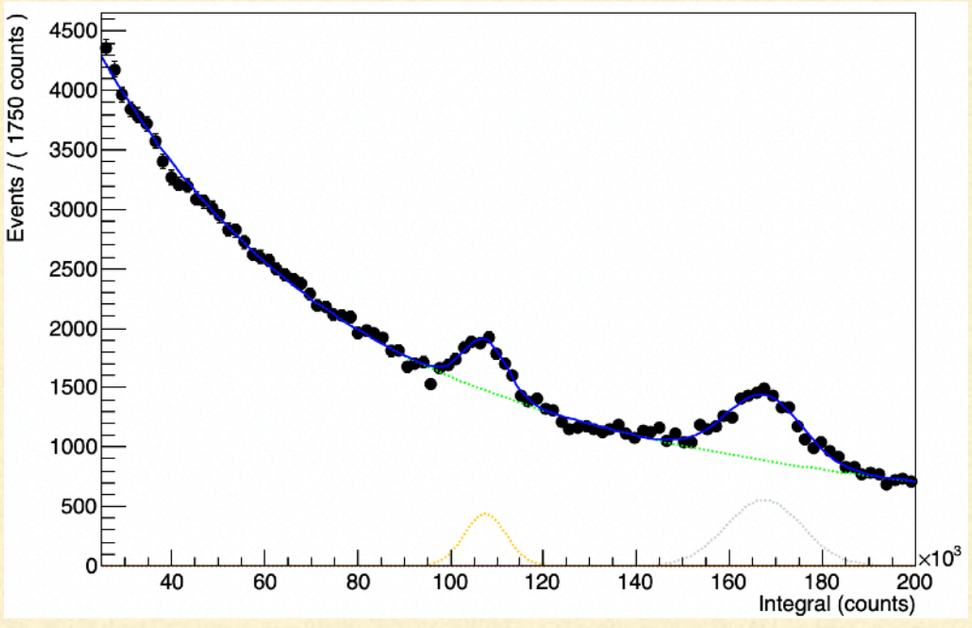
Underground 133Ba Analysis

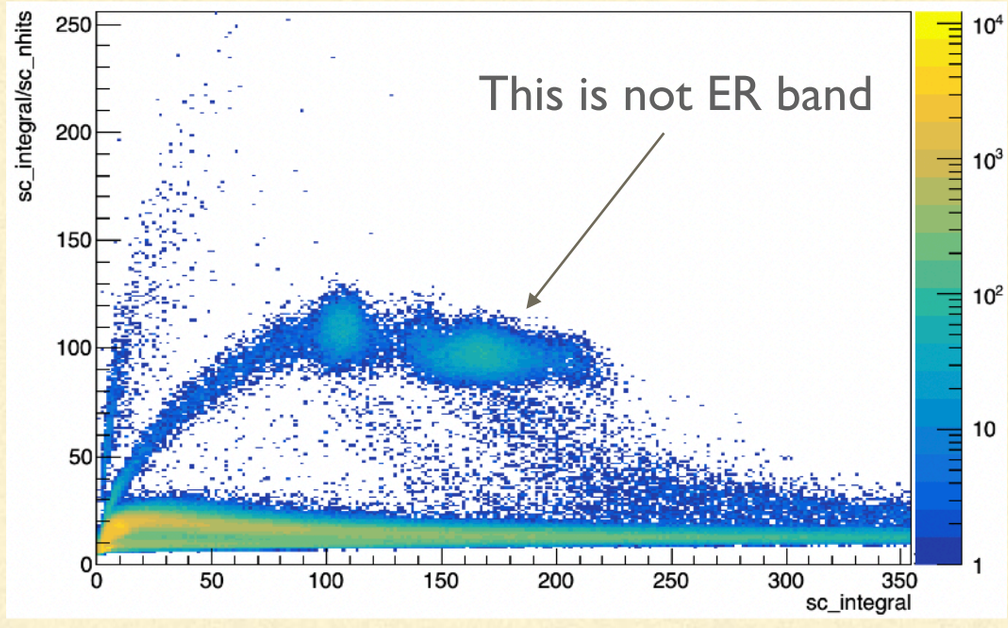
S. Torelli - D. Pinci

Raw spectrum

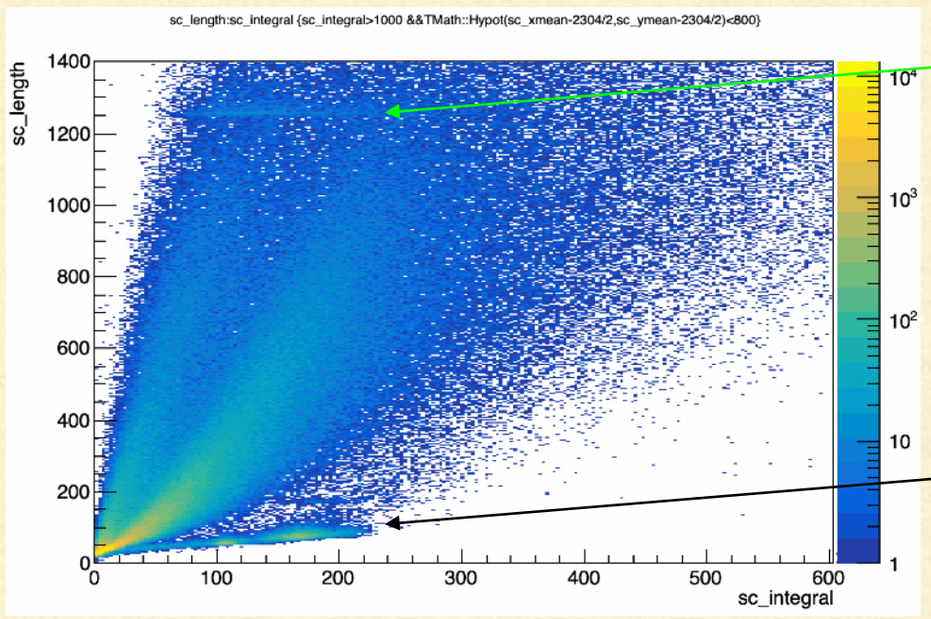
- Statistic ~800 runs

