

Analysis of alpha event

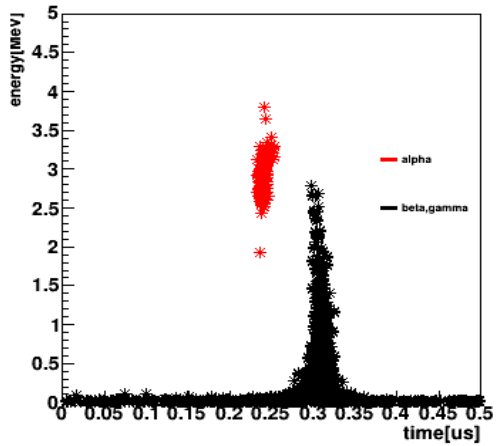
2019/02/18

Jae Jin Choi

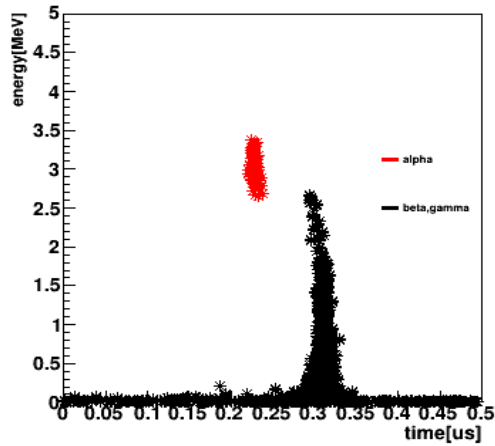


Alpha Monitoring

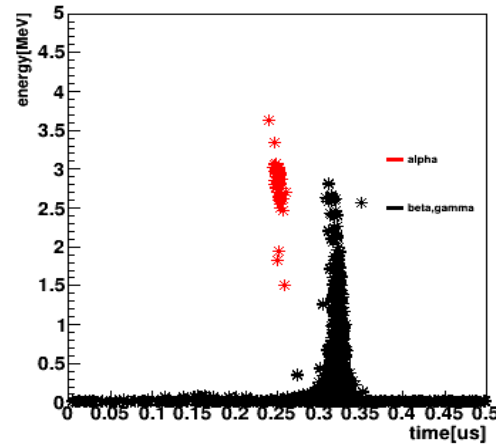
crystal1 alpha cut



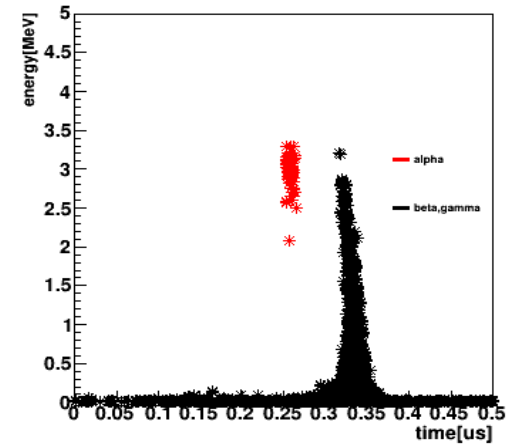
crystal2 alpha cut



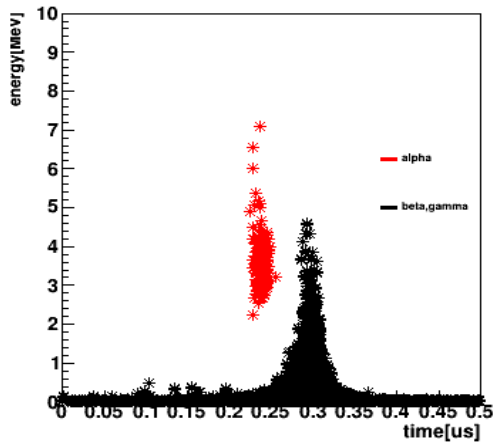
