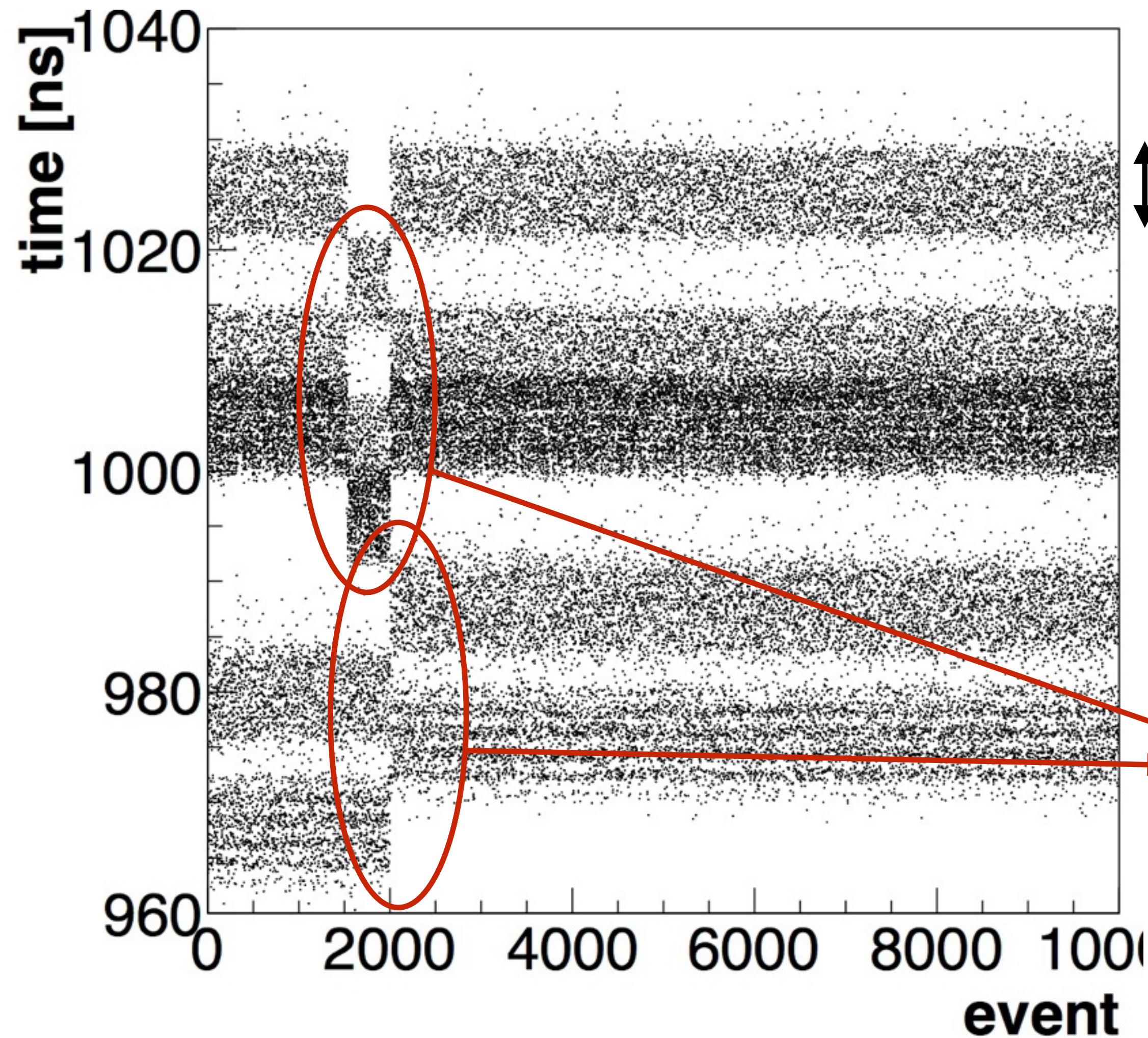


Status report (31 Aug. 2016)

Jongwon Hwang

DAQ: Trigger Timing

Previously



↕ ~ 10 ns (for all ch.)

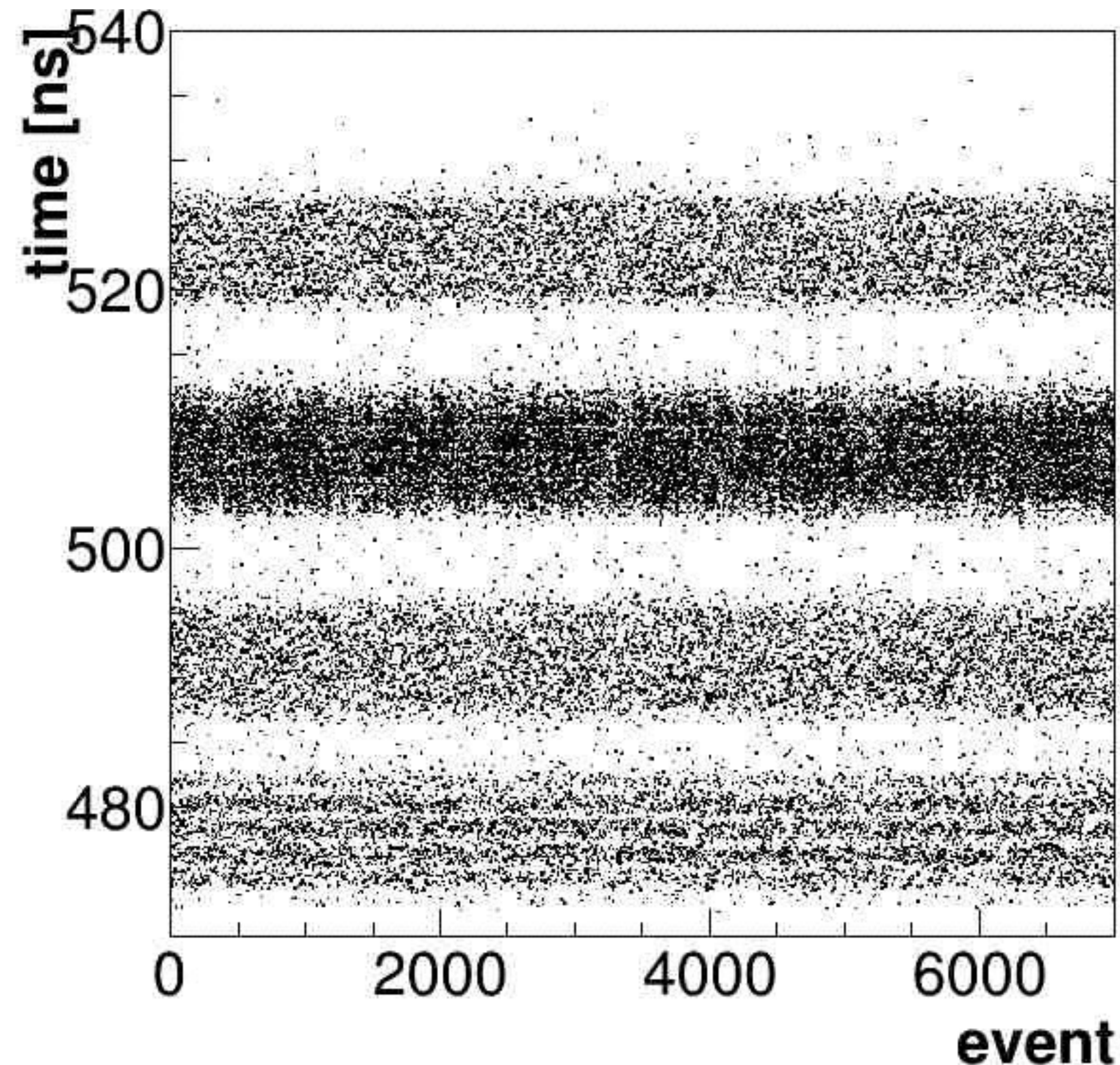
6 channels

- 4 ch. from plastic
- 2 ch. from PWO

Timing Shift

- all channels (all modules)
- some channels (some modules?)

DAQ: Trigger Timing (New Data)



↕ ~ 10 ns (for all ch.)

6 channels

- 4 ch. from plastic
 - 2 ch. from PWO
- about 4 days DAQ

No Timing Shift

DAQ: Raw Data Structure

- One Complete Block = Data of **EACH** channel of a single event (not **WHOLE** channels)
- Data blocks are almost randomly accumulated in the buffer memory.