- Data Selection: (x_mean,y_mean) < 800 px from the center + sc_rms>5





- Cross check in track length



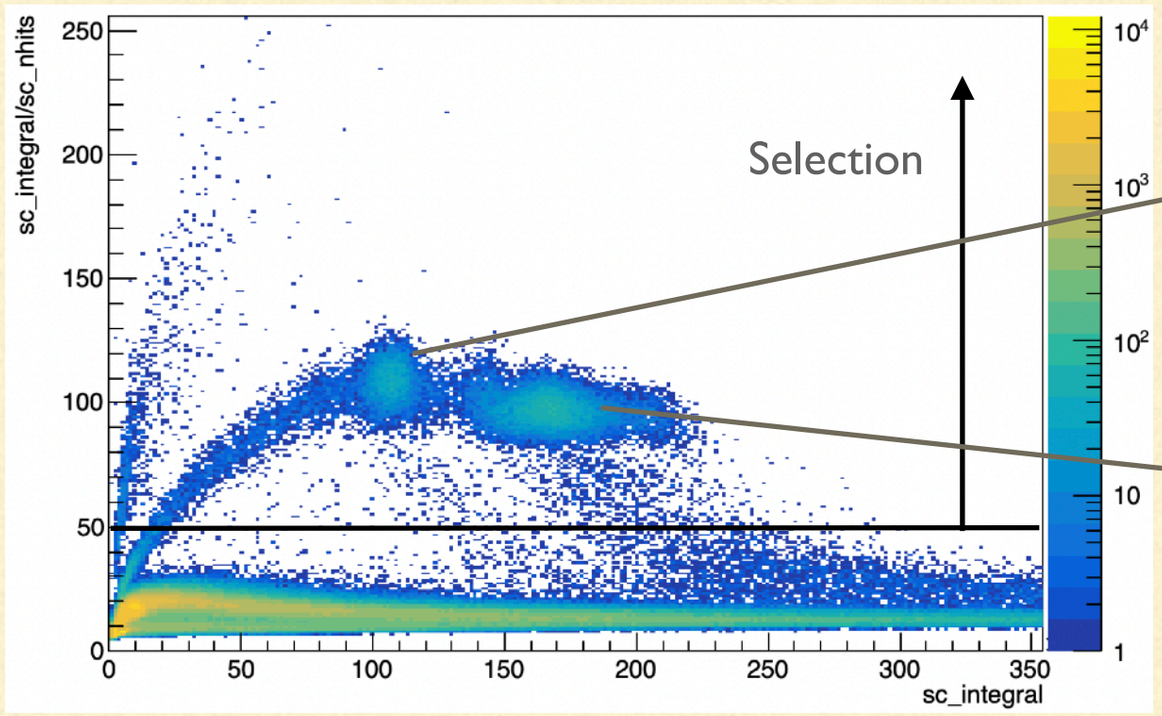
Saturation in length due to detector size