crystal3 alpha cut



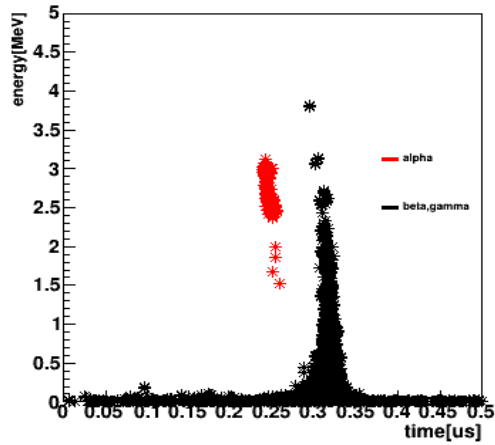
crystal4 alpha cut



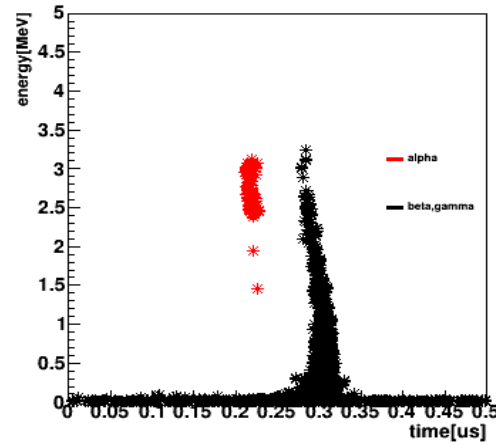
crystal5 alpha cut



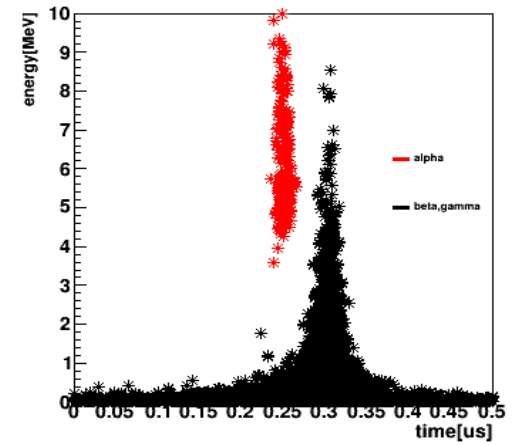
crystal6 alpha cut



crystal7 alpha cut

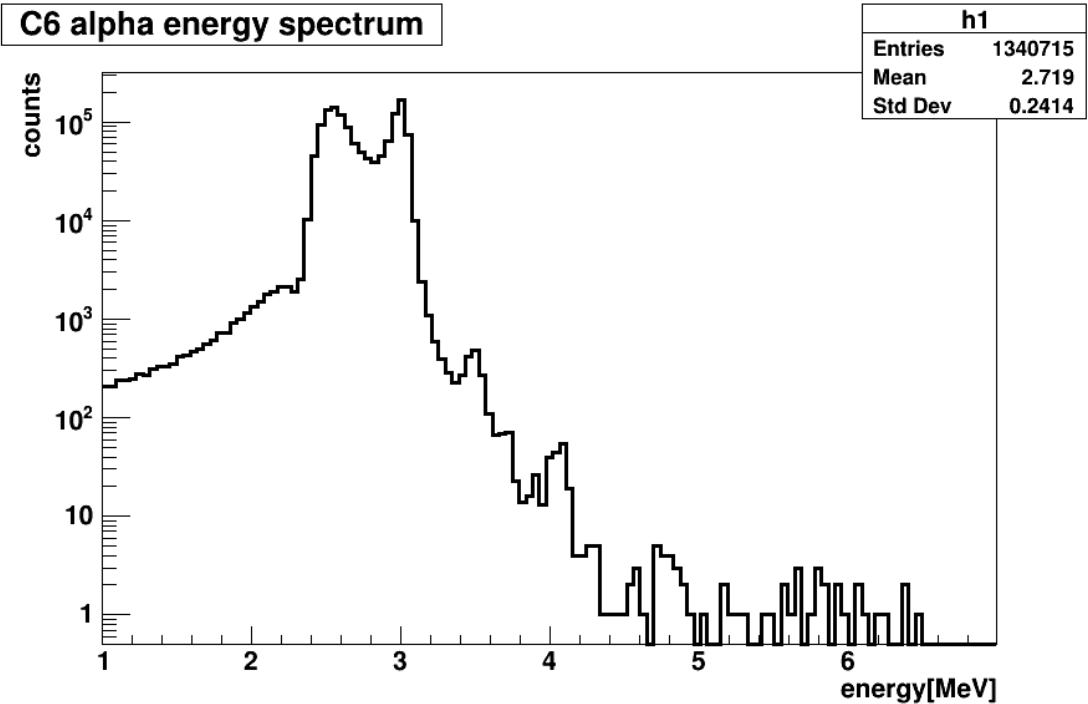
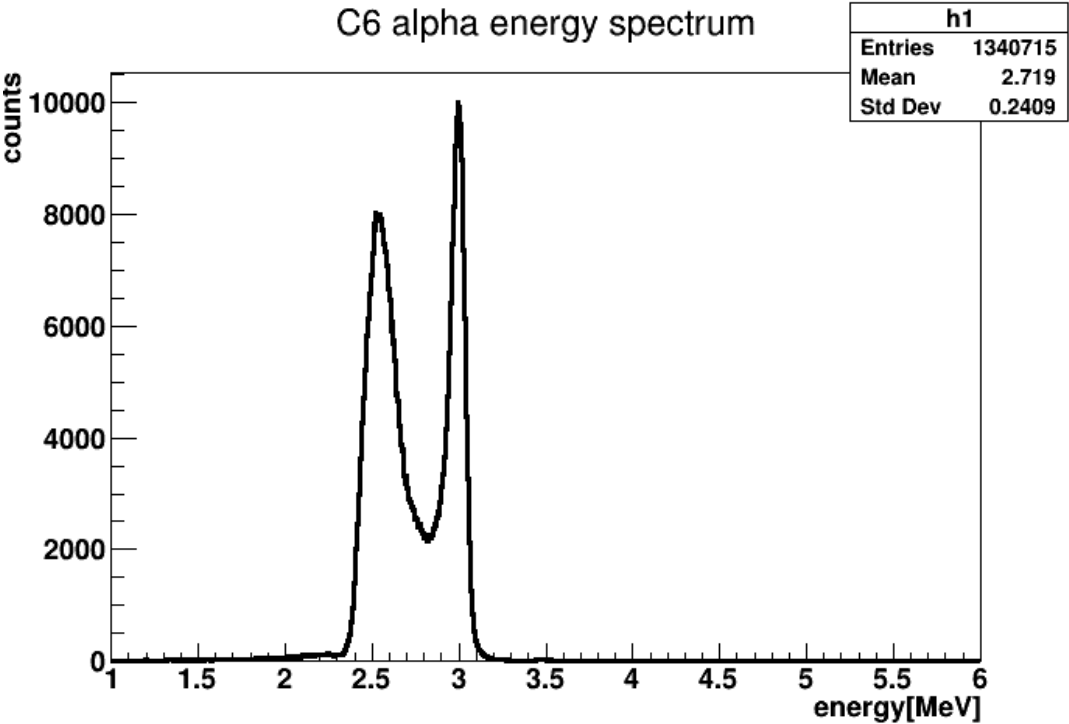