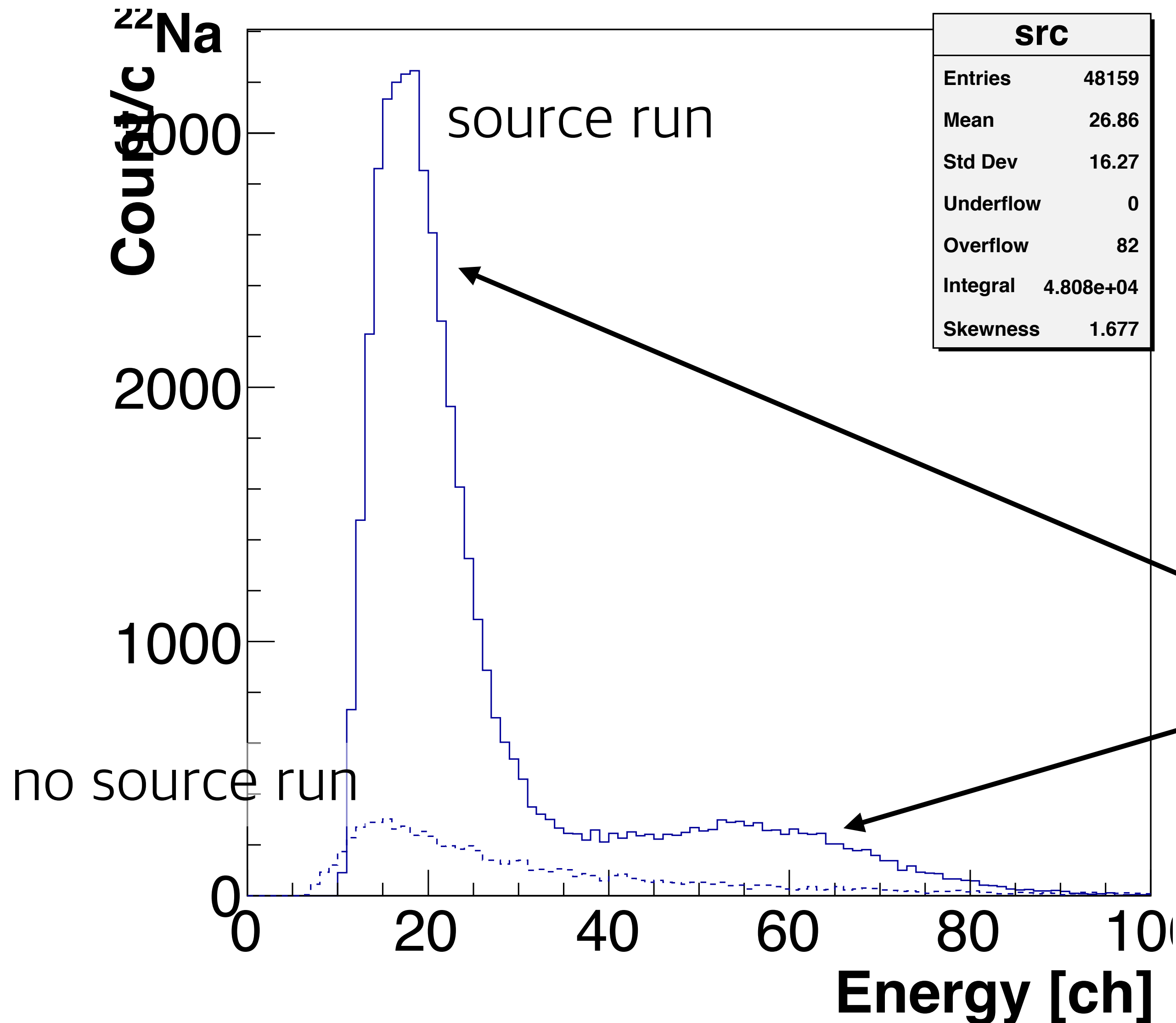
Event 1, Ch 1	Event 2, Ch 1	Event 3, Ch 1	Event 1, Ch 2	Event 1, Ch 3	Event 2, Ch 2	• • • •
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- It is necessary to make them ordered after data taking
 - We can use “trigger number” as an index.

DAQ: Raw Data Structure

	4i-th Byte	(4i + 1)-th Byte	(4i + 2)-th Byte	(4i + 3)-th Byte
0 - 3	Data Length			
4 - 7	Run Number		Trigger Type Trigger Destination	
8 - 11	Trigger Number (from 7th Byte)			Trigger Fine Time
12 - 15	Trigger Coarse Time			Module ID
16 - 19	Channel ID	Local Trigger Number (to 20th Byte)		
20 - 24		Local Trigger Pattern		
25 - 29	Local Starting Fine Time	Local Starting Coarse Time		
32 -	ADC (12 bit * 4 points) / TDC Data (10 bit * 1 point)			

DAQ: ^{22}Na Source



PWO & Pla. coincidence
Threshold = -10 mV
HV = - 1600 V

511 keV-peak (~ 17.6 ch)

1275 keV- peak (~ 52.6 ch)

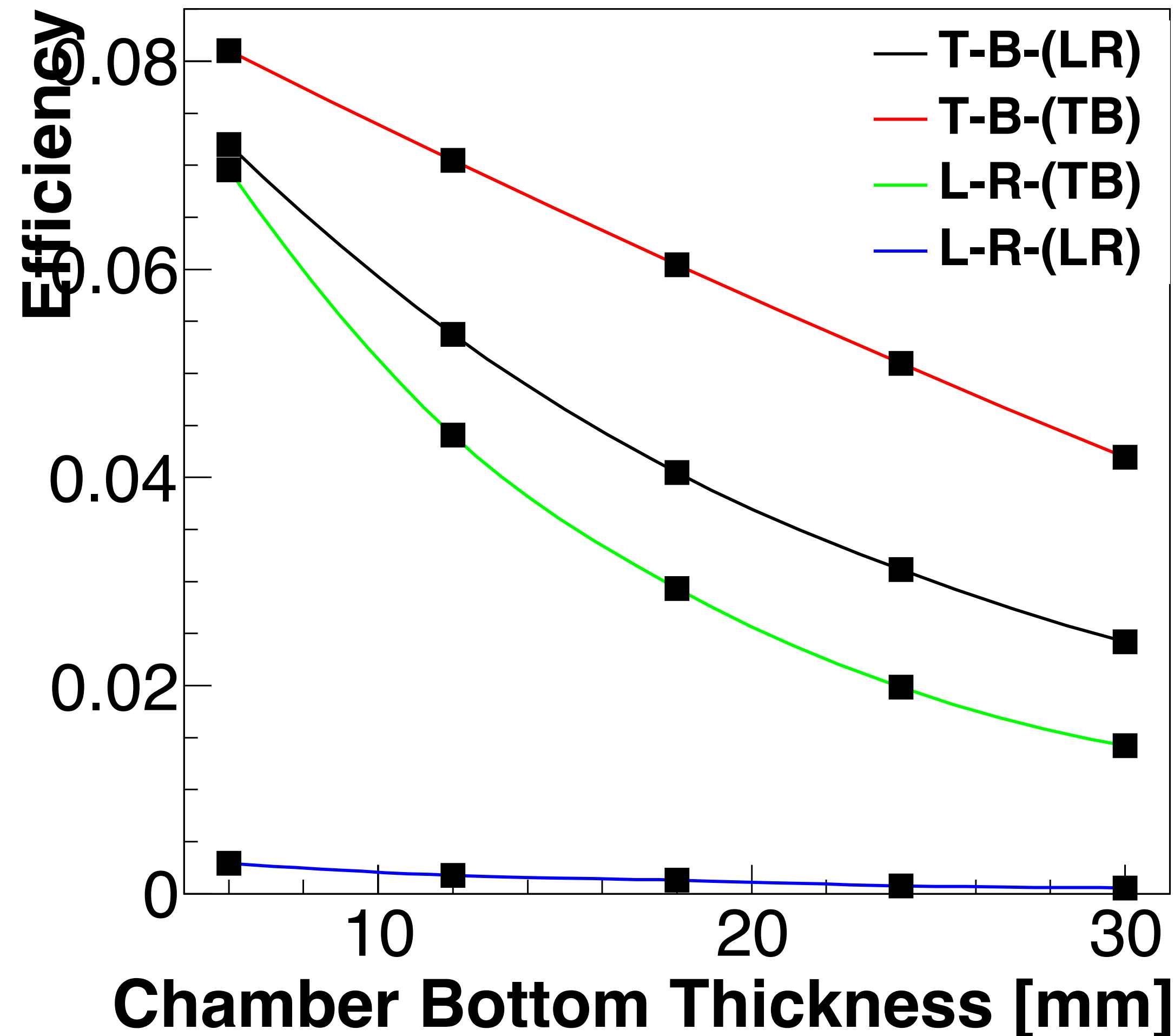
0.046 ch / keV

(10 ch = 217 keV)

(100 MeV = 4600 ch)

Simulation: Thickness Dependence

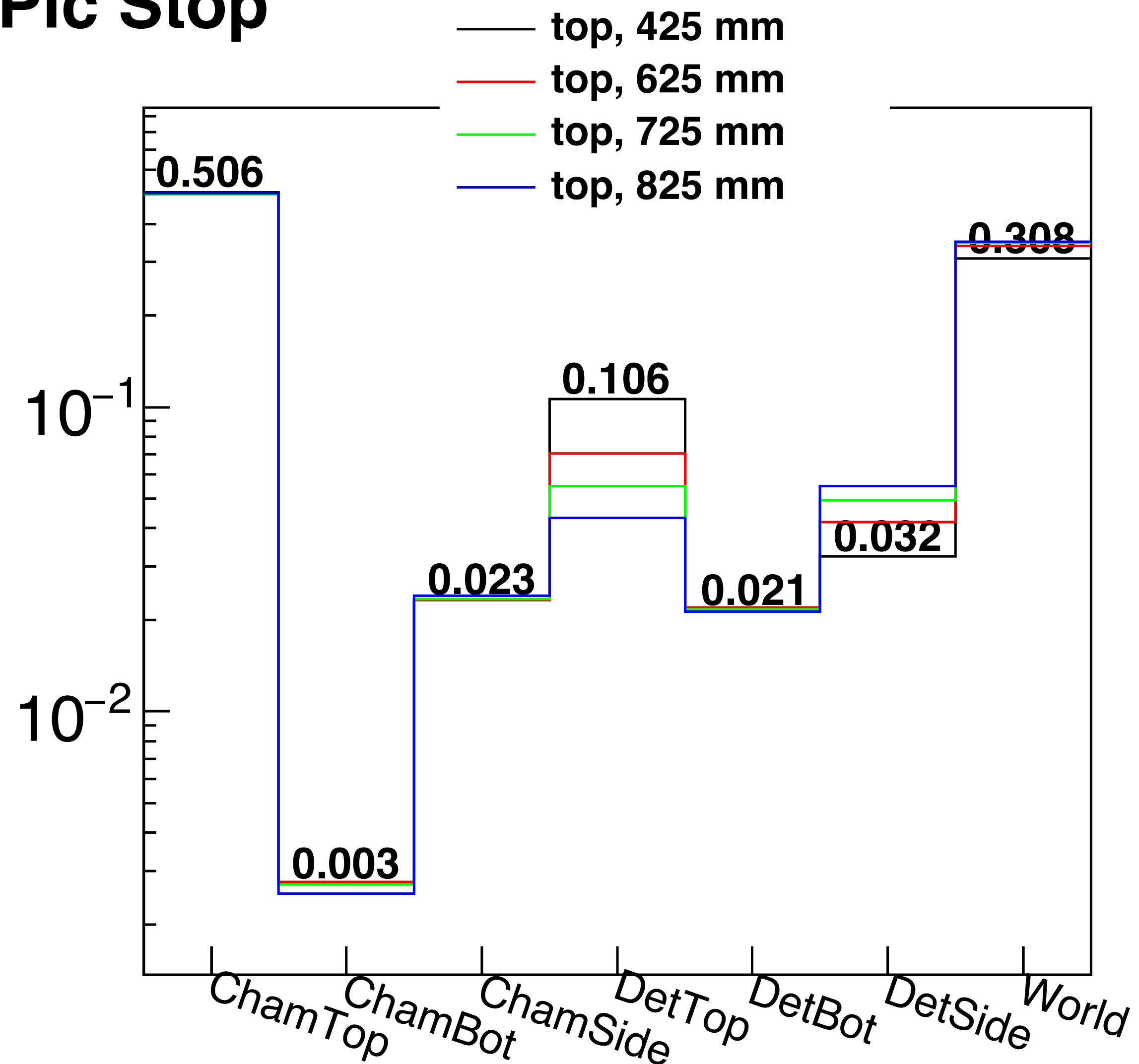
Pic & γ Eff. (Bot./425)



