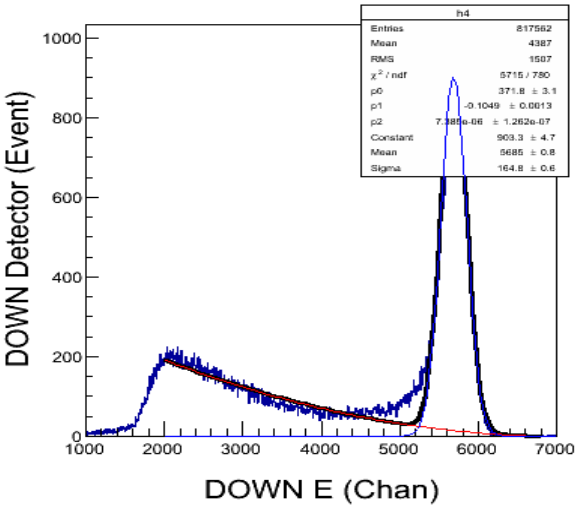
- Determined energy resolution for each target. Pretty consistent.
- Look at pedestal subtractions as source of detector asymmetries and noise.
- E = Sum of samples 50 - 98 of FADC for each detector minus pedestal
- Pedestal = Average of samples 40 – 50
- Pedestals are very consistent across targets.
- Can compare to: https://cebaf.jlab.org/elog/entry/1715814

Spectra for 1 um Au









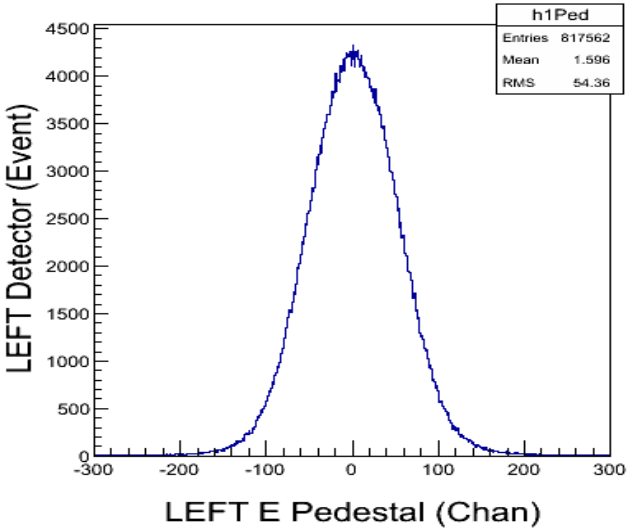
Left:
Mean = 5220
Sigma = 144
Resolution = 2.77 %

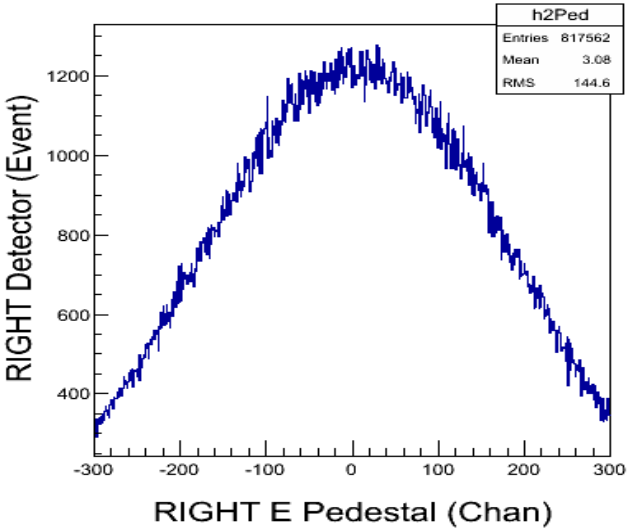
Right:
Mean = 5415
****Sigma = 255****
****Resolution = 4.71 %****

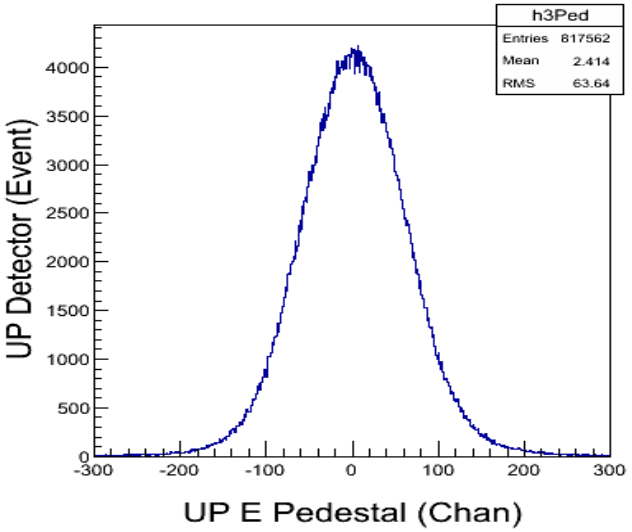
Up:
Mean = 5187
Sigma = 147
Resolution = 2.83 %

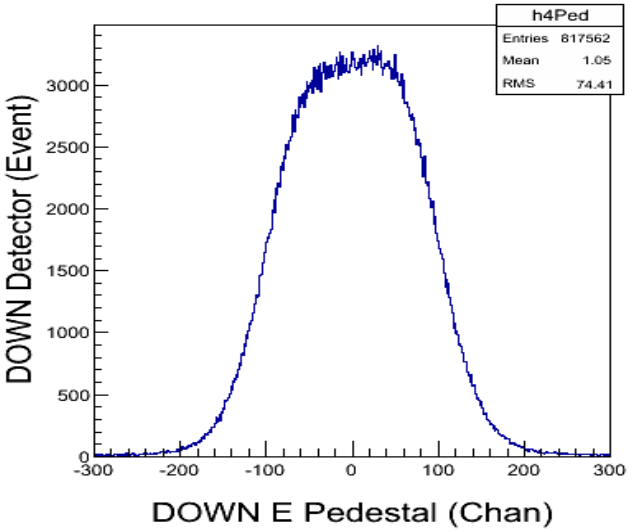
Down:
Mean = 5472
Sigma = 161
Resolution = 2.95 %

Pedestals for 1 um Au









Left:
Mean = 1.60
RMS = 54.38
FWHM = 182

Right: SUPER NOISY
Mean = 3.08
****RMS = 144.6****
FWHM = 316

Up:
Mean = 2.41
RMS = 63.64
FWHM = 207

Down: NON-GAUSSIAN
Mean = 1.05
RMS = 74.41
FWHM = 253