

Efficiency :

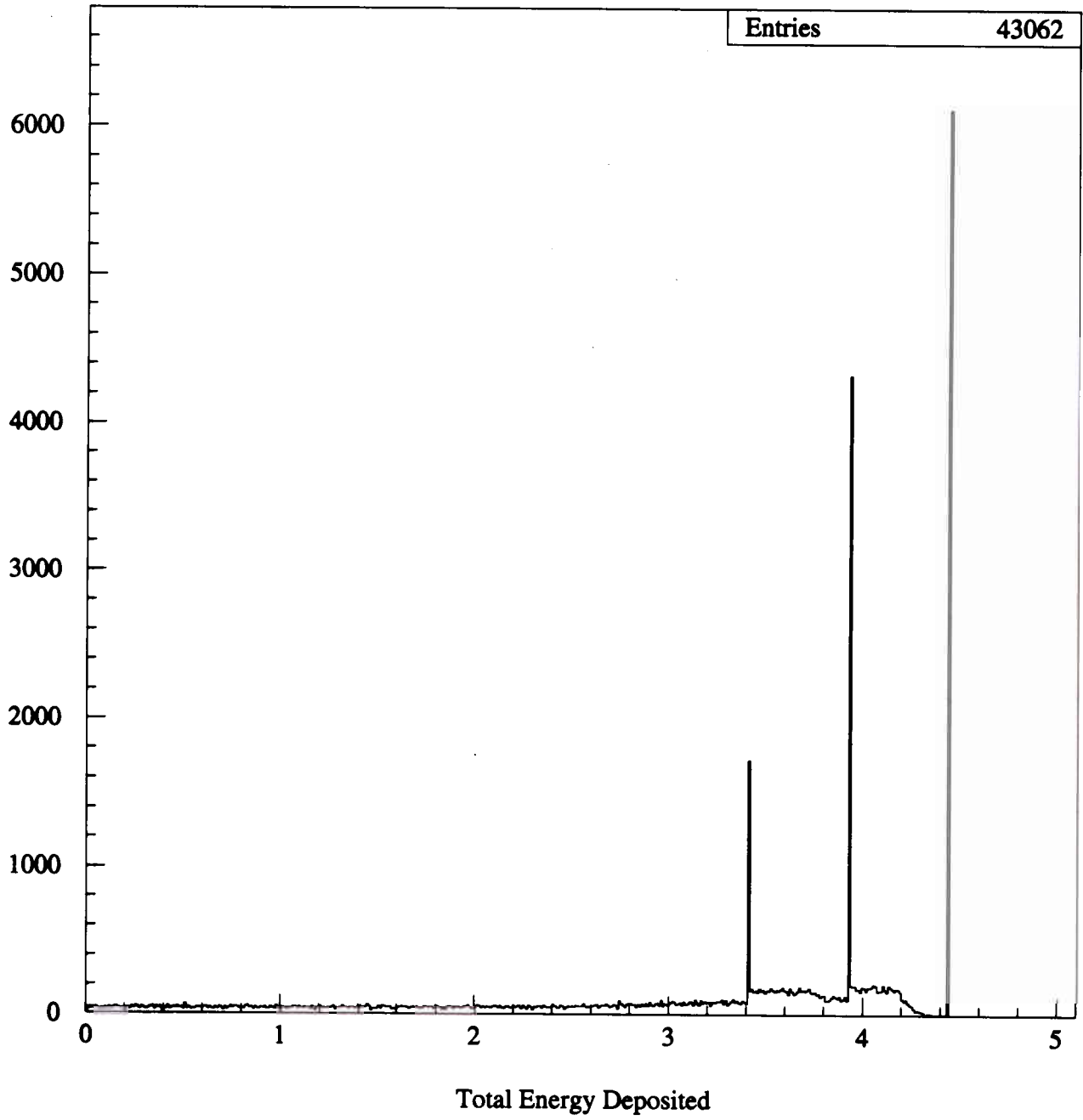
$Y_s$  Collected in Array

→  $X_s$  Emitted by Source

Measured for unknown  
Source by NaI detector  
& known efficiency

- efficiency given by:

