

EMC trigger update

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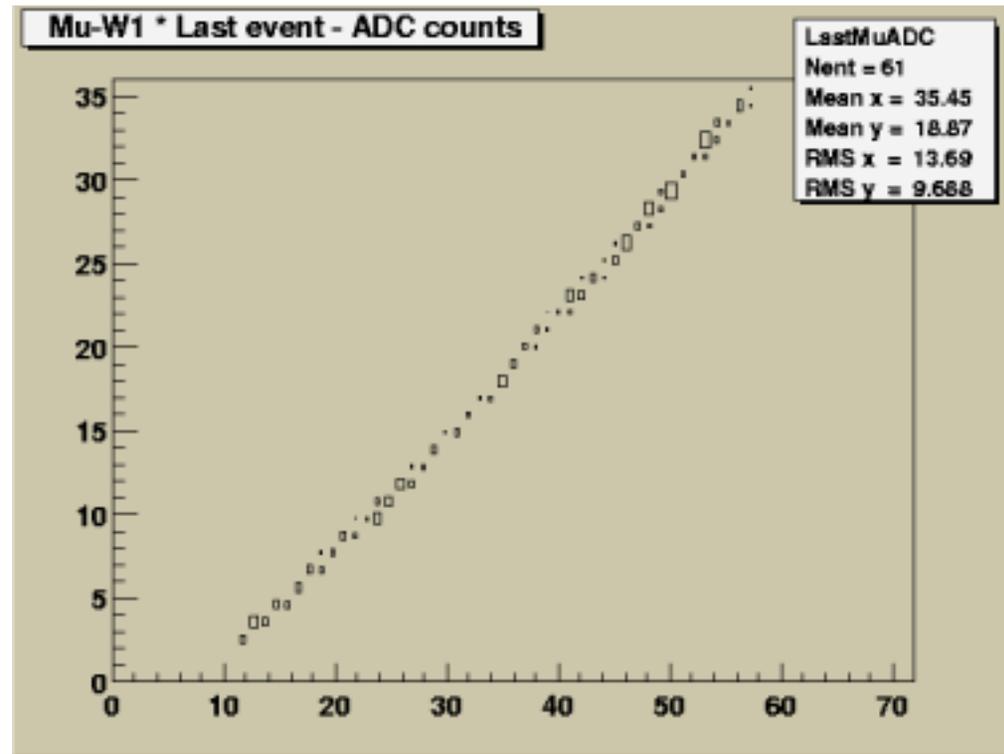
2002/Oct/18

ERT trigger meeting

Cosmic Ray Run (2002/Jan)