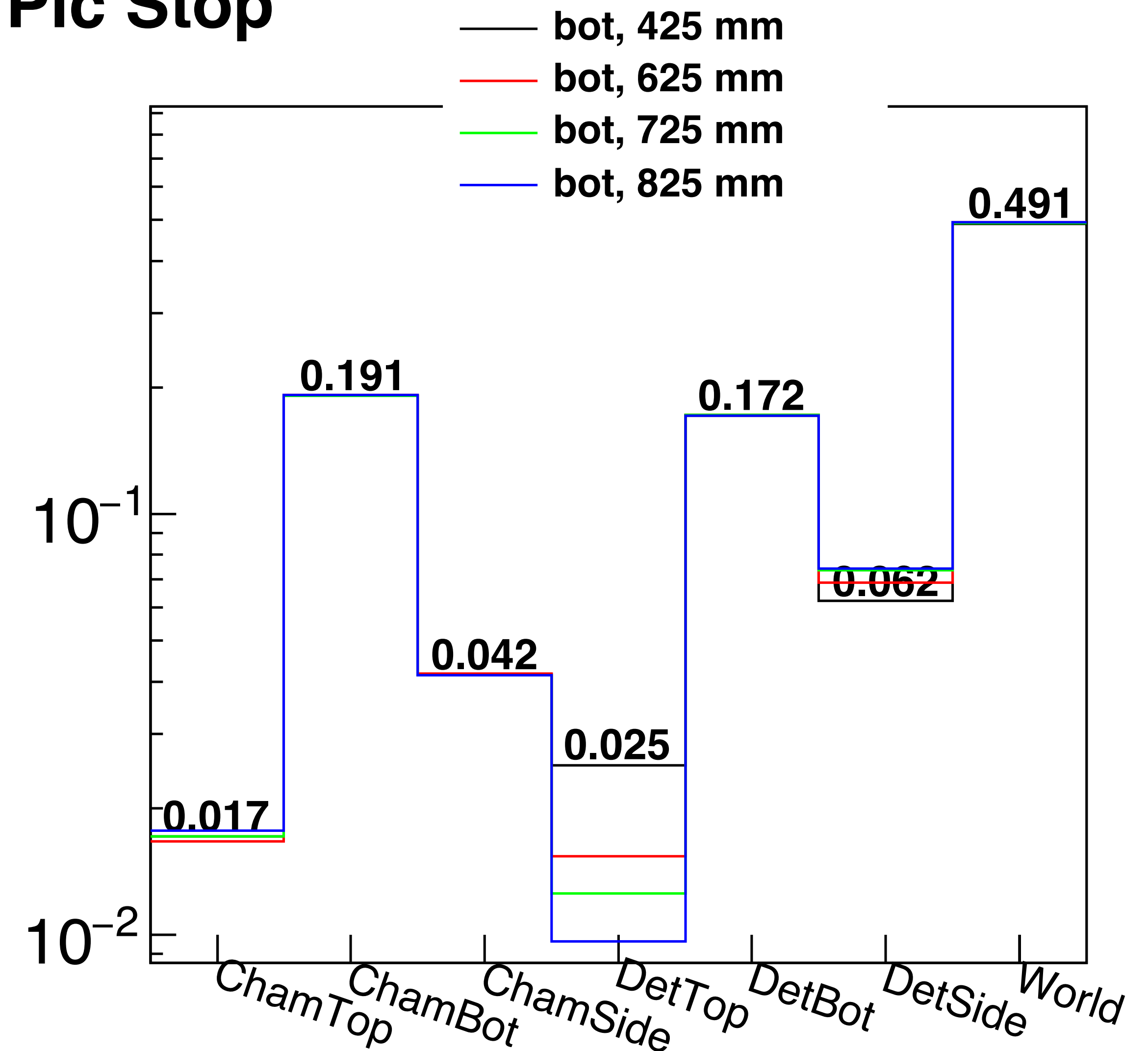
- Only Bottom-Annihilation case
- Top Det. Height = 425 mm
- 6, 12, 18, 24, 30 mm-thick