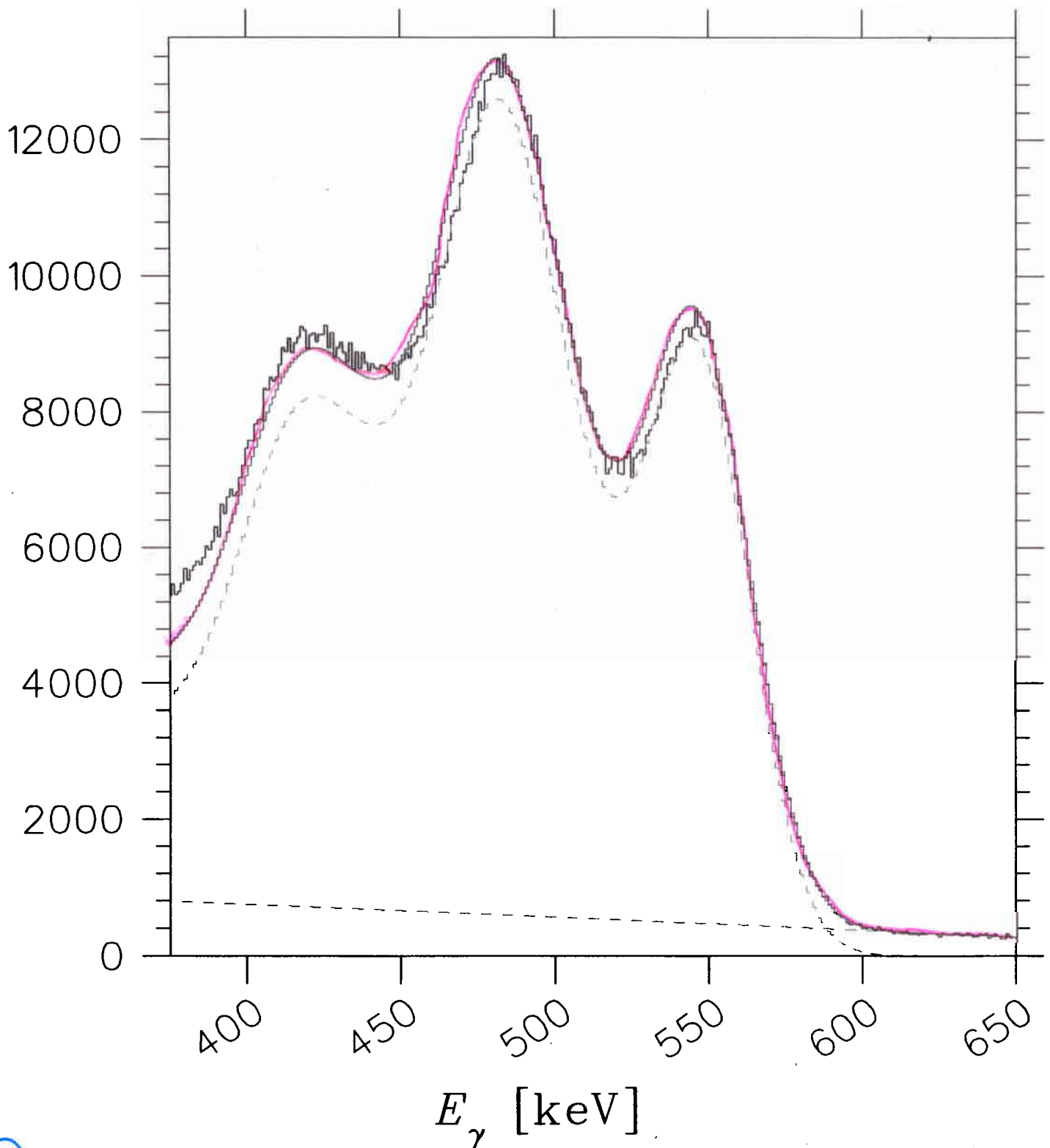
- ① - Marion calculation
- ② - GEANT calculation