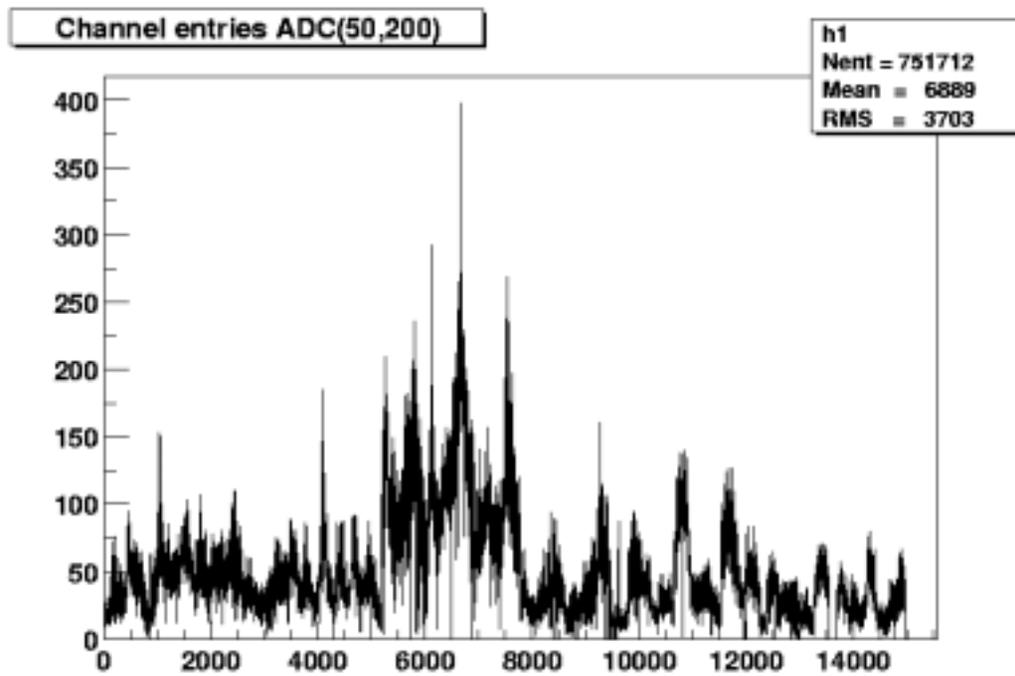
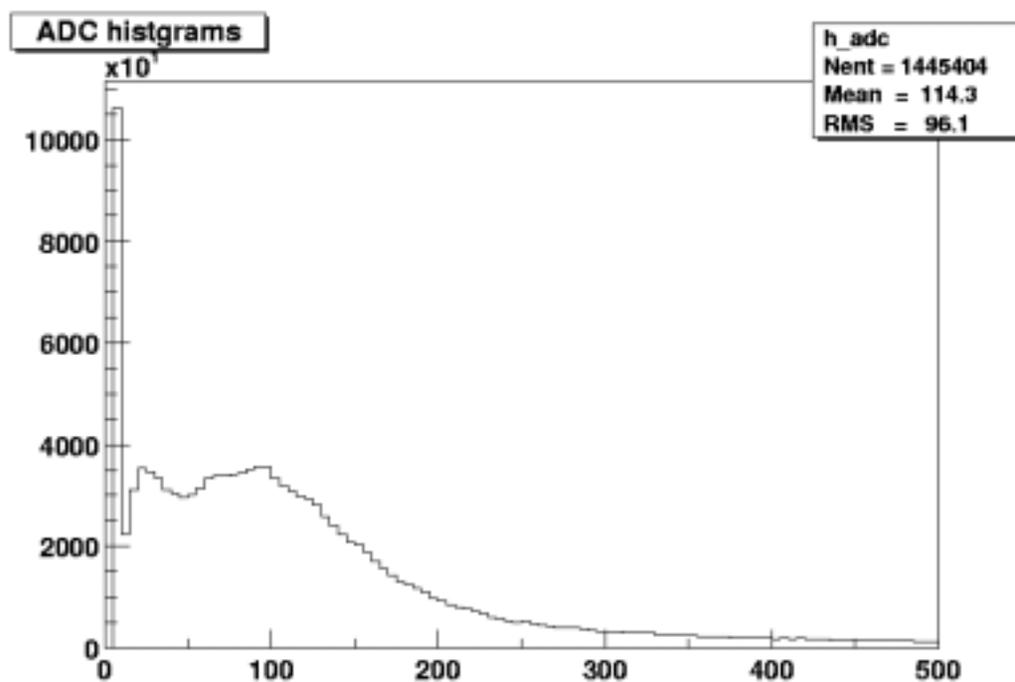
- Just after pp-run
- The mean deposited energy in a tile is $\sim 80\text{MeV}$
 - Need to decrease the threshold
- Increased the multiplicity threshold into 5
- After repeating the threshold and mask scan, the threshold for 2x2 was set to
 - 19 ($\sim 0.05\text{MeV}$)