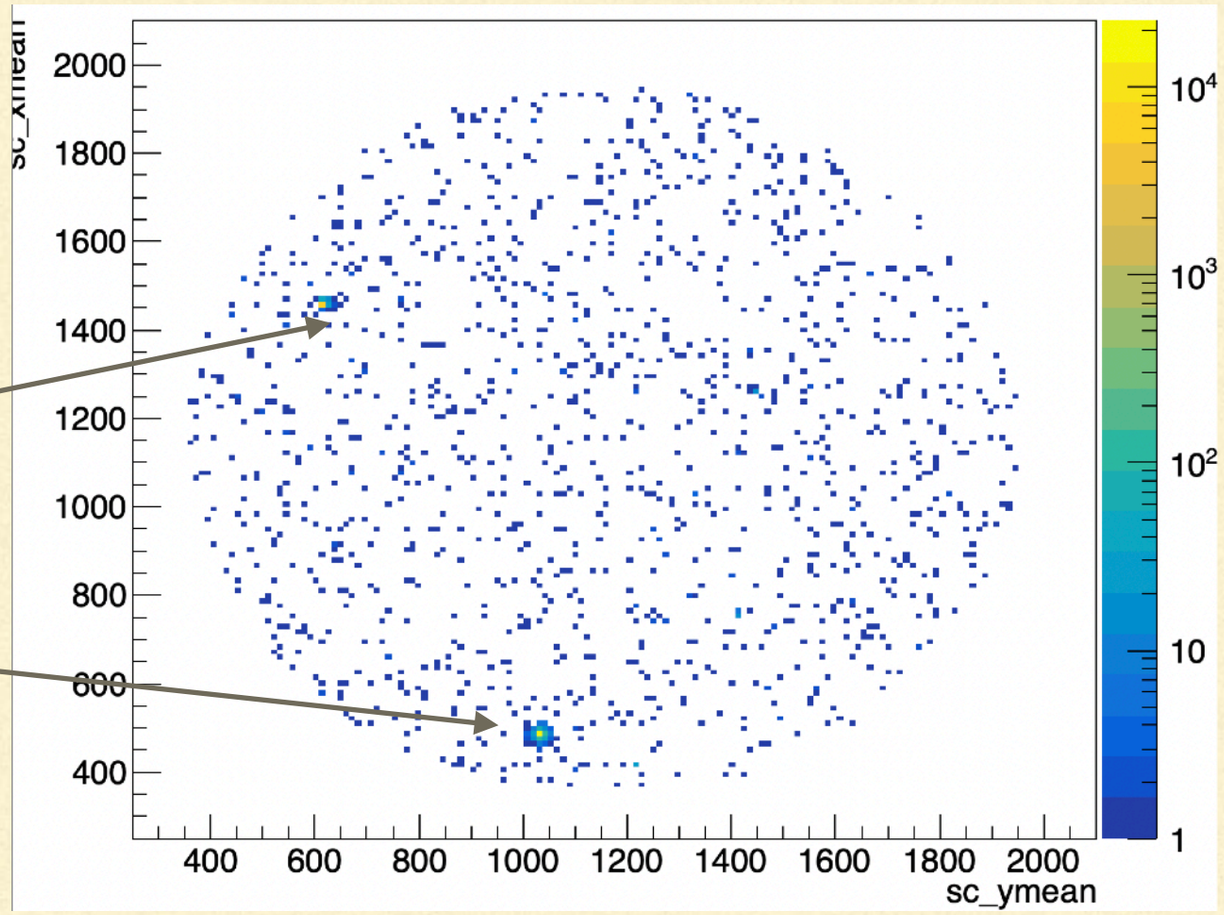
ER in the peak there with lenght <1.5 cm

Clearly something wrong (E>54 keV)