crystal8 alpha cut



Meantime vs energyD

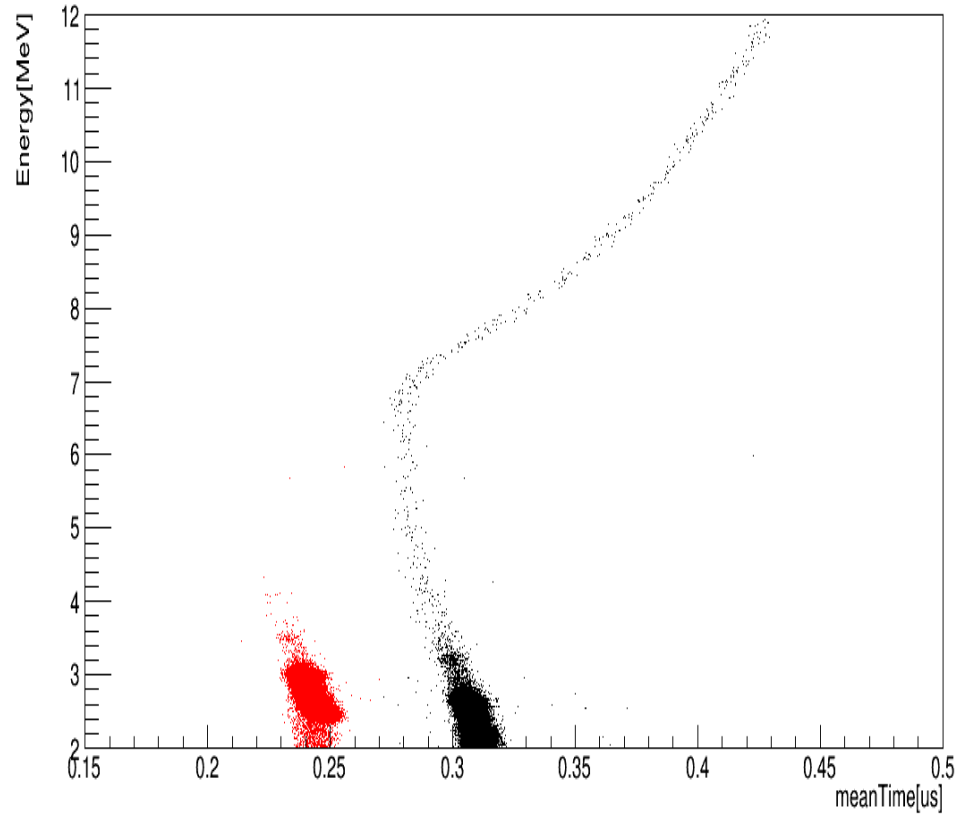
Alpha Analysis(C6)



