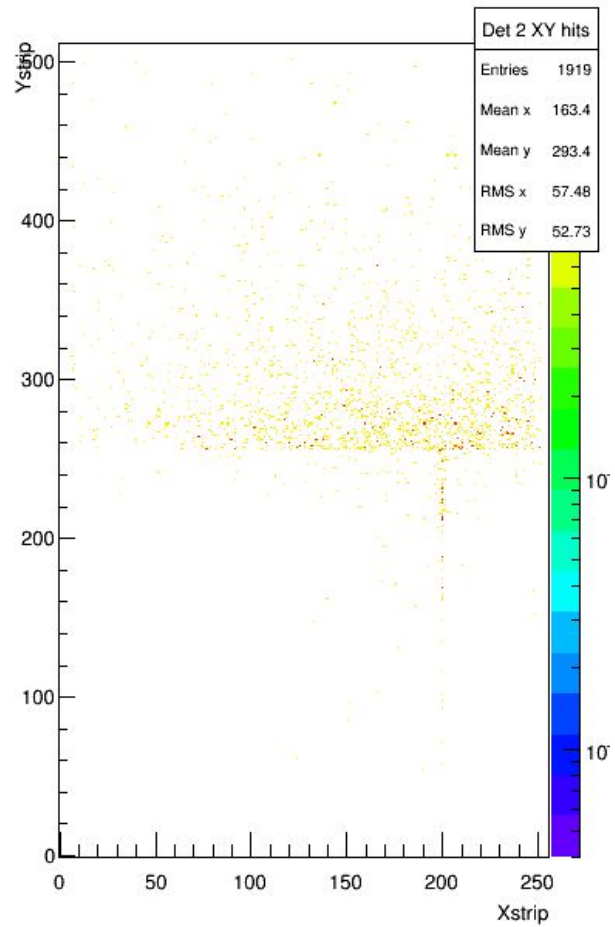


# Test Lab update

March 15, 2019

- ❖ GEM 4 problem persists (half of the detector in the 4-slot side is not working) - changed backplane and APVs - no improvement - we may have to open the chamber and test the foils.
- ❖ One 4-slot backplane is modified and tested. Test looks okay. Modification of other 4-slot backplanes are in process
- ❖ Started taking -3.9 kV data for efficiency studies. Will acquire data at few more HV values around -4.0 kV.
- ❖ Asked Bogdan for scintillator paddles. He said he will give after APEX is over.

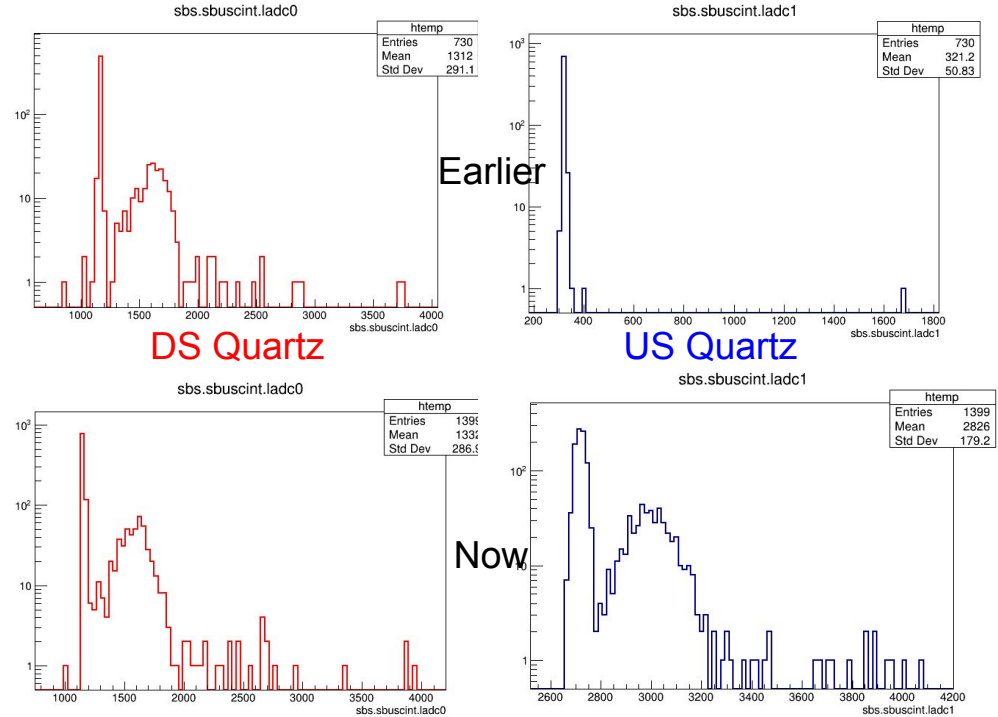
Det 2 XY hits



- ❖ There were problems in upstream quartz detector data - no signal. Checked QDC channel, HV voltage channel, cables - everything looks okay.

- ❖ The DS quartz directly goes to QDC.
- ❖ The US quartz goes to QDC via linear FIFO module.

DC offset caused by the FIFO module is the cause!!



# Data rate for one arm

- ❖ # of APV cards for PREX GEM -  $3*(2+4) = 18$
- ❖ # of APV cards for SBS GEM -  $3*(10+12) = 66$

Total = 84 APV cards

- ❖ # of samples (=32 bit words) for each APV for each event =  $6*128 = 768$   
(excluding data header, trailer... Including those ~790 words)
- ❖ # of bits for one event for one arm =  $84*768*32 \text{ bit} = 1.97 \text{ MB}$
- ❖ Weiner VME64x Crates can handle (2eVME) 160 MB/s
- ❖ DAQ can be run up to  $(160/1.97) \sim 80 \text{ Hz}$  without zero suppression using VME backplane

**We definitely need zero suppression or have to use ssp**