→ The multiplicity threshold worked to reduce the noisy channels



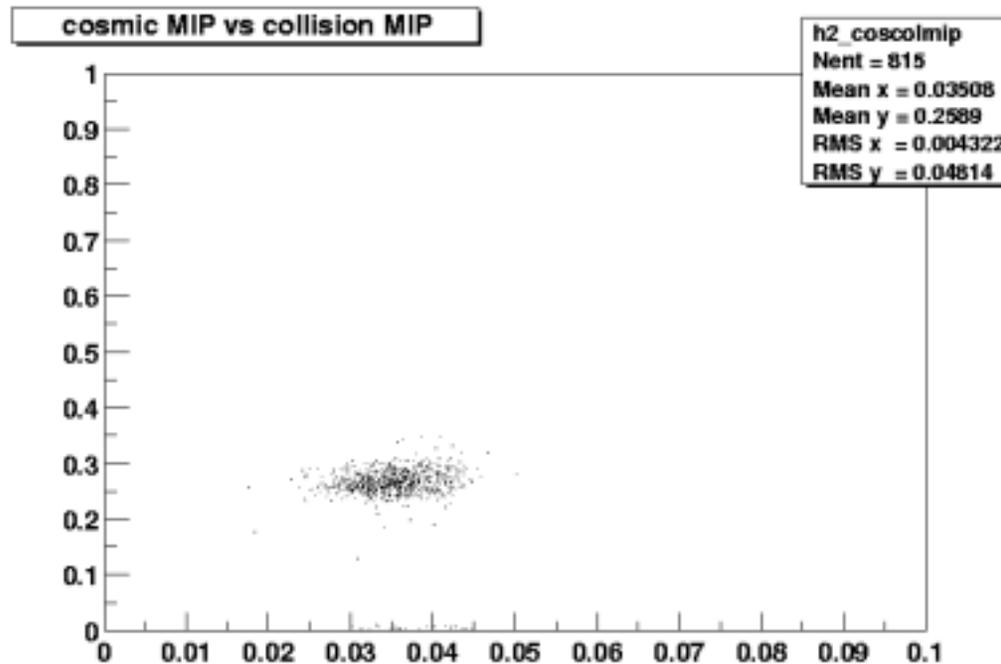
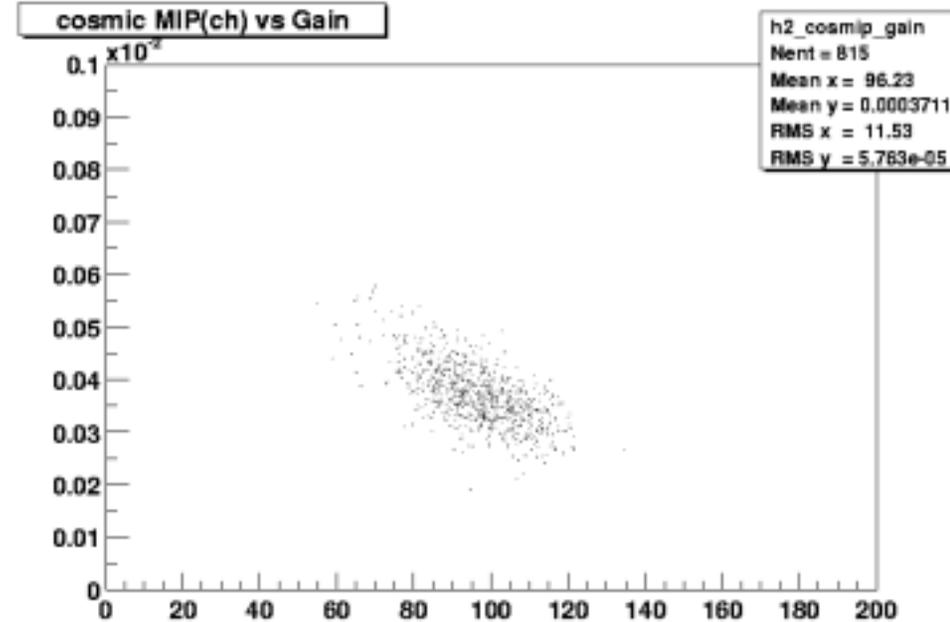
Cosmic ray analysis

- The data taking for only half day
 - 1.4 M hits
 - 18 channels
 - ~100k tracks
- Not enough ADCs
 - 100 hits on average for W2 sector
 - 30 hits for others
- The fitting is possible for only W2.



Cosmic ray result

- Can see the good correlation between
 - Gain factor
 - Cosmic MIP ADC
- Can't see any,
 - Cosmic MIP ADC x Gain factor
 - Collision MIP ADC x Gain factor



Plan for the cosmic ray calibration

- 80MeV for one tile is hard to trigger!!!
- One plan to increase the HV.
 - Need laser calibration.
 - What factor do we need?
- It depends on how well the trigger turn-on curve will become sharp.

Enable/disable Test at Test Bench

- Last week, I reported one ASIC board showed strange behavior of enable/disable switch
 - One 2x2 tile showed noise after disabled.
 - Other 2x2 tiles showed small response to the input test pulse even after disabled.
- This week, I checked other ASIC boards and did a threshold scan.
 - [Noise Check] and [Response Check]
 - Threshold is fixed to 31 when looking at the other ASICs
 - Set disable switch for only one tile (2x2 channels)
 - Input the test pulse with maximum amplitude for response check
 - [Threshold Scan]
 - Pick up 2 noisy channels and 1 no noisy channels.

Result from Enable/disable Test

- Scan 16 channels
 - O = Healthy
 - X = Very noisy/ Some response
 - Δ = rarely noisy
- Result from noise/response check
 - 2 noisy channels in two ASICs
 - All channels shows some response
- Noise check with different Threshold

	31	32	33	40	63
– A3	X	O	O	O	O
– A4	X	X	X	O	O
– F2	O	O	O	O	O

- Noise check with different Threshold

	31	32	33	40	63
– A3	X	X	X	X	O
– A4	?	?	X	X	X
– F2	X	X	X	O	O

Noise Check

	0	1	2	3	4	5
F	O	O	O	O	O	O
E				Δ	O	
D				O	O	
C				O	O	
B				Δ	O	
A				X	X	

Response Check

	0	1	2	3	4	5
F	X	X	X	X	X	X
E				X	X	
D				X	X	
C				X	X	
B				X	X	
A				X	X	

Summary from Enable/Disable Test

- 2 channels on 2 ASICs became noisy
 - After raising the threshold to 40 or 63, they returned to be normal
- 14channels on 6ASICs shows small response
 - After raising the threshold to 40, they returned to be normal