Simulation: Charged Pion Stop

Pic Stop

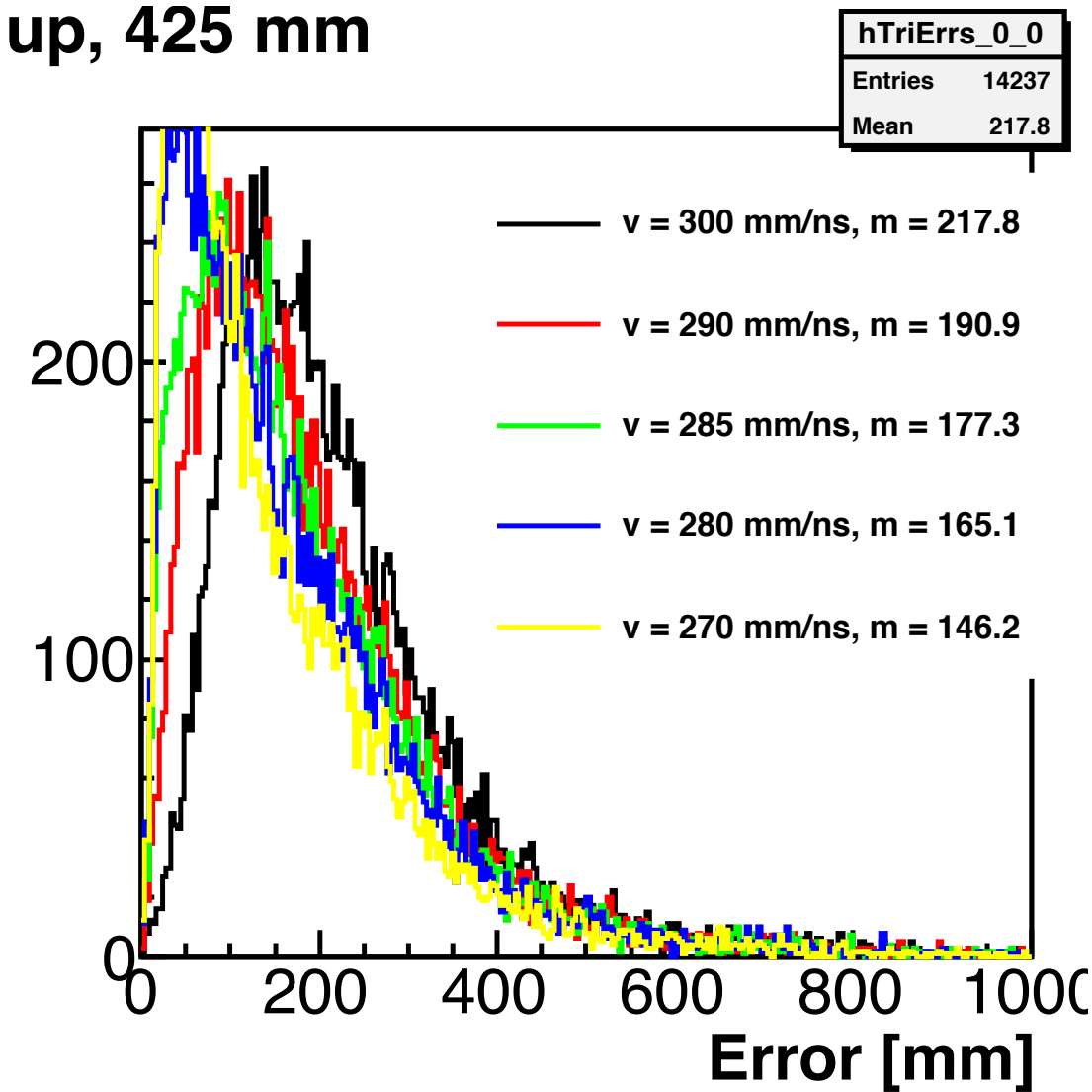


Pic Stop

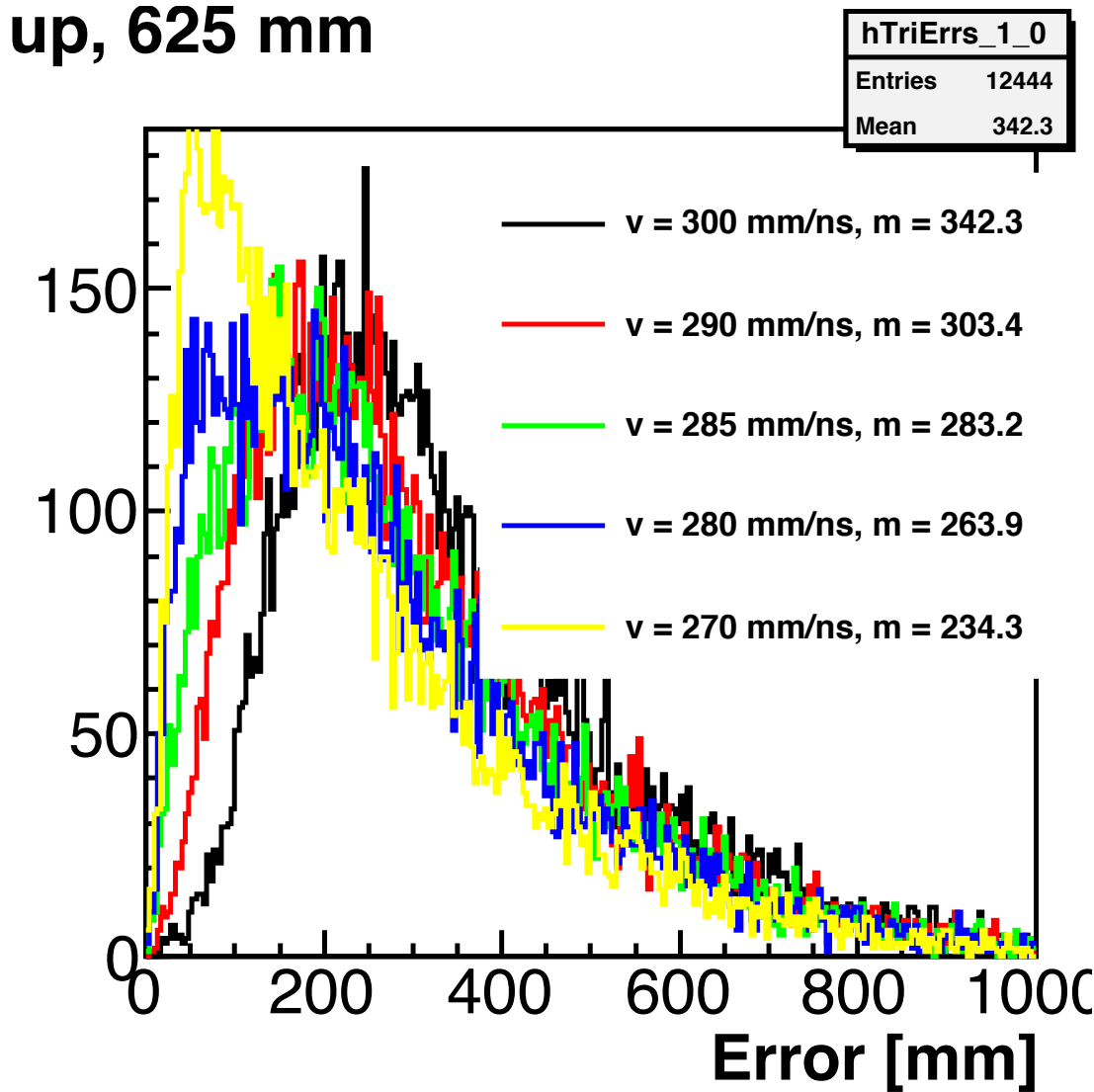


Simulation: Test the trilateration algorithm (Error = Distance (R))