$$x_0 = -37.10 \pm 0.04 \text{ keV} \quad yNorm = 44.95 \pm 0.04$$

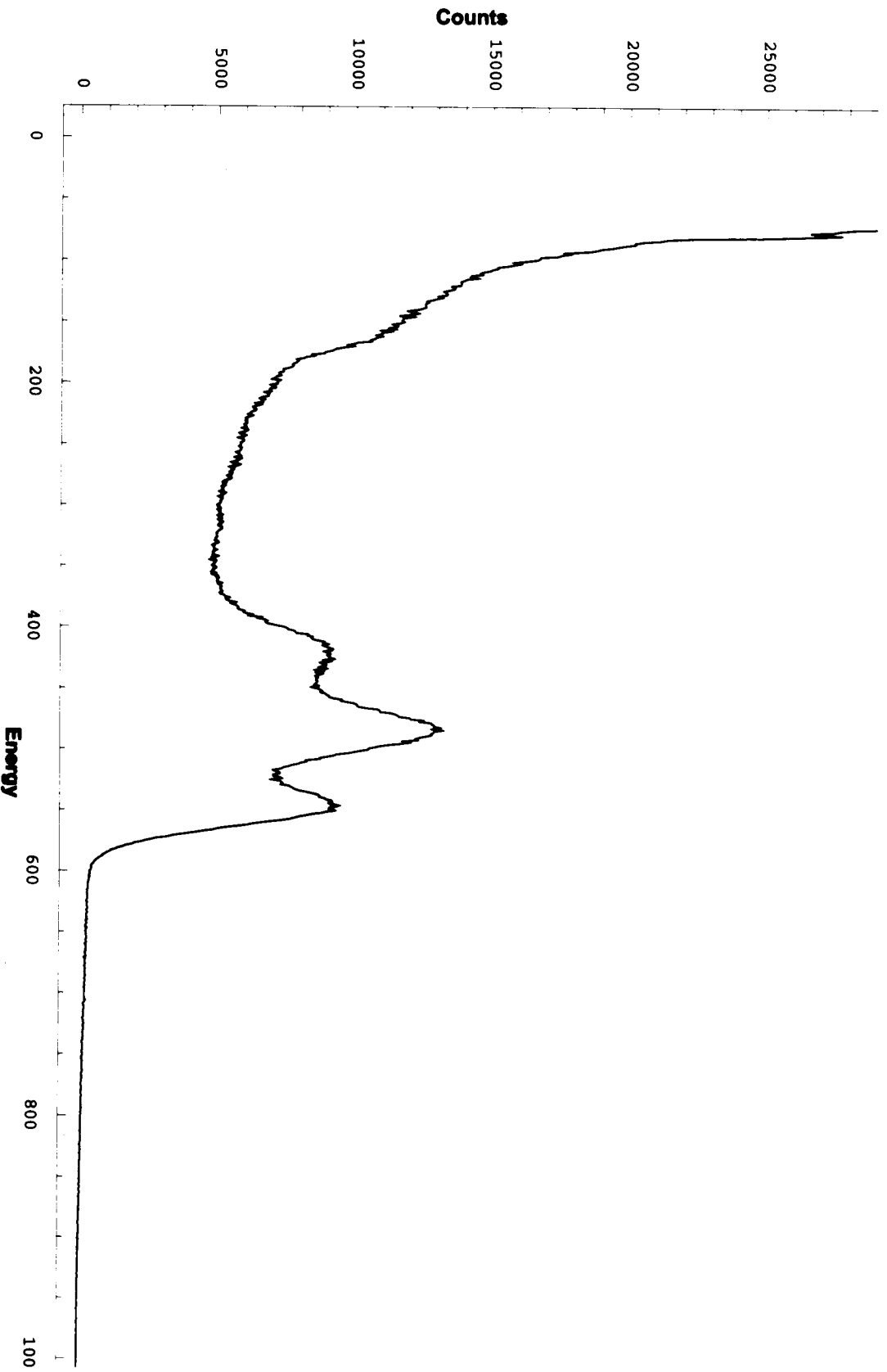
$$\sigma \equiv 13.04 \text{ keV} \quad Gain = 1283.37 \pm 0.00 \text{ ch/MeV}$$