Crystal 6 alpha energy spectrum for 2 years

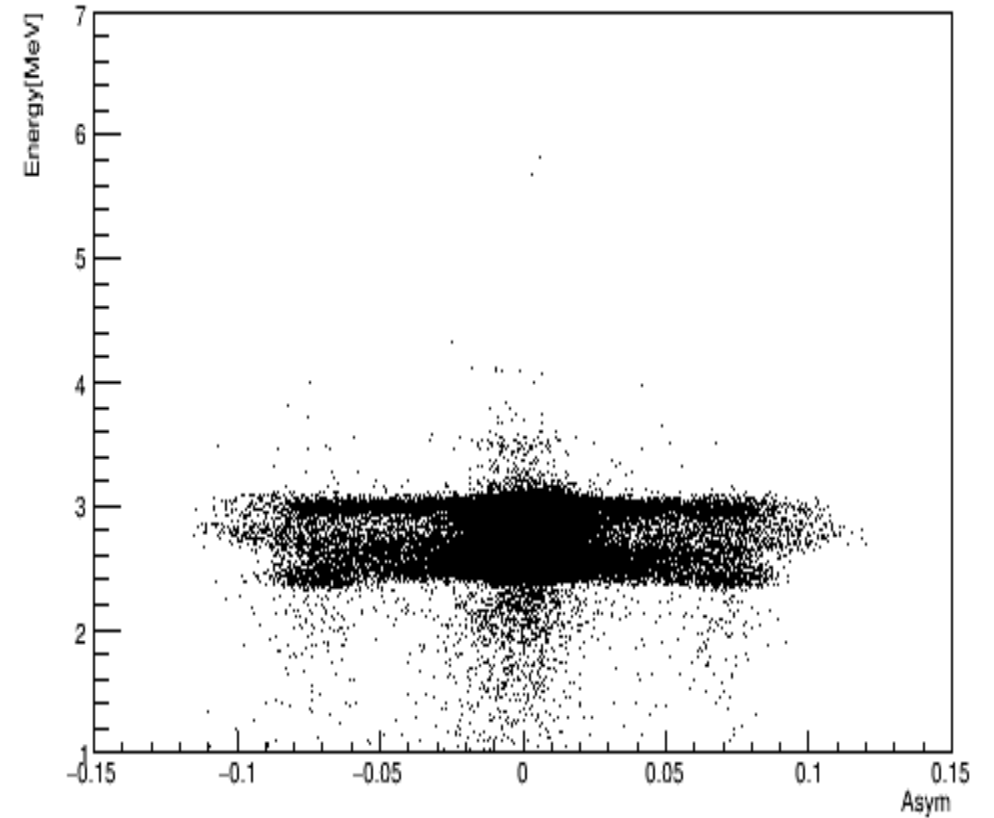
Alpha Analysis(C6)

meanTime vs Energy



PMT saturation

Charge Asymmetry for crystal6

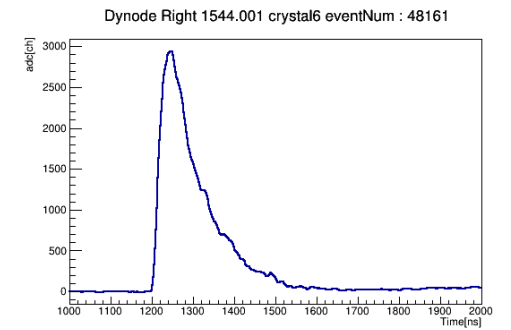
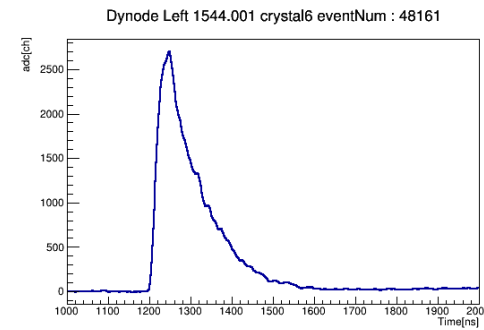
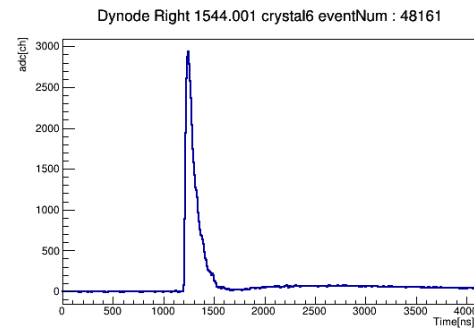
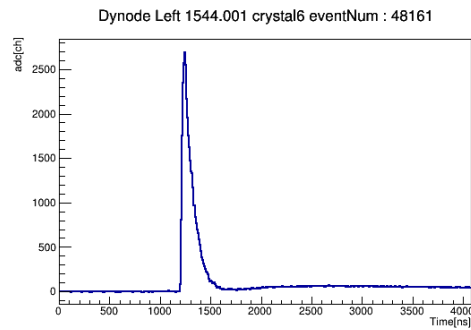
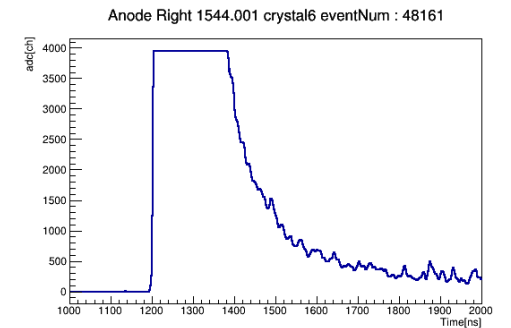
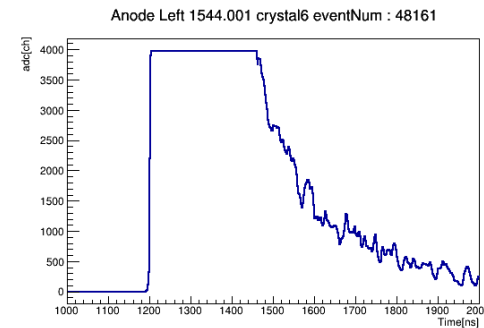
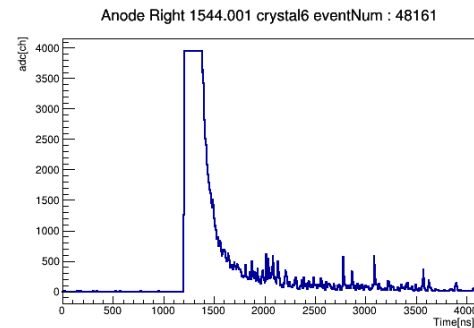
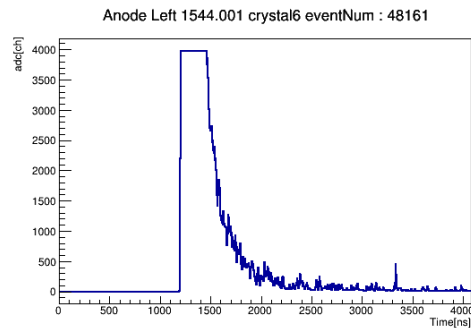