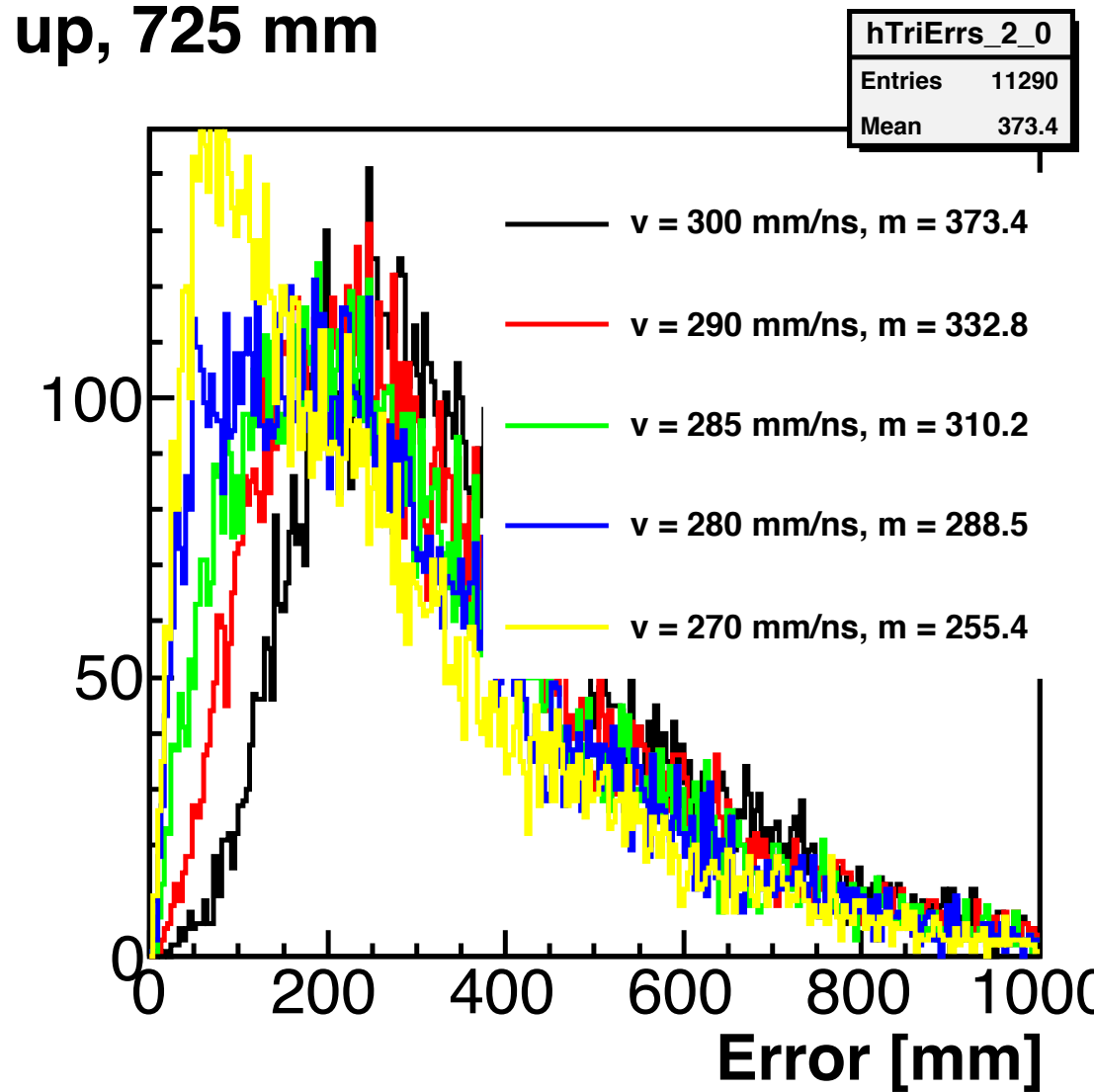
up, 425 mm



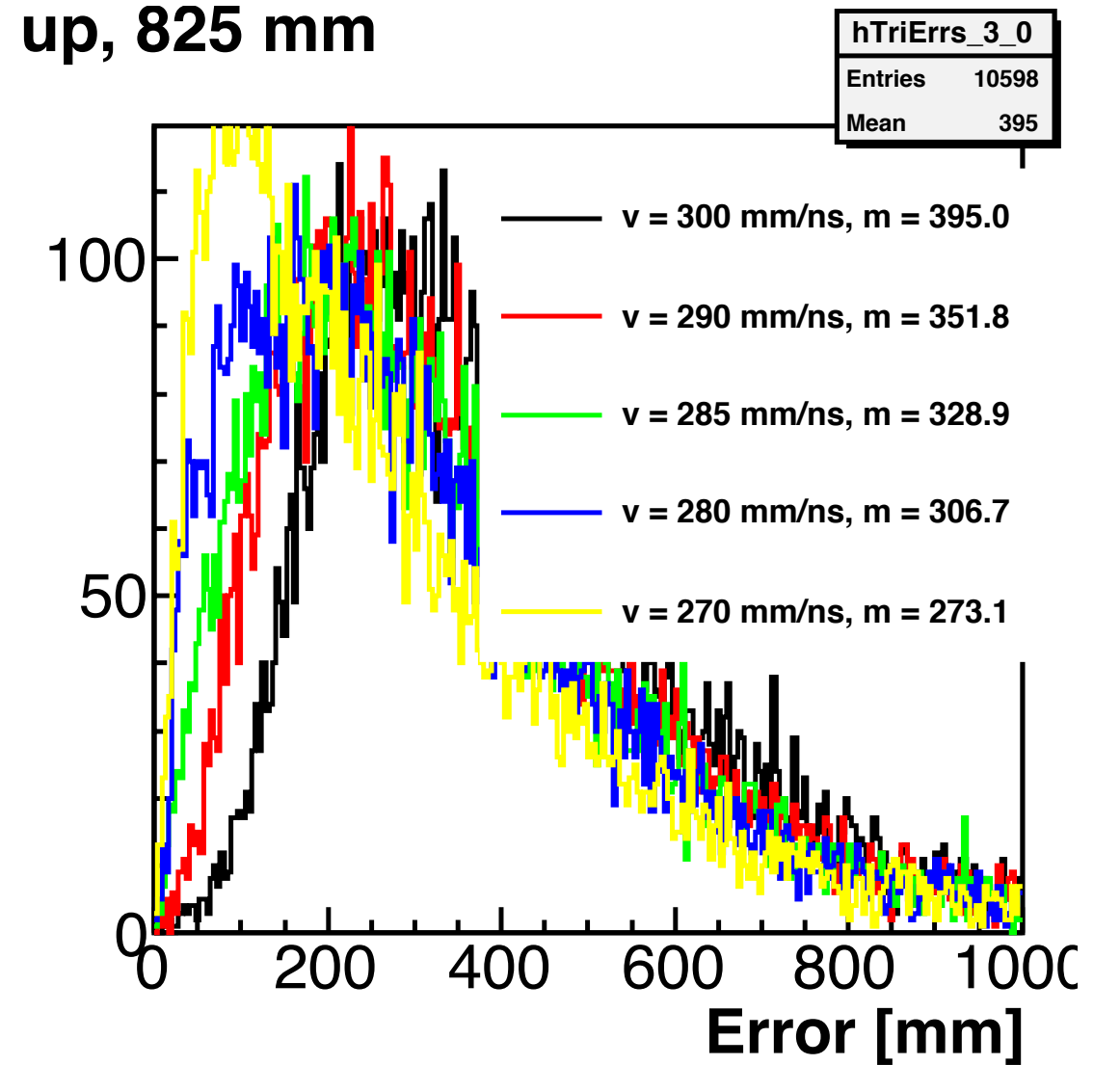
up, 625 mm



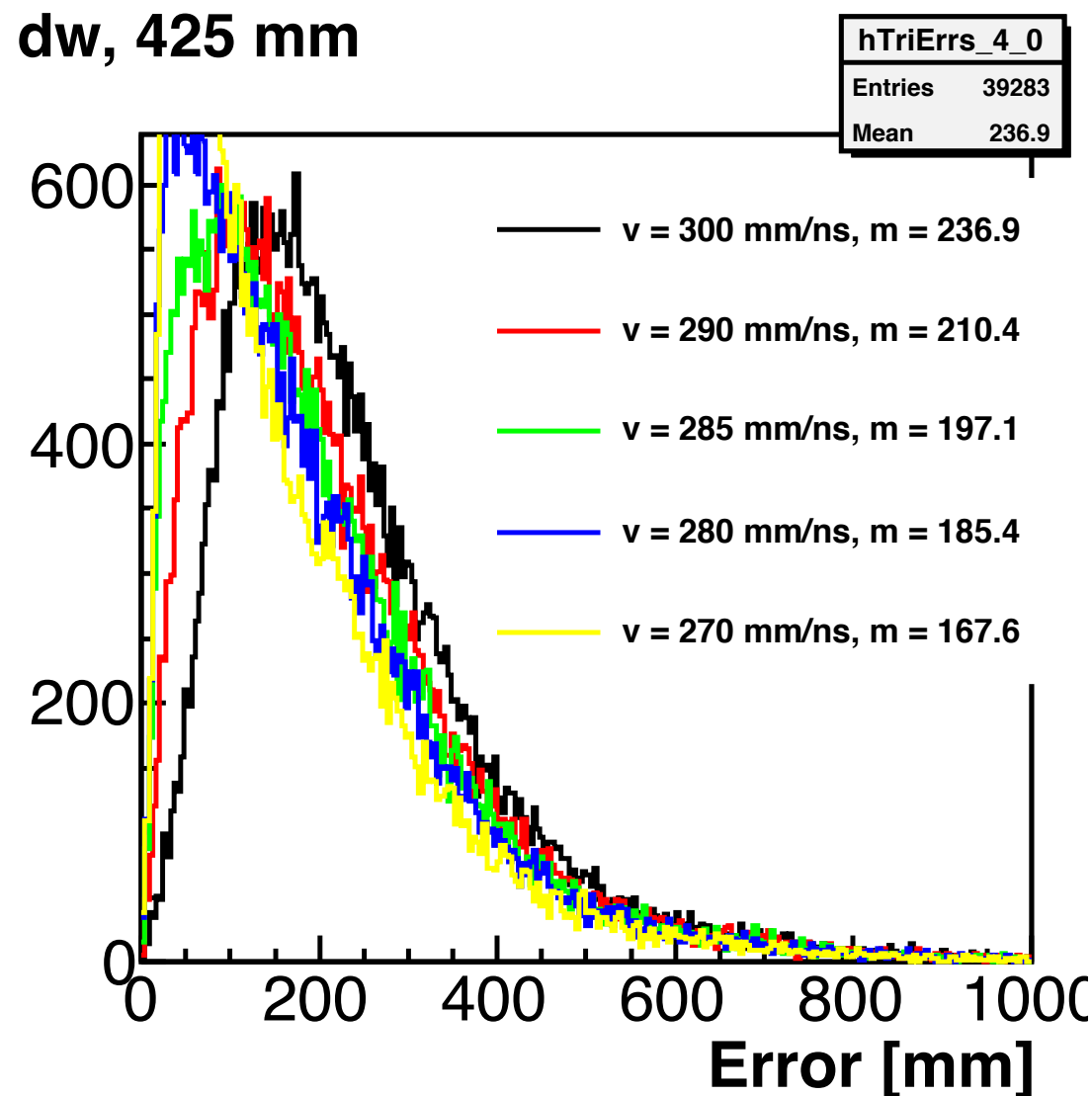
up, 725 mm



