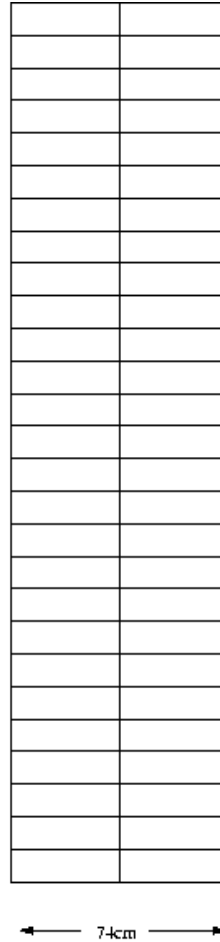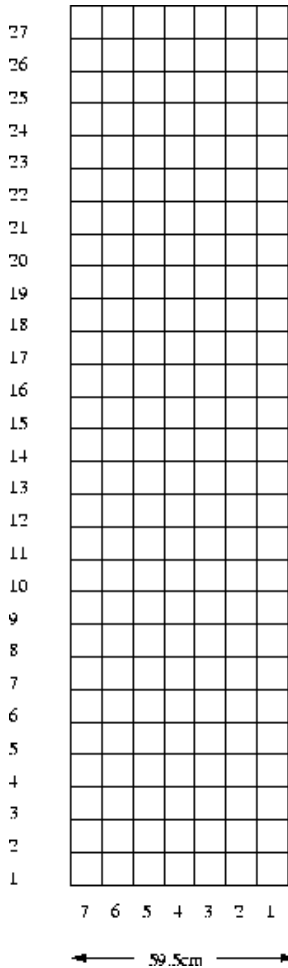# Test of Preshower and Shower blocks in the Bigbite detector

Kalyan Allada
University of Kentucky
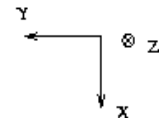
Nov 3rd, 2006

Geometry of Shower and Preshower Detector


Preshower: 2x27 blocks 8.5x37x8.5 cm.

Shower: 7x27 blocks 8.5x8.5x37 cm

- Total leadglass blocks: Preshower=54, Shower=189.

- A simple DAQ was setup to read the ADC and TDC values from the cosmic events.(Thanks to Brad Sawatzky!)

- A coincidence trigger was formed to look at the cosmic events passing through the blocks vertically

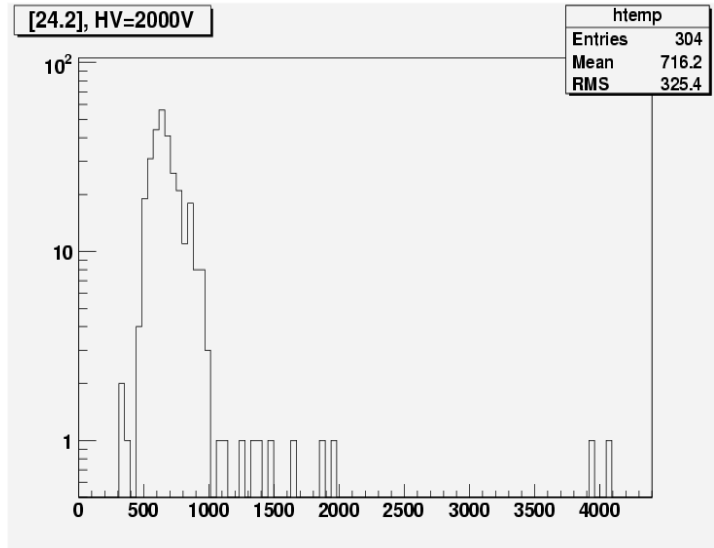- There are no ABSOLUTELY dead blocks/PMTs.