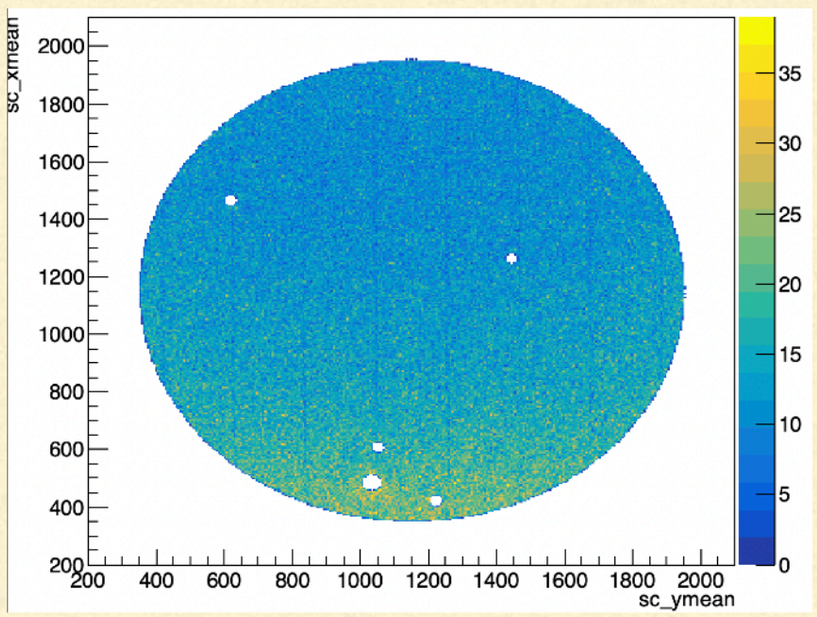
Peak events position

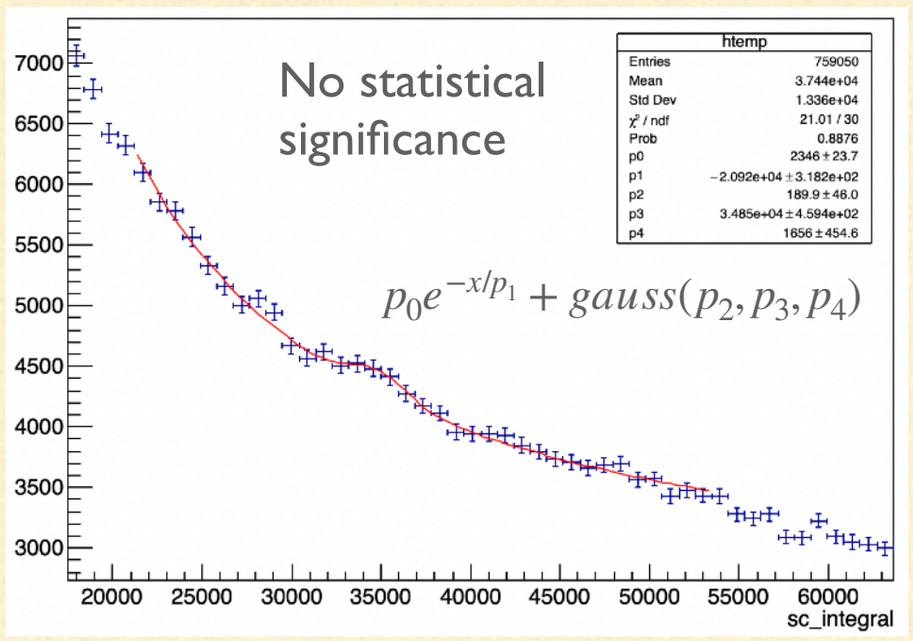
- Check tracks position selecting in track density