No Asymmetry

Run 1544

Alpha Analysis(C6)

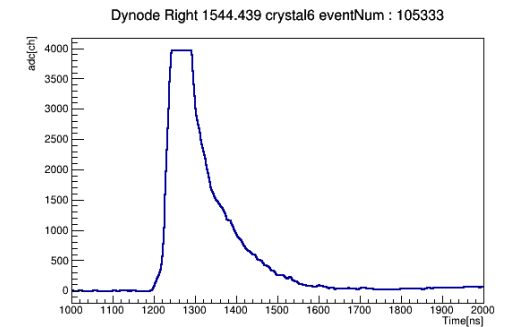
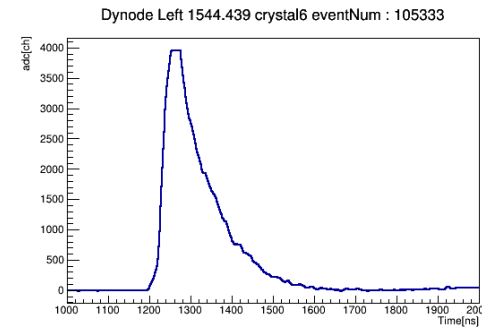
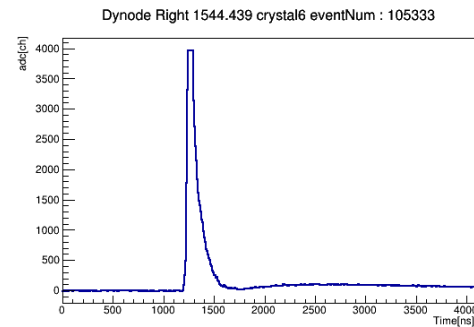
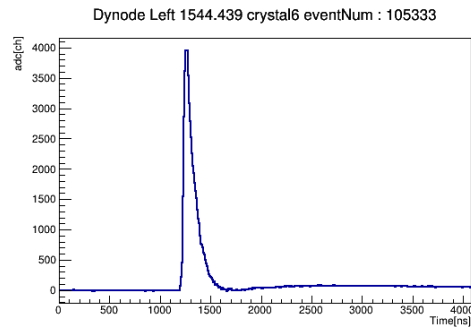
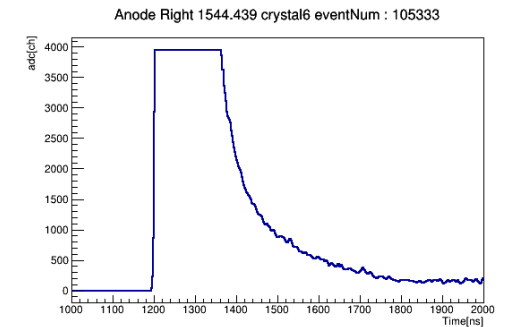
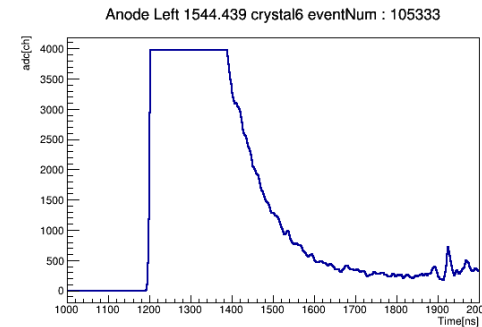
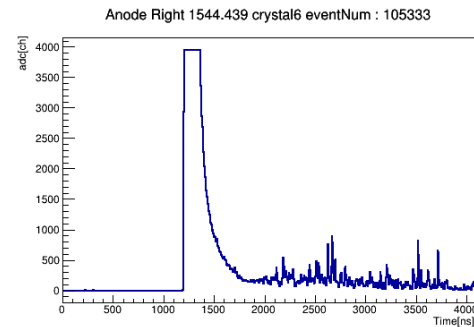
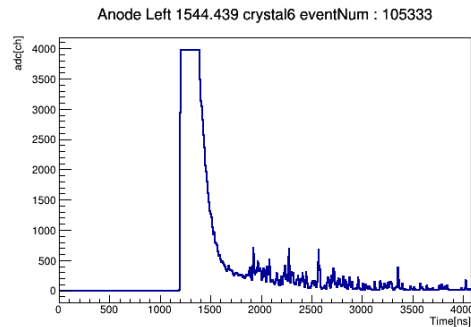
```
subrun : 1
*****
* Row * eventNum * energyD * pmt1fmaxD * pmt2fmaxD *
*****
* 966 * 48161 * 3.7913909 * 4560.0405 * 4578.4848 *
*****
```