ADC spectrum of the block with good signal
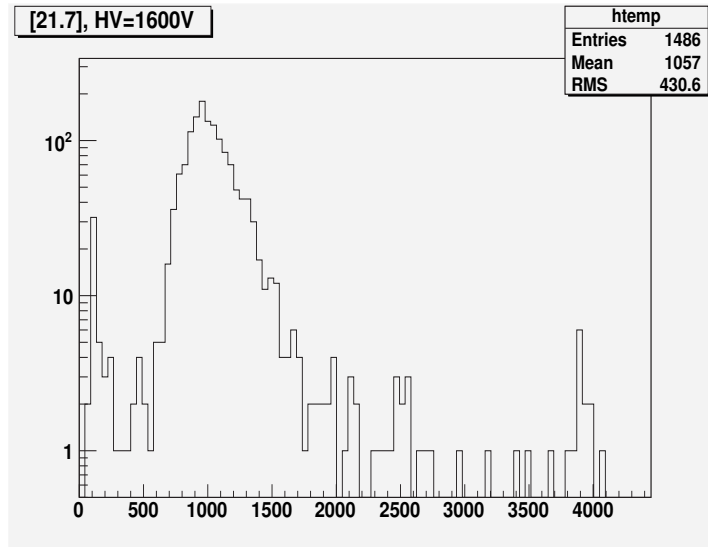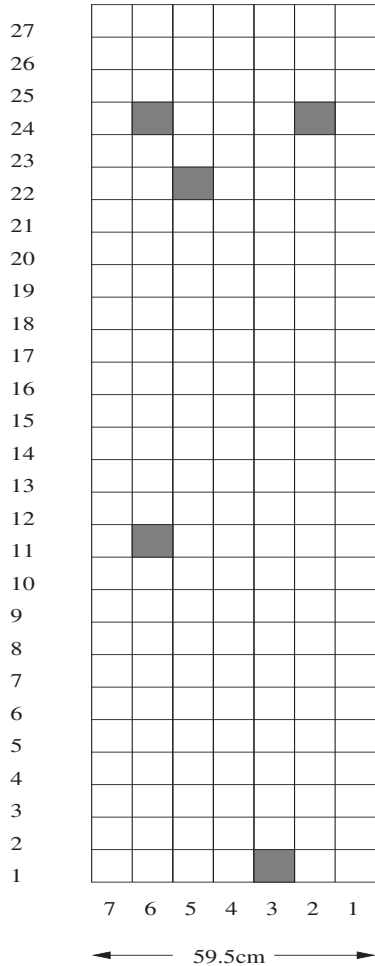
ADC spectrum of the blocks with low signal(in Shower)
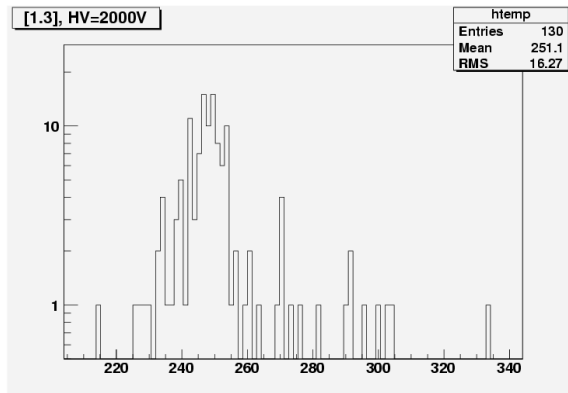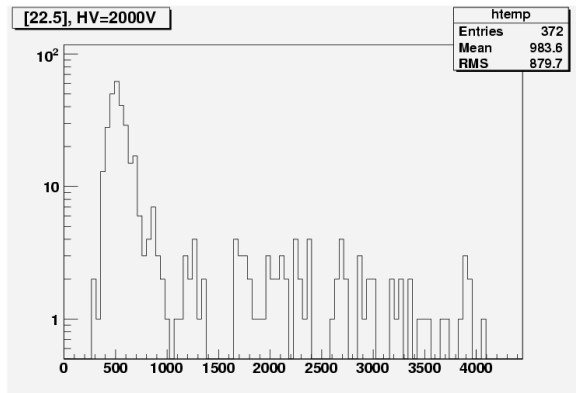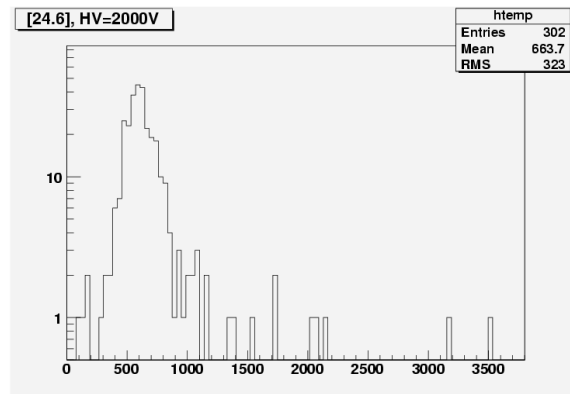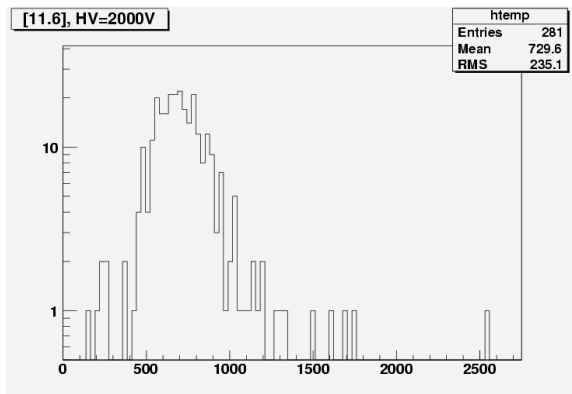
cont'd…