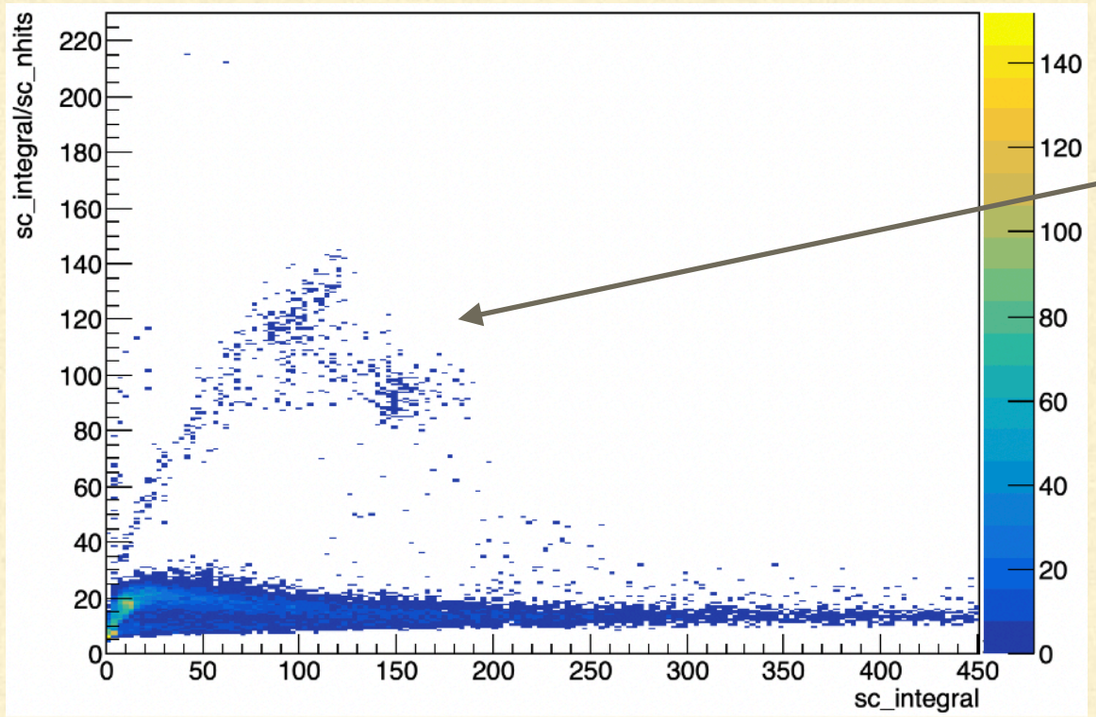


- Analysis removing the hot spot regions

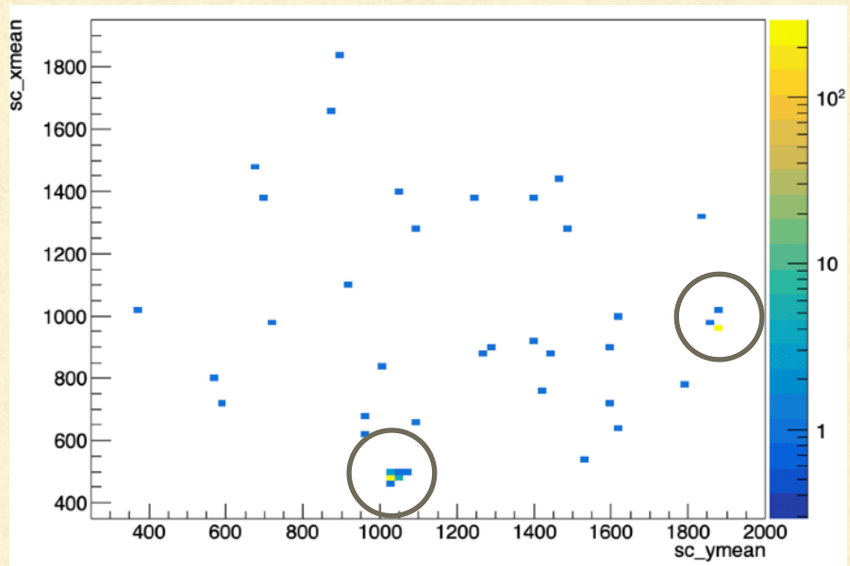