$$\chi^2/273 = 11.633 \quad m = -1.88 \text{ ch/MeV} \quad b = 1500.00$$



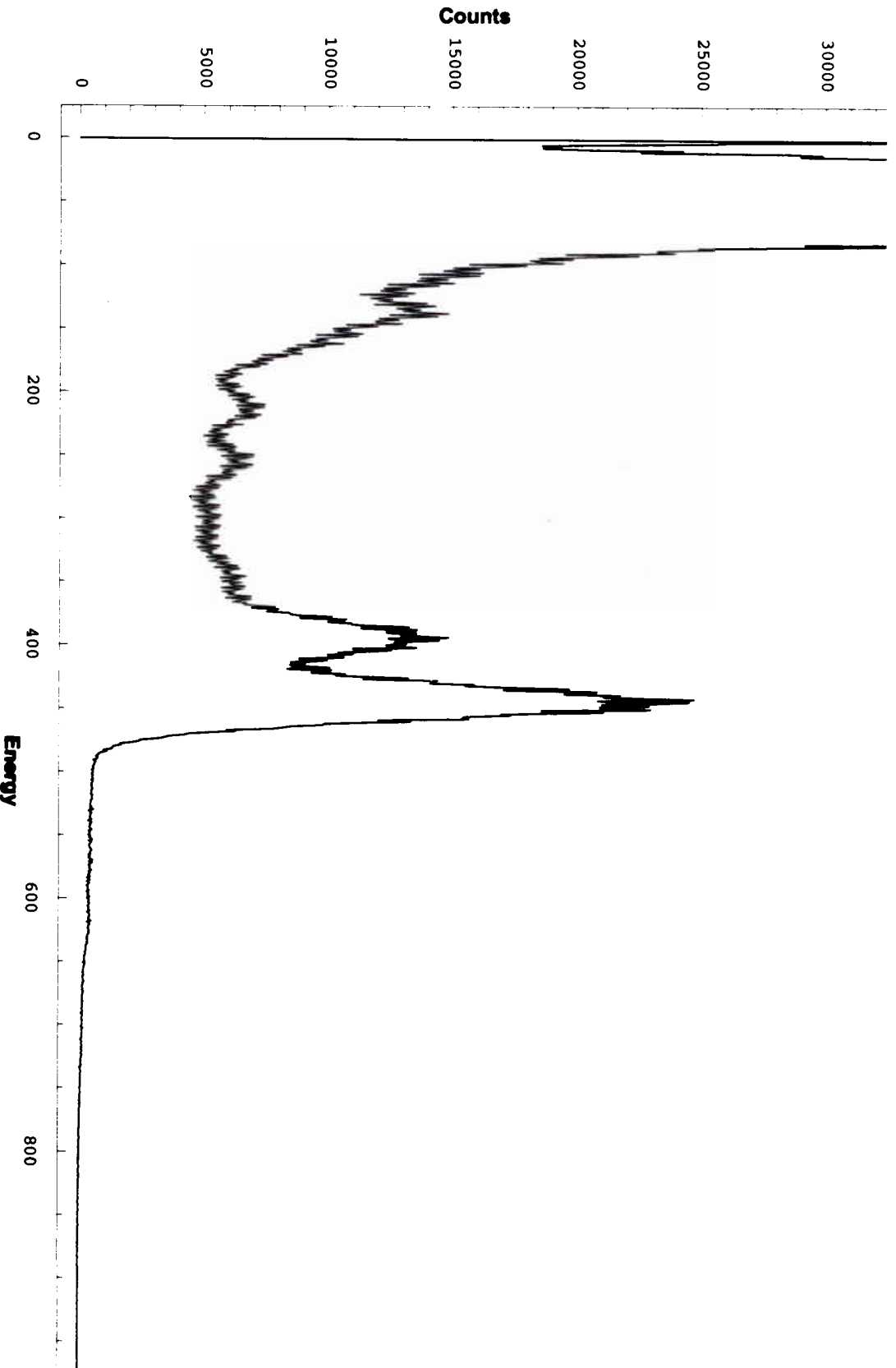
3

### NaI Detector Response to 4.44 MeV