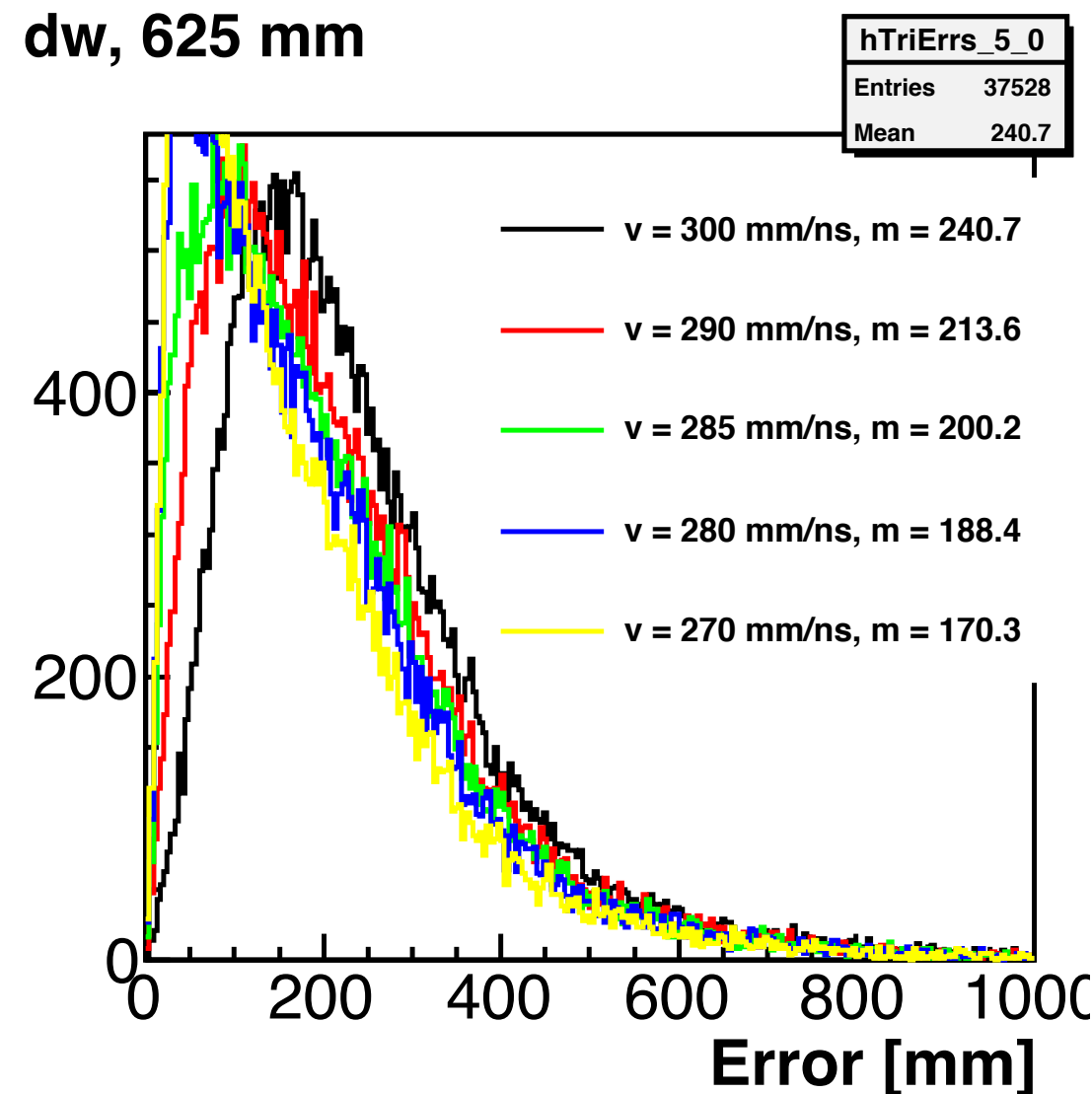
up, 825 mm



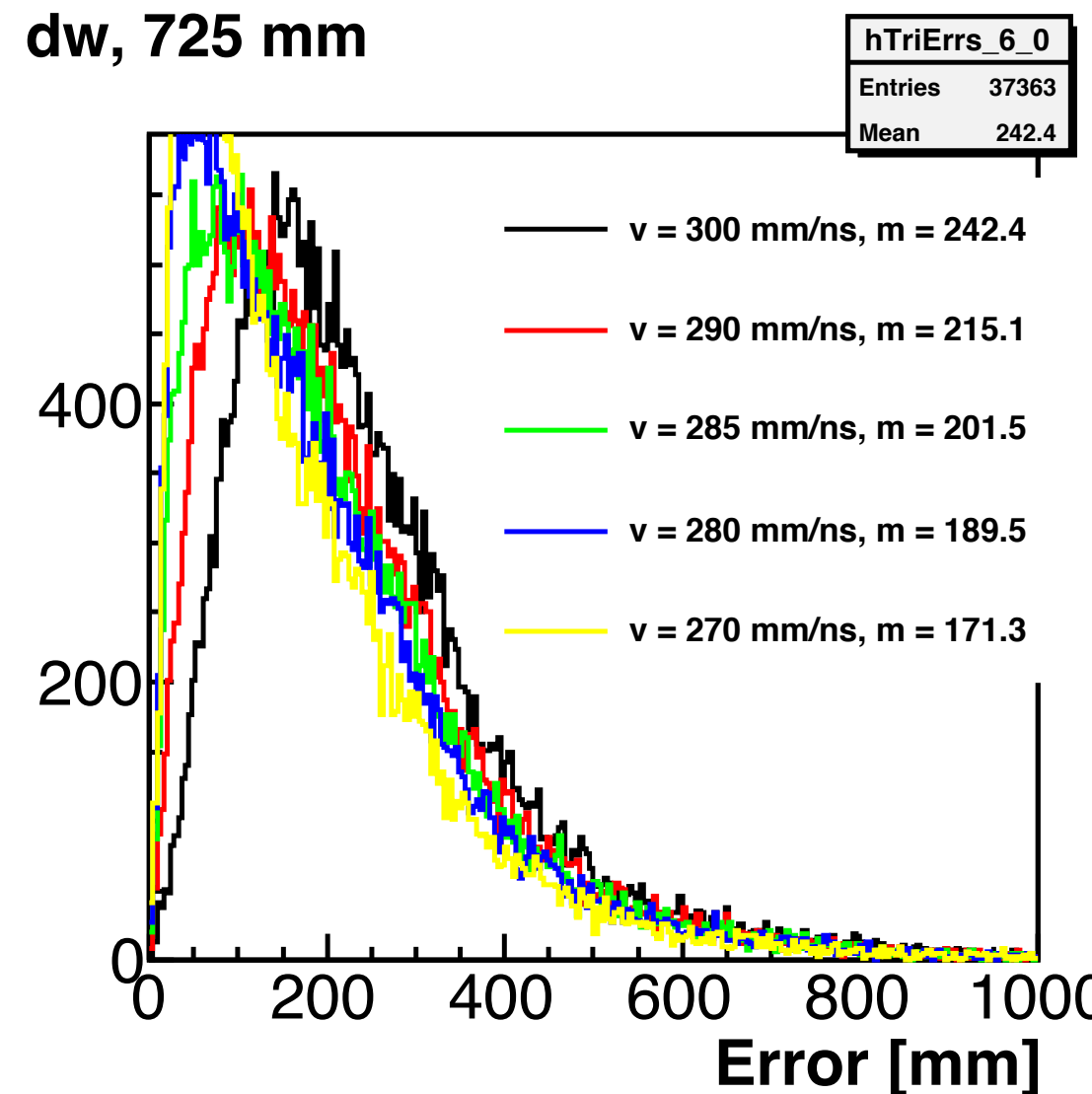
dw, 425 mm



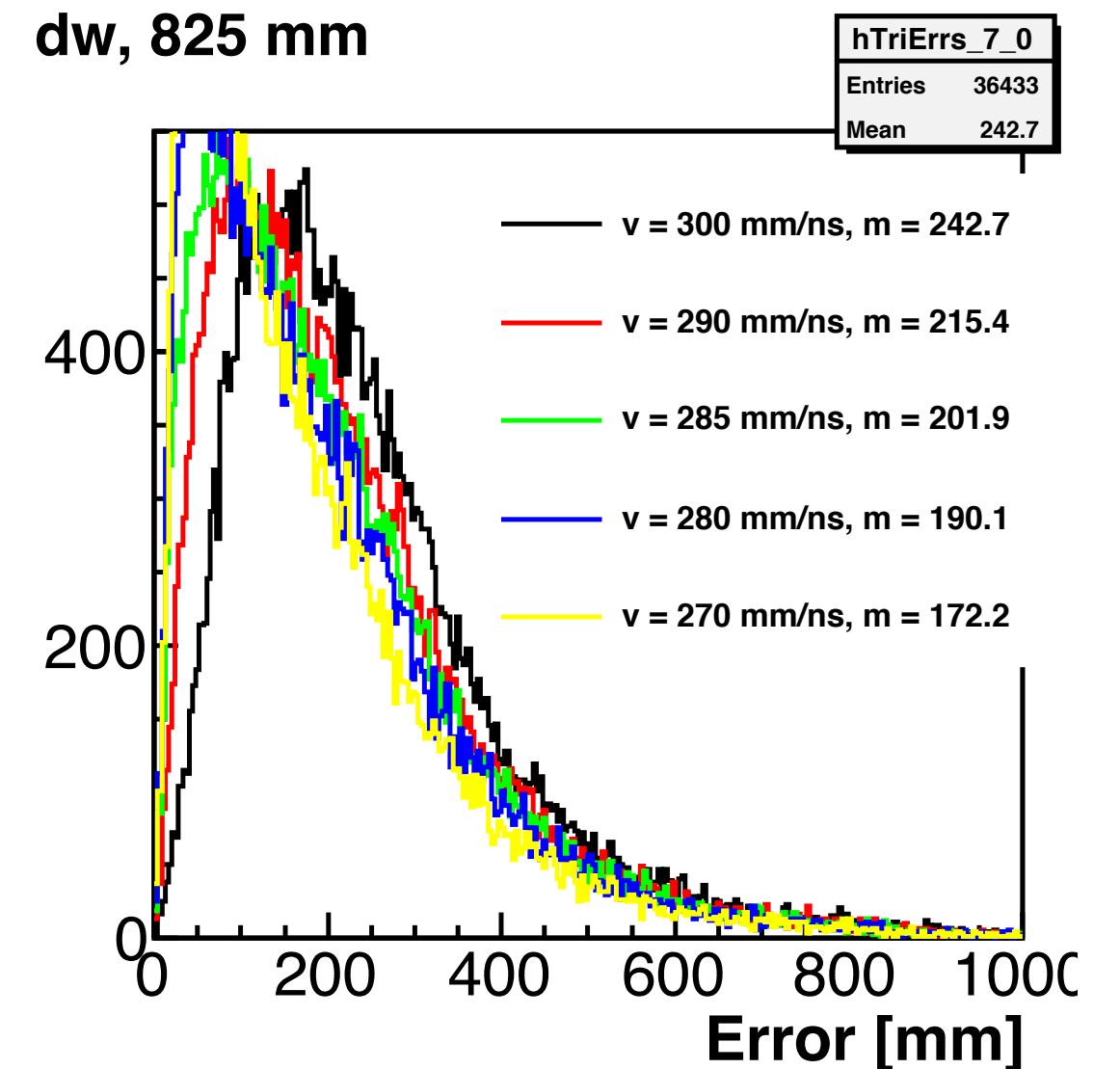
dw, 625 mm