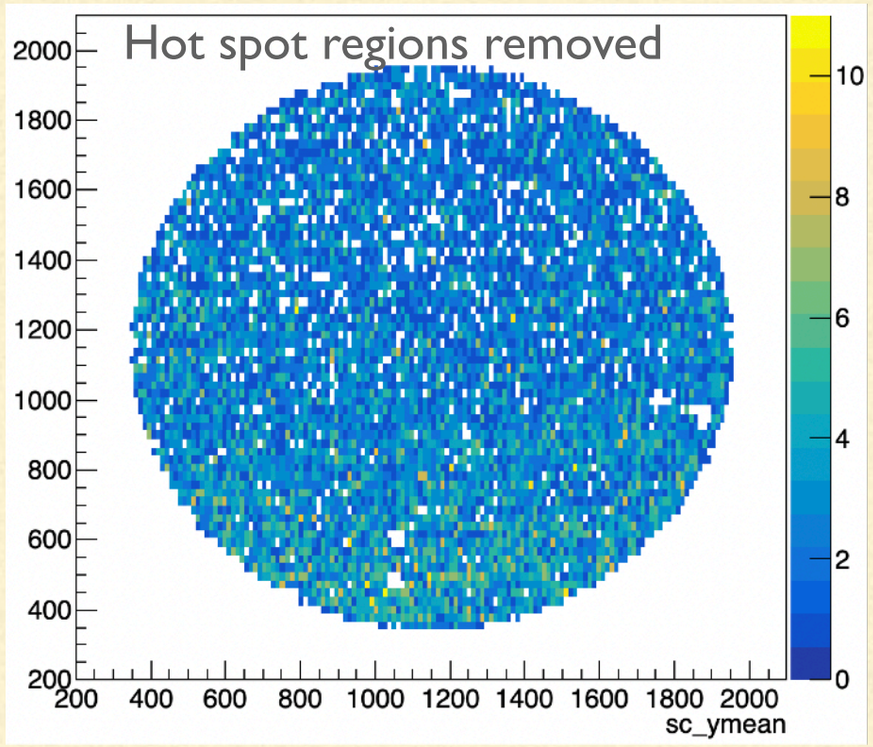


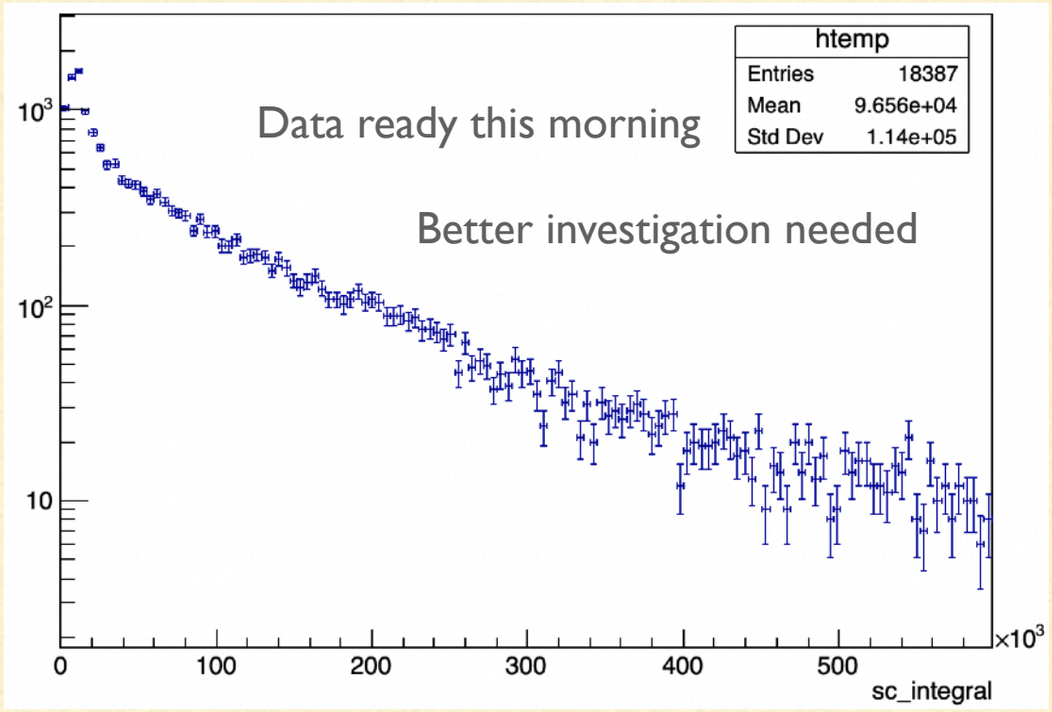
On the new Ba data (no moderator)