AmBe Source



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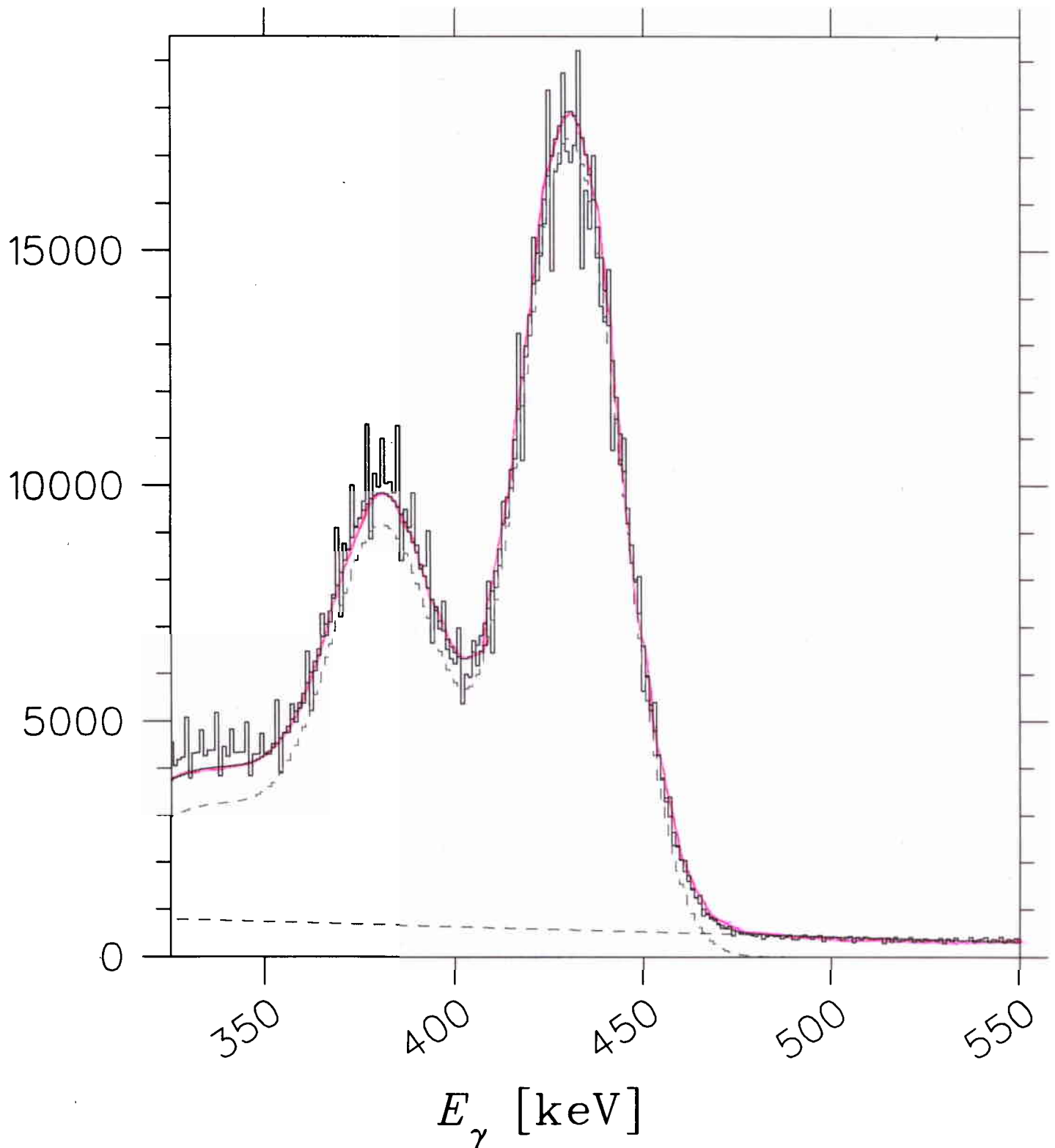
### BGO Detector Response to 4.44 MeV AmBe Source