dw, 725 mm



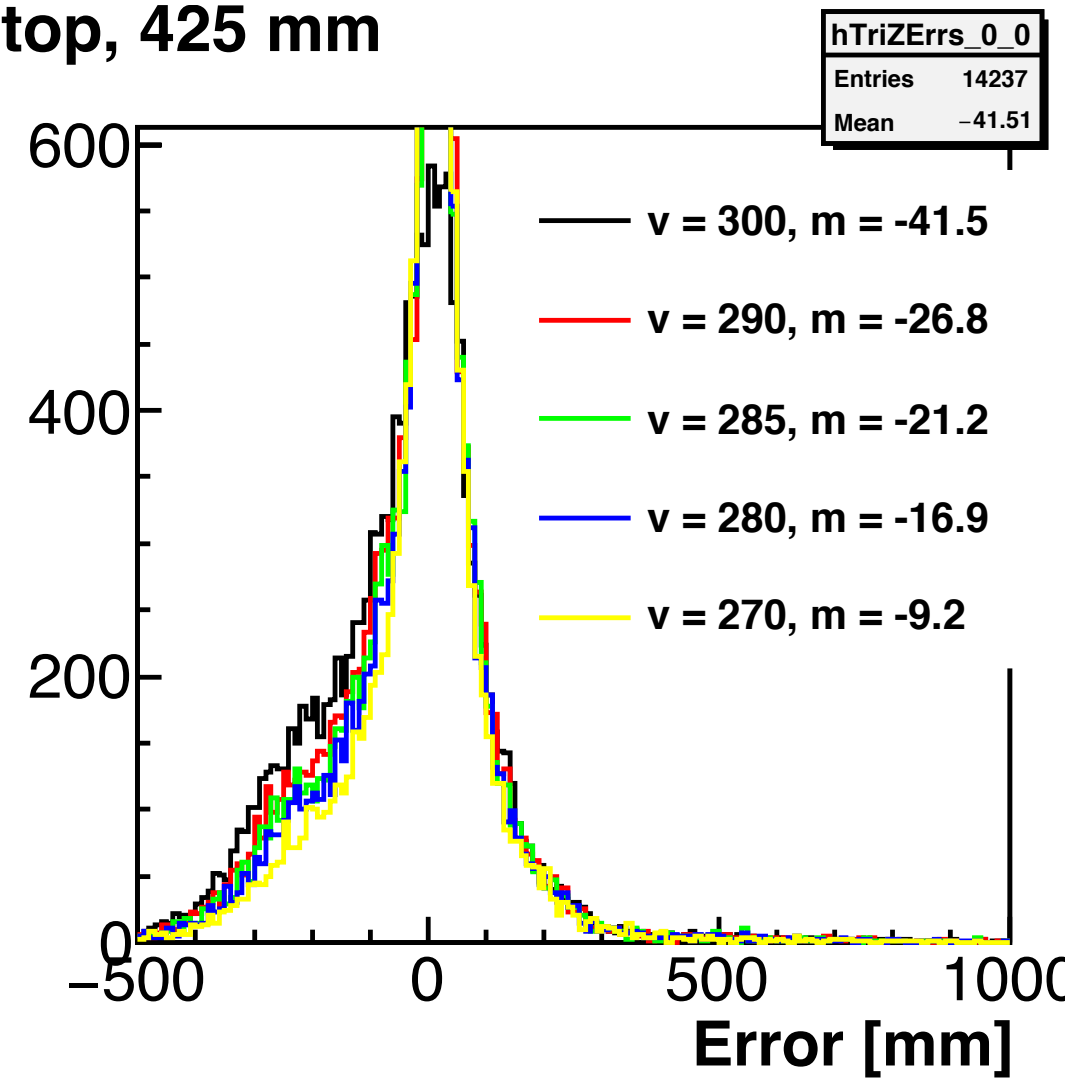
dw, 825 mm



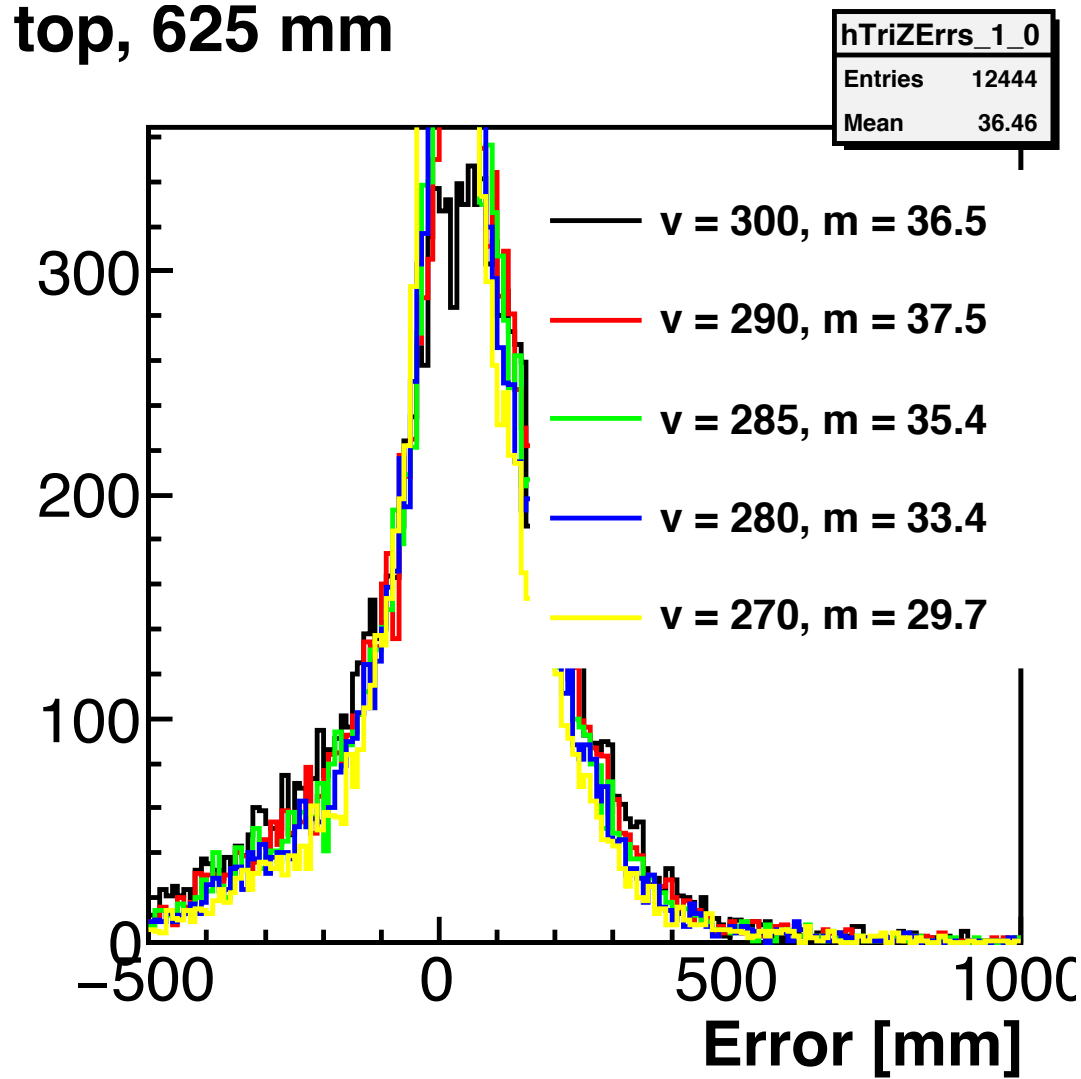
Simulation: Test the trilateration algorithm