PMT saturation on Dynode

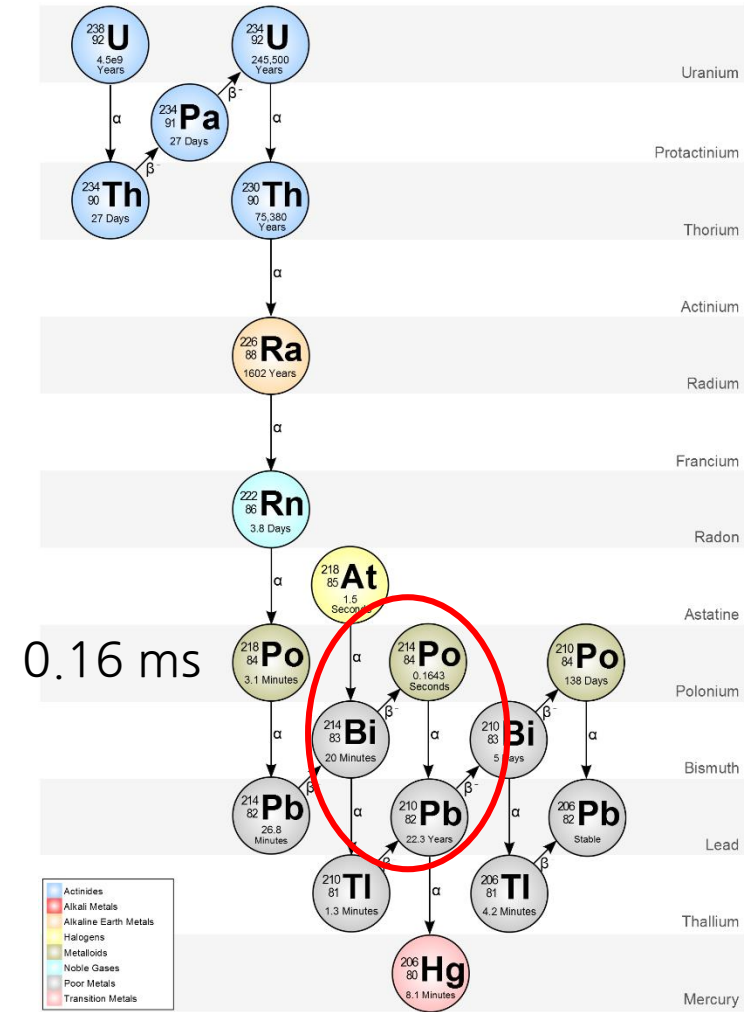
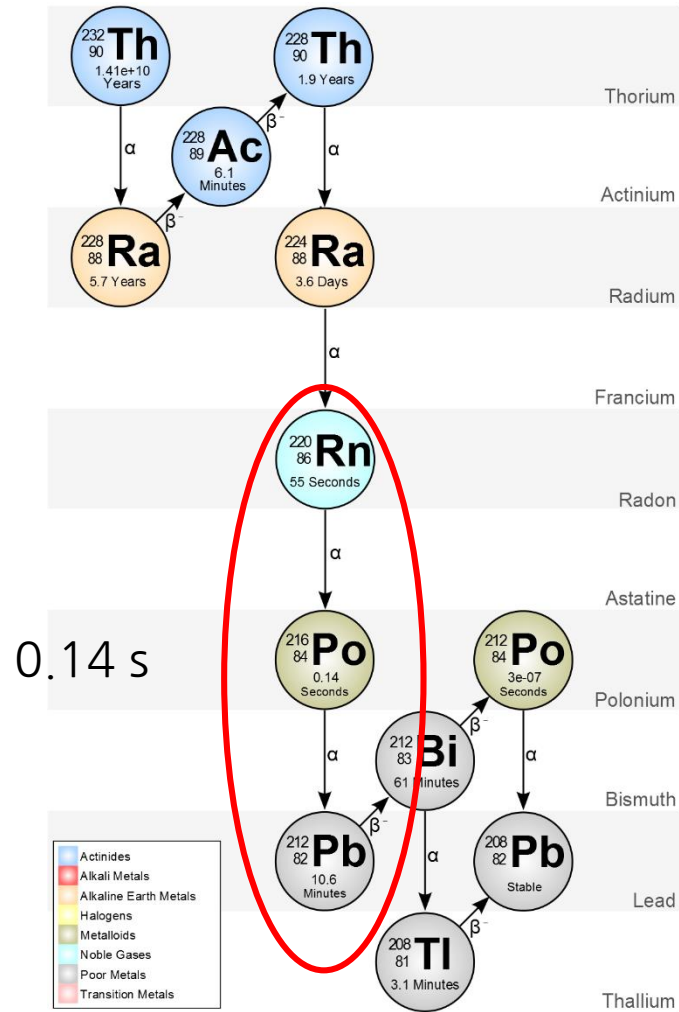
Alpha Analysis(C6)

```
subrun : 439
*****
*   Row * eventNum * energyD * pmt1fmaxD * pmt2fmaxD *
*****
*   2483 *   105333 * 5.8321651 * 6731.2021 * 6194.2265 *
*****
```