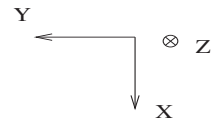# ADC peak(channel no.) at different high voltages

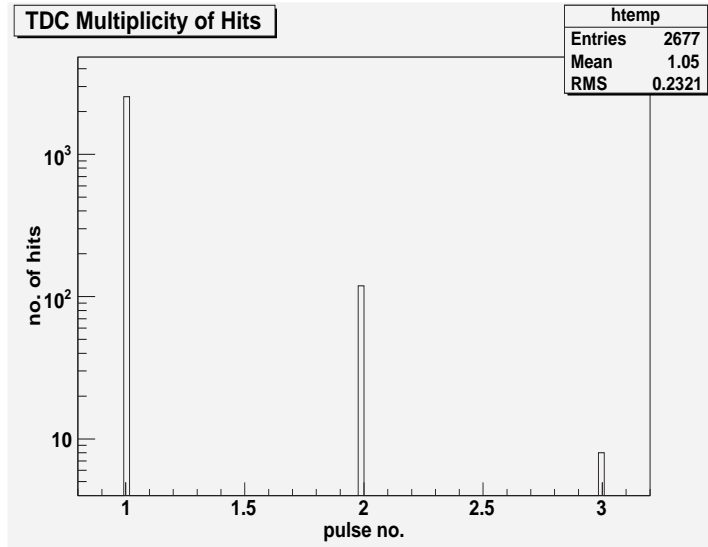| Block	1.9kV	2kV
24.6	340	600
11.6	400	730
22.5	300	500
1.3	100	250
24.2	300	700

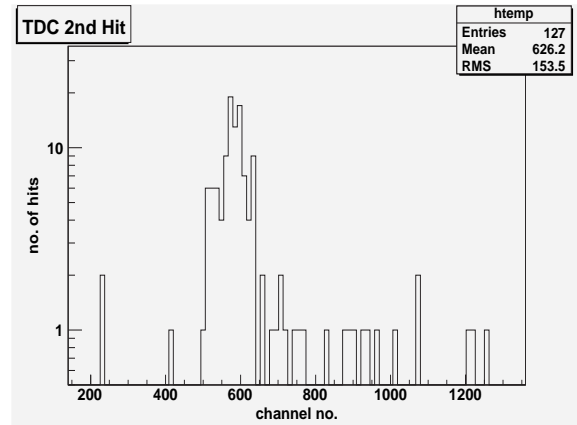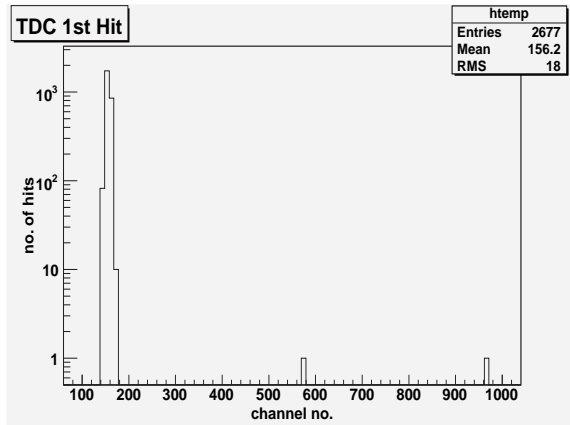# Position of the blocks with low signal

TDC spectrum - to check the after pulses

No. of blocks showing after pulse(roughly)

- Shower = 60, Preshower = 15

TDC spectrum of 1st and 2nd pulse

Conclusions

- About 15-20% more HV had to be applied to the most of the PMTs compared to the pre-GEN cosmic settings.

- There are 5 blocks with very low signal in the Shower detector.

- Preshower blocks looks good.

- A lot of PMTs shows after pulses.

- Solution: Either move the bad PMTs to the corners or replace them with new ones.

- Next Step: Start testing wire chambers.