- low statistic-> 14 runs
- Still some hot spot

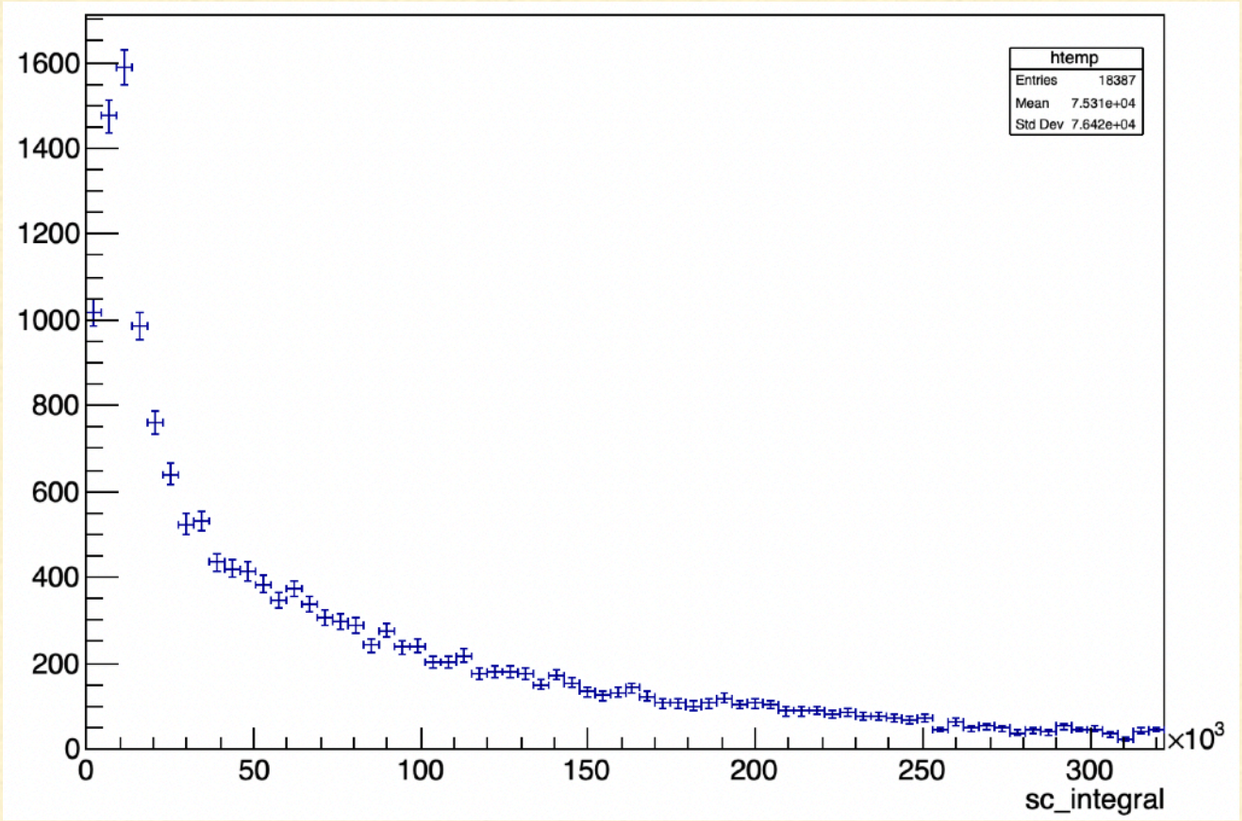


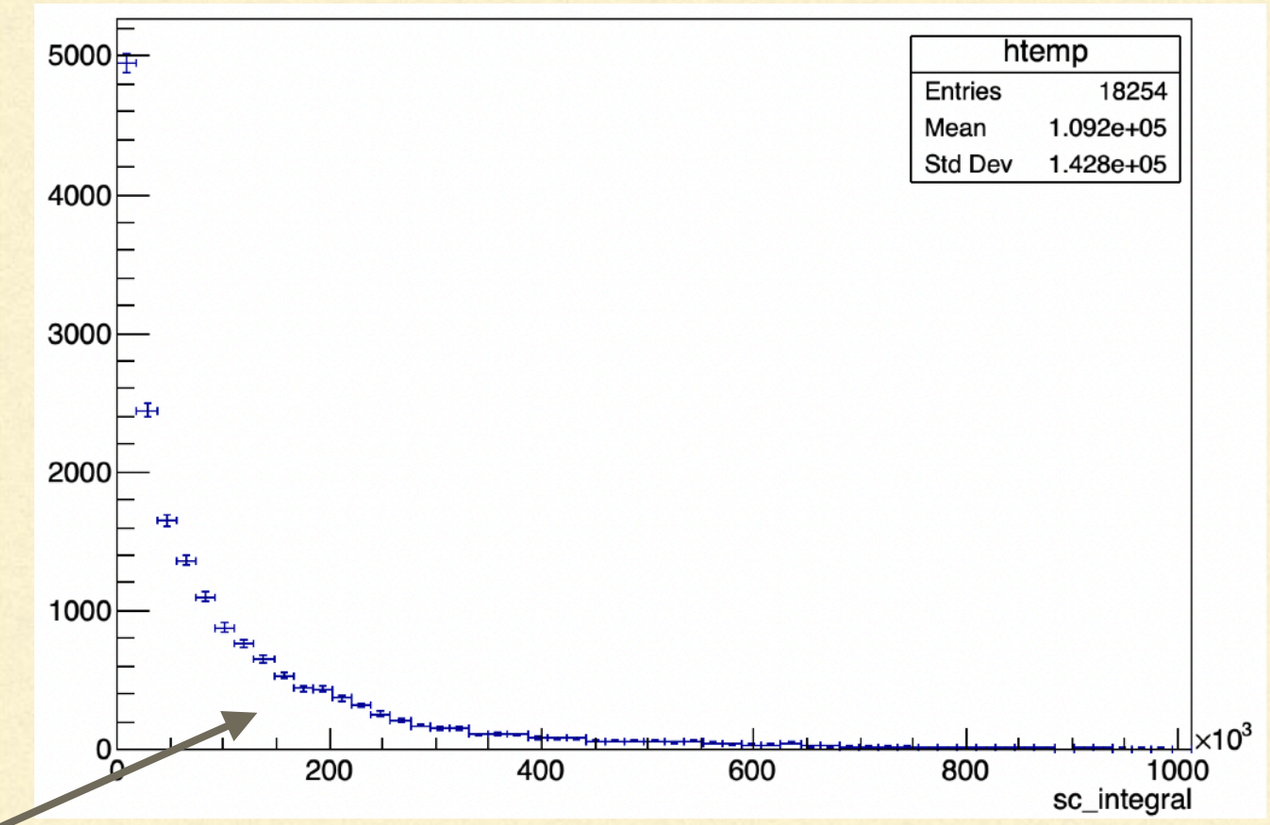




On the new Ba data (no moderator)

- Still selection only in track position





$\gamma_{4,3}$(Cs)	53,1622 (18)	2,14 (6)
$\gamma_{2,1}$(Cs)	79,6142 (19)	2,63 (19)
$\gamma_{1,0}$(Cs)	80,9979 (11)	33,31 (30)
$\gamma_{2,0}$(Cs)	160,6121 (16)	0,638 (6)
$\gamma_{3,2}$(Cs)	223,2368 (13)	0,450 (5)
$\gamma_{4,2}$(Cs)	276,3989 (12)	7,13 (6)
$\gamma_{3,1}$(Cs)	302,8508 (5)	18,31 (11)
$\gamma_{4,1}$(Cs)	356,0129 (7)	62,05 (19)
$\gamma_{3,0}$(Cs)	383,8485 (12)	8,94 (6)

Something here? But what?

Cu peak is at 12000 8/12.000x200.000= 133 keV

Why don't we see 30 keV in first dataset?

30 keV $\mu = 97\ cm^{-1}$

80 keV $\mu = 6{,}8\ cm^{-1}$

300 keV $\mu = 0{,}98\ cm^{-1}$

$\gamma_{4,3}$(Cs)	53,1622 (18)	2,14 (6)
$\gamma_{2,1}$(Cs)	79,6142 (19)	2,63 (19)
$\gamma_{1,0}$(Cs)	80,9979 (11)	33,31 (30)
$\gamma_{2,0}$(Cs)	160,6121 (16)	0,638 (6)
$\gamma_{3,2}$(Cs)	223,2368 (13)	0,450 (5)
$\gamma_{4,2}$(Cs)	276,3989 (12)	7,13 (6)
$\gamma_{3,1}$(Cs)	302,8508 (5)	18,31 (11)
$\gamma_{4,1}$(Cs)	356,0129 (7)	62,05 (19)
$\gamma_{3,0}$(Cs)	383,8485 (12)	8,94 (6)

Suppose 1000 Bq and 1 mm copper

	Frac.		Atten.	
30 keV		250		0.015
80 keV	→	250	→	126
300 keV		500		453

Supposing 30 keV have same prob of 80 keV

50 keV suppressed by 2% probability