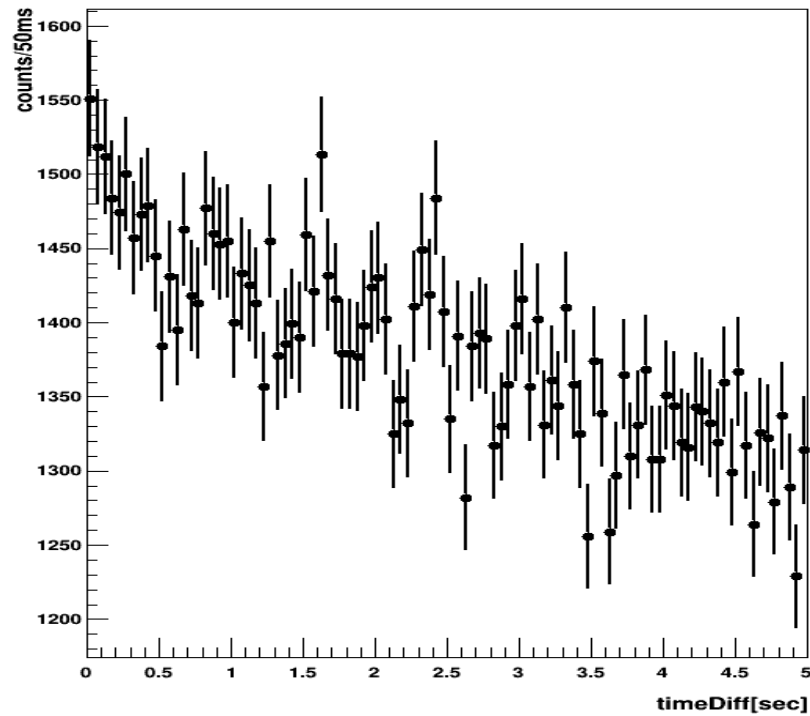
PMT saturation and overflowed(daq) on Dynode

Alpha Coincidence(crystal 6)