(Error = Vertical distance (Z))

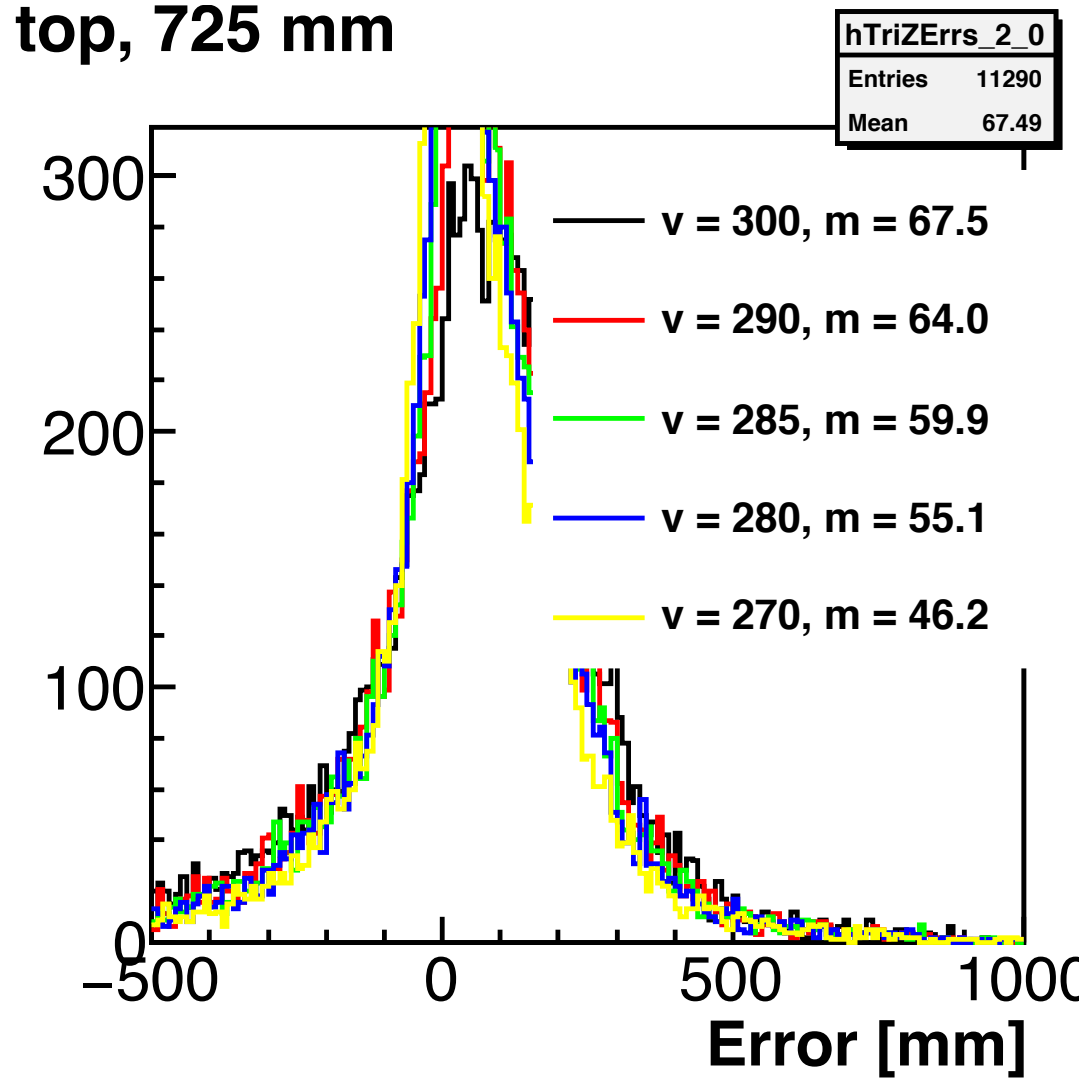
top, 425 mm



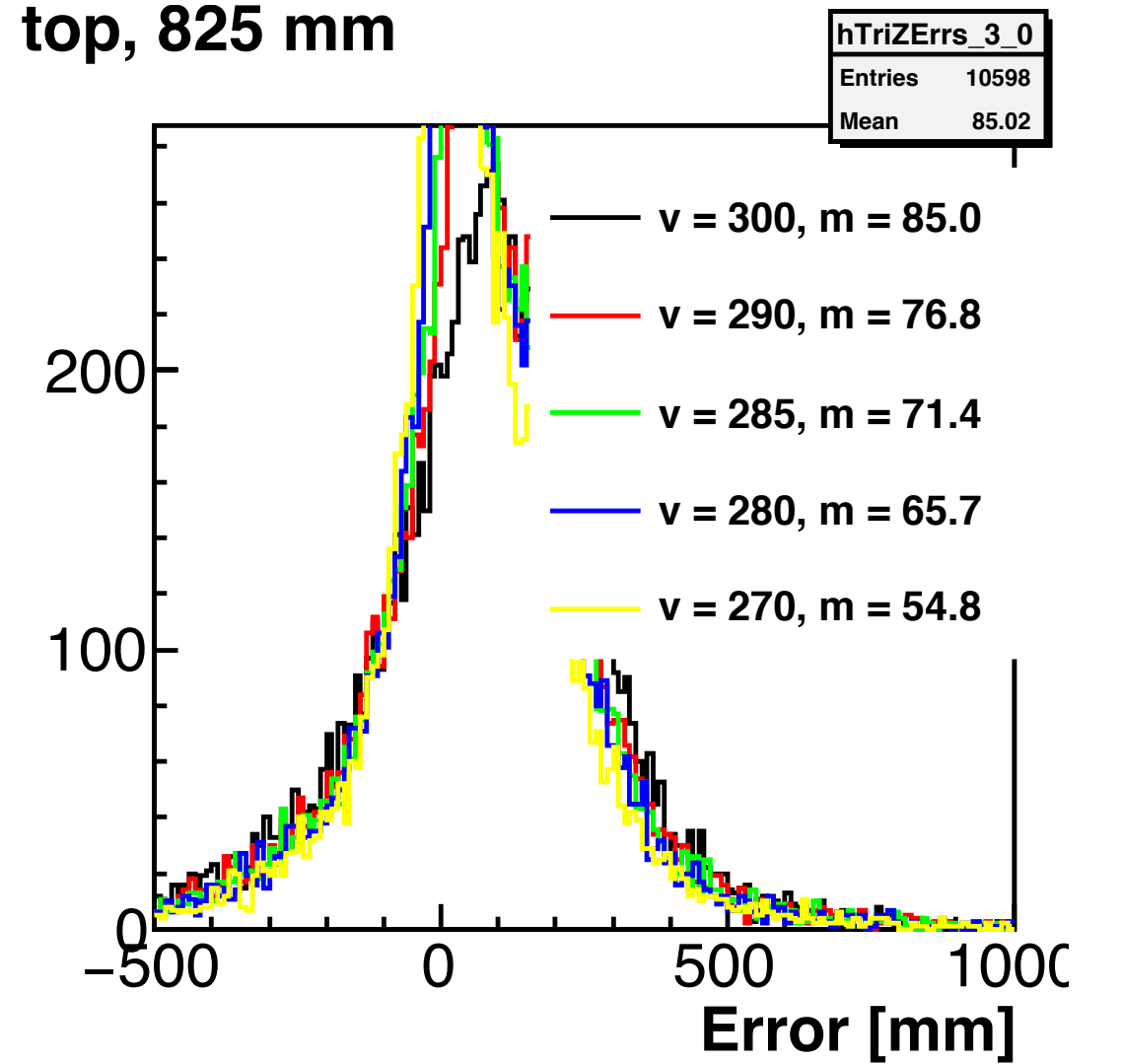
top, 625 mm



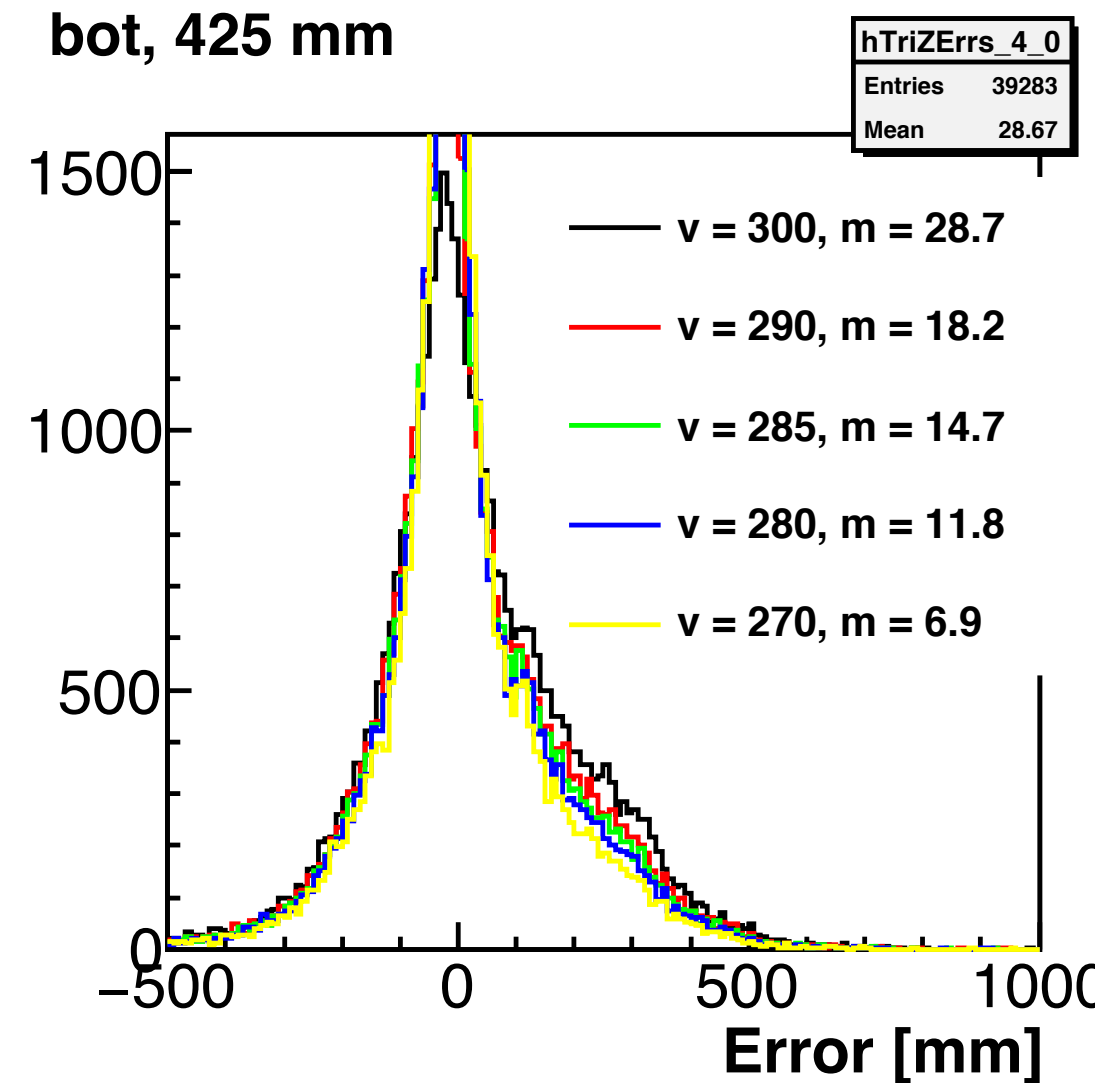
top, 725 mm



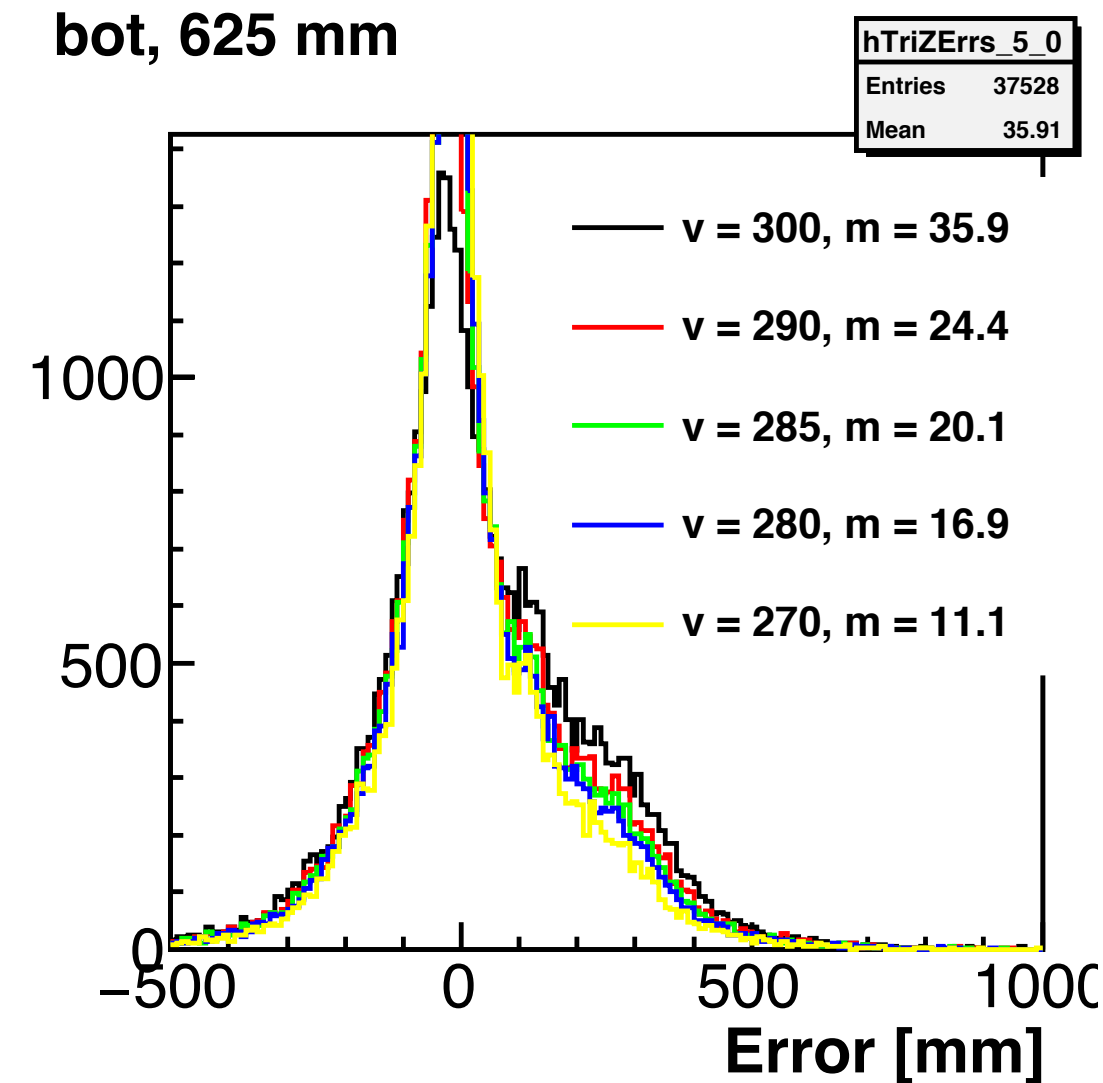
top, 825 mm



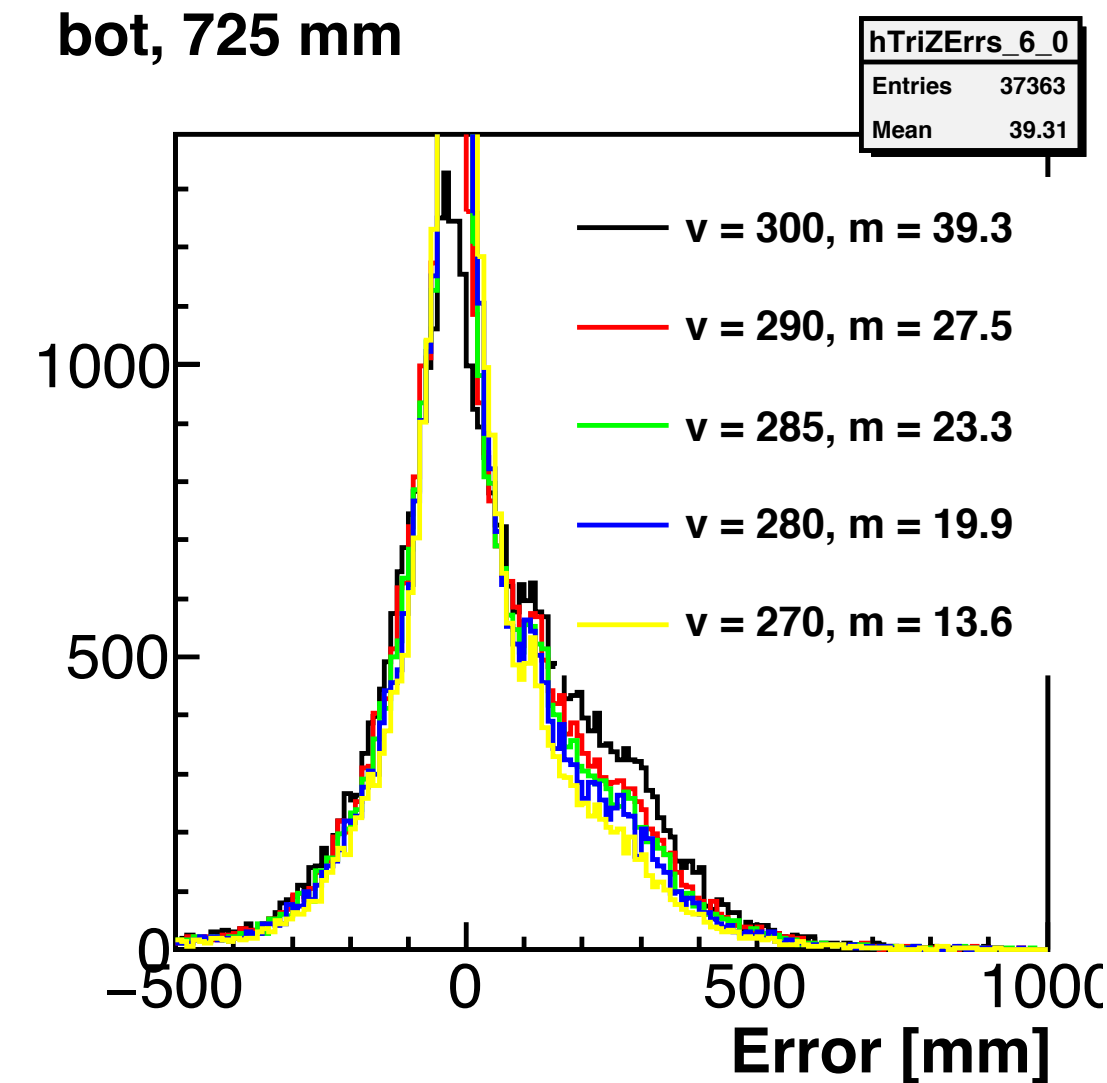
bot, 425 mm



bot, 625 mm



bot, 725 mm



bot, 825 mm