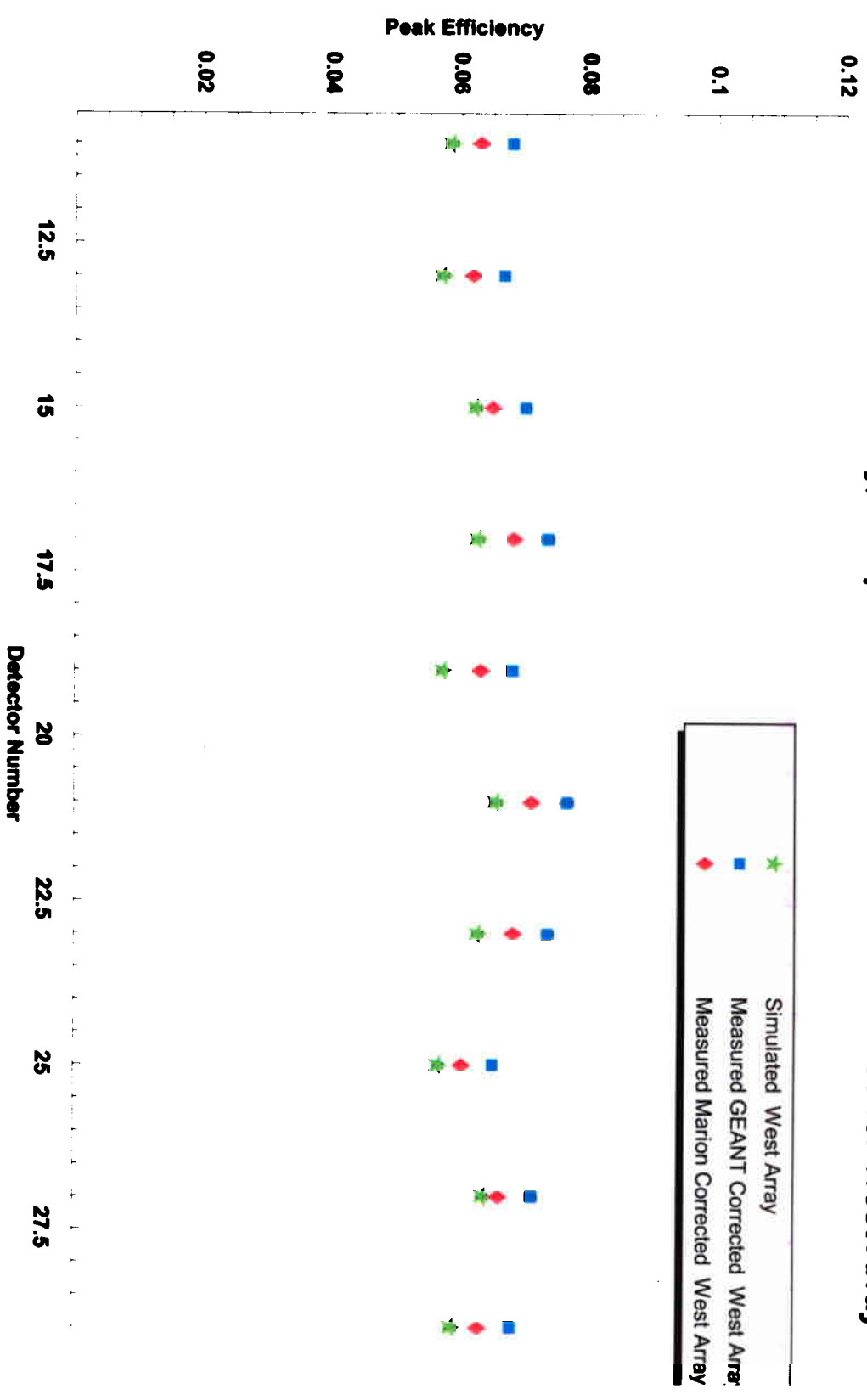
$$x_0 = -15.98 \pm 0.48 \text{ keV} \quad yNorm = 0.39 \pm 0.00$$

$$\sigma = 13.45 \pm 0.02 \text{ keV} \quad Gain = 982.30 \pm 1.06 \text{ ch/MeV}$$