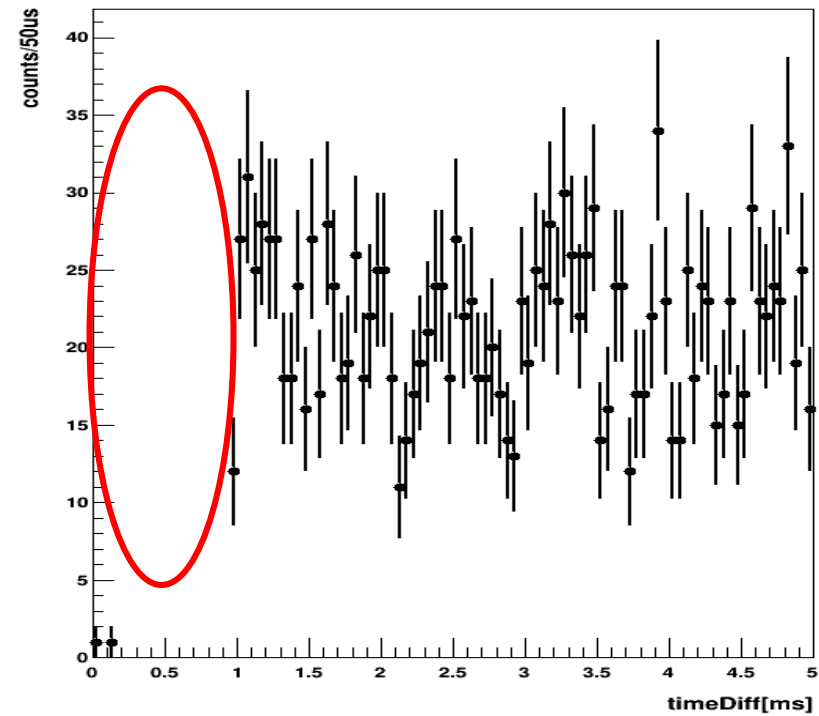


Alpha Coincidence(crystal6)

deltaT of alpha_alpha_events



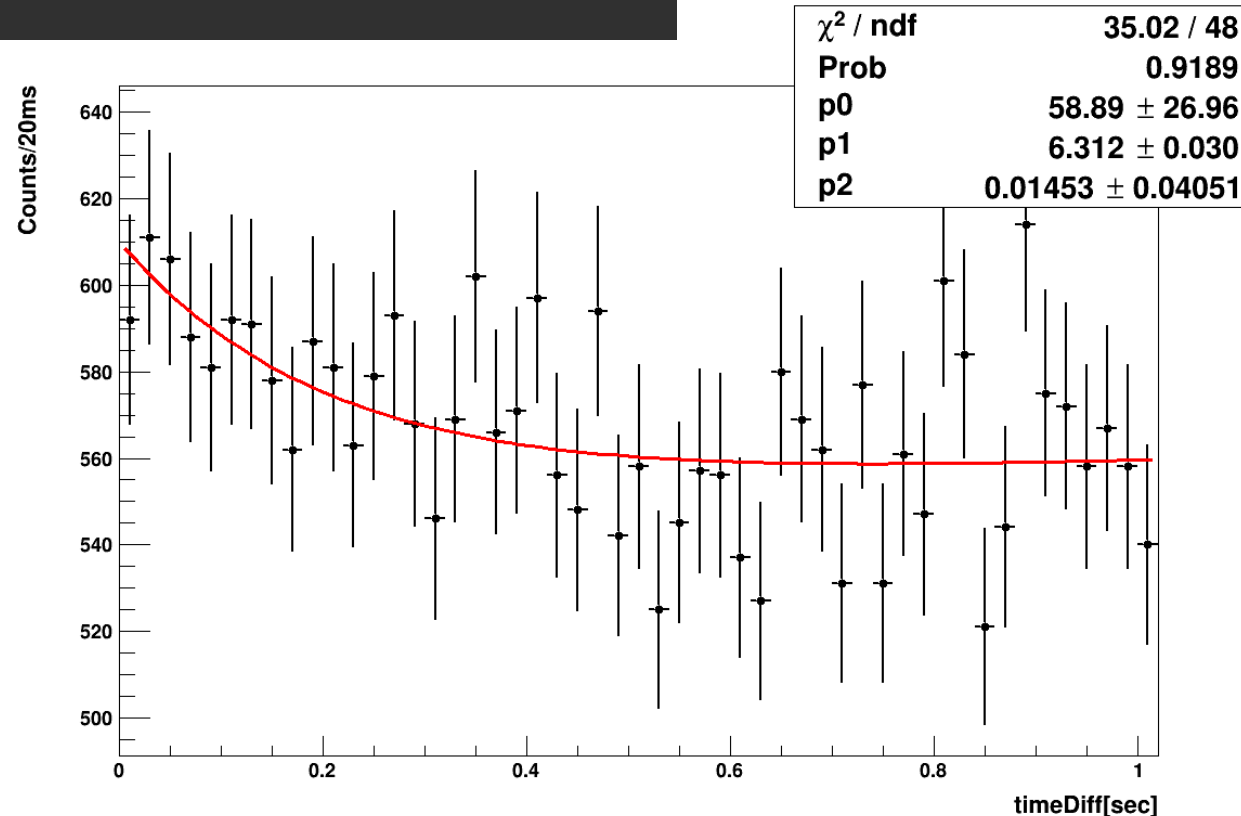
deltaT of beta_alpha_events



Deadtime < 1ms

Alpha Coincidence(crystal6)

```
Double_t expofunc(Double_t *v, Double_t *p){  
    double x = v[0];  
  
    return p[0]*exp(-x/0.209)+exp(p[1]+x*p[2]); //for beta alpha events  
}
```



Alpha-alpha coincidence events fitting
Lifetime of Po-216 : 209ms