

TB status, [2023-09-15 Fr]

Straw TB team

September 15, 2023

Non-merged data: problems

Non-merged data

Problem with merged data – no scint:

- Run 49 && 50: Tiger & Mu2E, 90K gain, 3.0mV/fC

Problem with merged data – no pulser:

- Run 41: Tiger & Mu2E, 45K gain, 3.0mV/fC, 25ns, 55K statistics
- RUN 90: Tiger & Mu2E, 1Bar, 40K gain, 3.0mV/fC, 25ns
- RUN 91: Tiger & Mu2E, 1Bar, 75K gain, 3.0mV/fC, 25ns
- RUN 106: Tiger & Mu2E, 45K gain, 3.0mV/fC, 25ns, thr 9mV
- RUN 107: Tiger & Mu2E, 45K gain, 3.0mV/fC, 25ns, thr 4mV

But...

I'm trying to merge by DAQ time with geometrical cuts

Statistics of TB 23-August-H4: 5mm

w/o overpressure

HV	1410	1430	1450	1470	1480	1485	1500
Gain	25K	35K	45K	60K	??K	75K	90K
3.0mV/fC && 25ns, thr 5mV	7K	5.5K	12K; +55K maybe	7K		11K	0
0.5mV/fC && 200ns, thr 5mV			5K	0/3.2K	10K / 5.7K	10K	13K / 4.3K

+700mBar

HV	1700	1730	1760
Gain	25K	35K	45K
3.0mV/fC && 25ns, thr 5mV	9K	5K	11K
0.5mV/fC && 200ns, thr 5mV	6K	6K	9K

+1000 mBar

HV	1730	1795	1830	1865	1890	1965
Gain		18K	25K	35K	40K	75K
3.0mV/fC && 25ns, thr 5mV	10K	6K	6K	9K	0; +3K maybe	0; +2.8K? maybe
0.5mV/fC && 200ns, thr 5mV		6K	6K	7K	1.5K	1.5K
0.5mV/fC && 200ns, thr 2mV						3.5K

Statistics of TB 23-August-H4: 10mm

w/o overpressure

HV	1715	1730	1750	1780	1790	1805	1820
Gain	25K	35K	45K	60K	??K	75K	90K
3.0mV/fC && 25ns, thr 5mV	7K	5.5K	12K; +55K maybe	7K		11K	0
0.5mV/fC && 200ns, thr 5mV	10K		5K	0 / 3.2K	0 / 5.7K	10K	13K / 4.3K

+700mBar, 1965V

HV	1965
Gain	
3.0mV/fC && 25ns, thr 5mV	5K
0.5mV/fC && 200ns, thr 5mV	5K

Thr scan (45K gain):

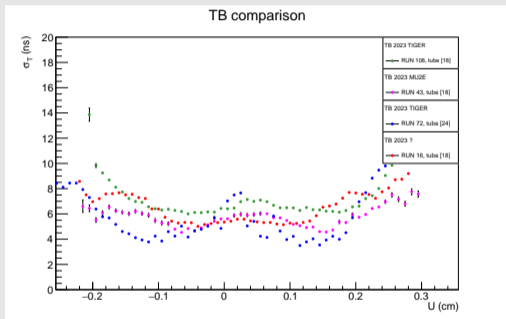
- Tiger & Mu2E thresholds: 2, 3, 5, 7, 10, 12, 15 – per $\sim 3\text{-}5\text{K} / 100\mu\text{m}$ bin
- Tiger & Mu2E thresholds: **4, 9 – possible**
- Tiger thresholds: 5, 7, 10, 12 – per $\sim 5\text{K}/100\mu\text{m}$ bin

Tiger ToT:

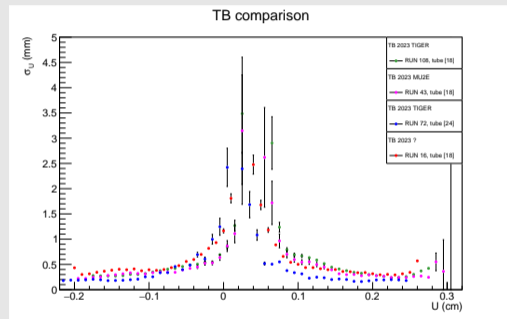
- 5K / 100um bin

resolution comparison – 5mm

Time resolution



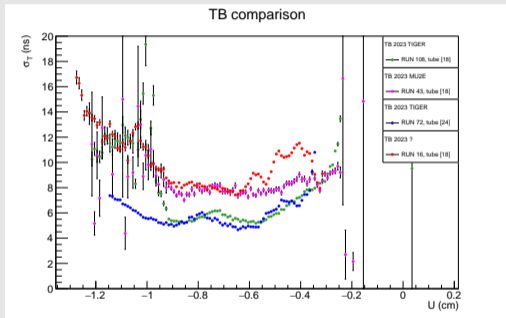
Coordinate resolution



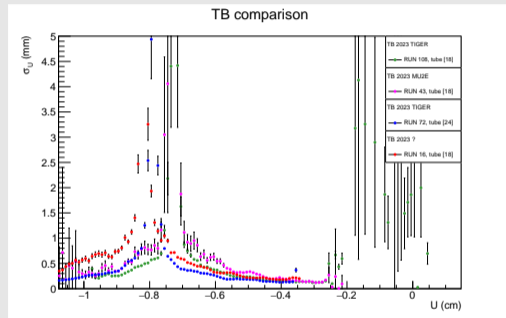
- Magenta – TB-23-August-H4-43, Tiger+Mu2E#3
- Green – TB-23-August-H4-108, Tiger
- Blue – TB-23-April-H4-72, Tiger
- Red – TB-23-August-H4-16, Tiger+Mu2E#3, before tilt fixing

resolution comparison – 10mm

Time resolution



Coordinate resolution



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