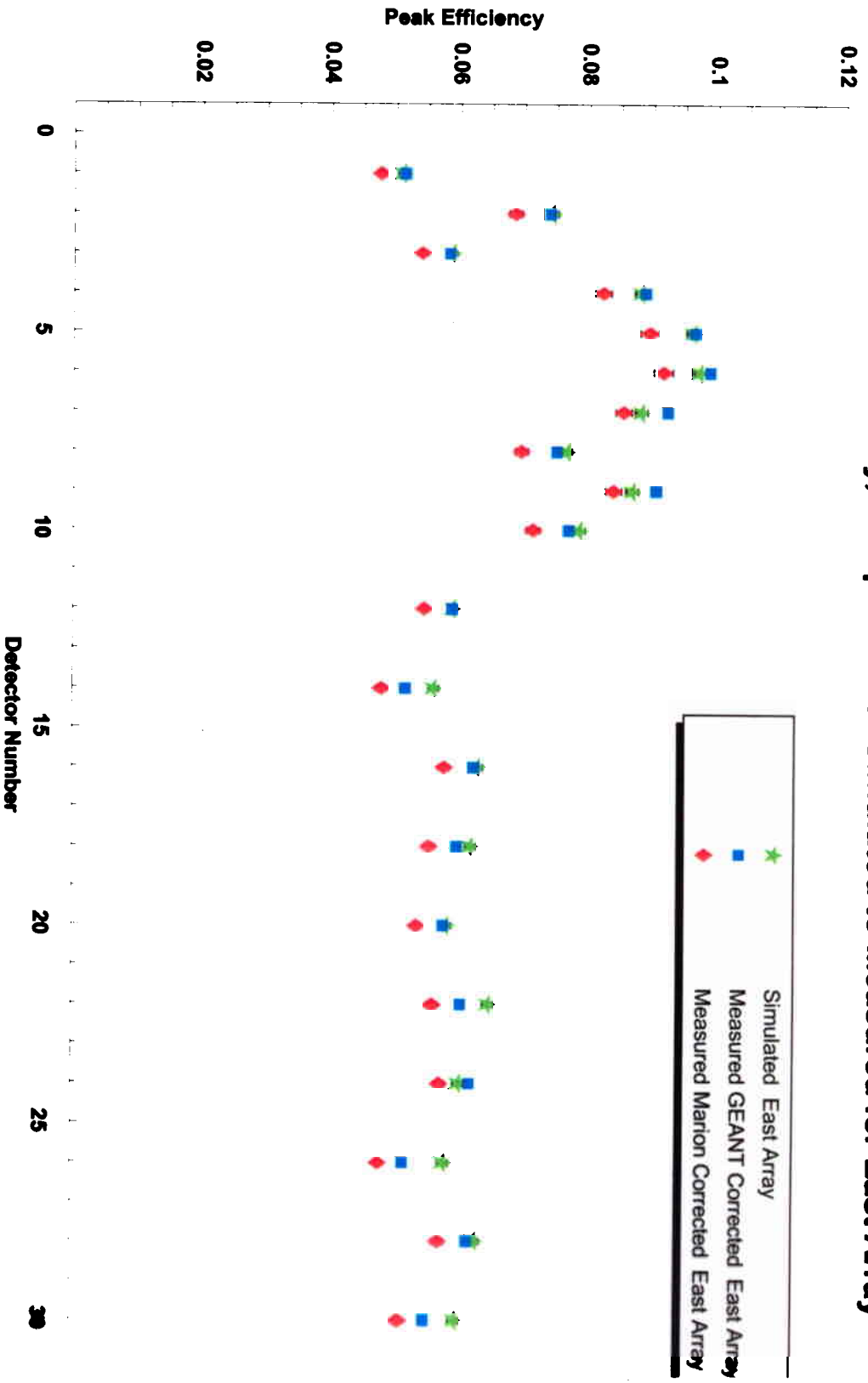
$$\chi^2/221 = 39.355 \quad m = -2.16 \text{ ch/MeV} \quad b = 1500.00$$



### Photo Peak Efficiency, Comparison of Simulated to Measured for West Array



### Photo Peak Efficiency, Comparison of Simulated to Measured for East Array





Overall Efficiency given by Monte Carlo (GEANT)  
Fit technique. (Photopak efficiency, detectors pulled back 31.5cm)

Horizon  
1.280  
0.649  
1.929

Measured

East  
West  
Total

GEANT

1.381  
0.700  
2.081%

Simulated

East  
West  
Total

1.399  
0.602  
2.001%

~4% Difference