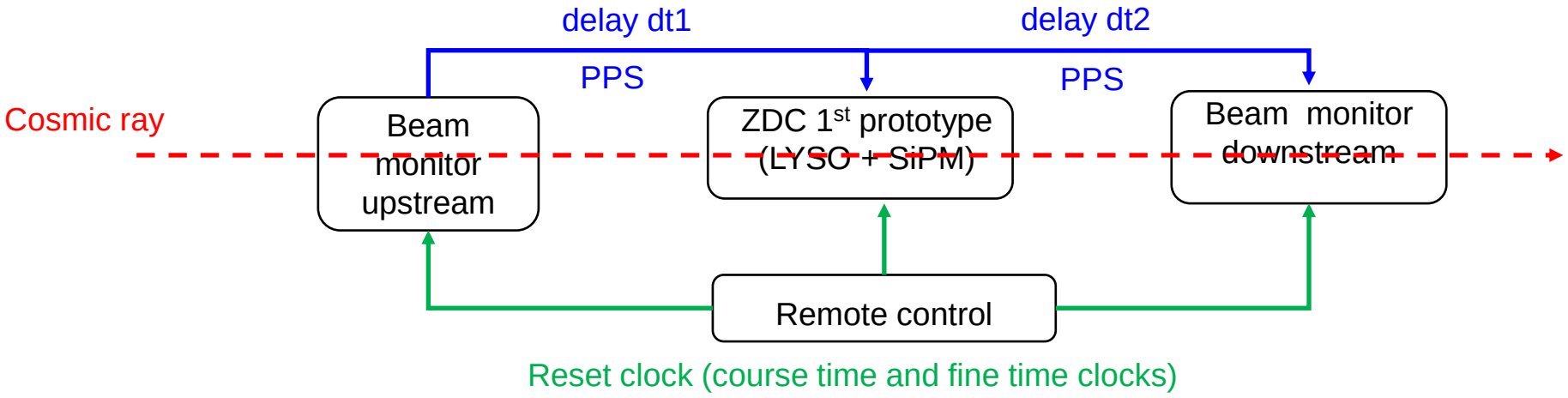
Discussion for Test Beam

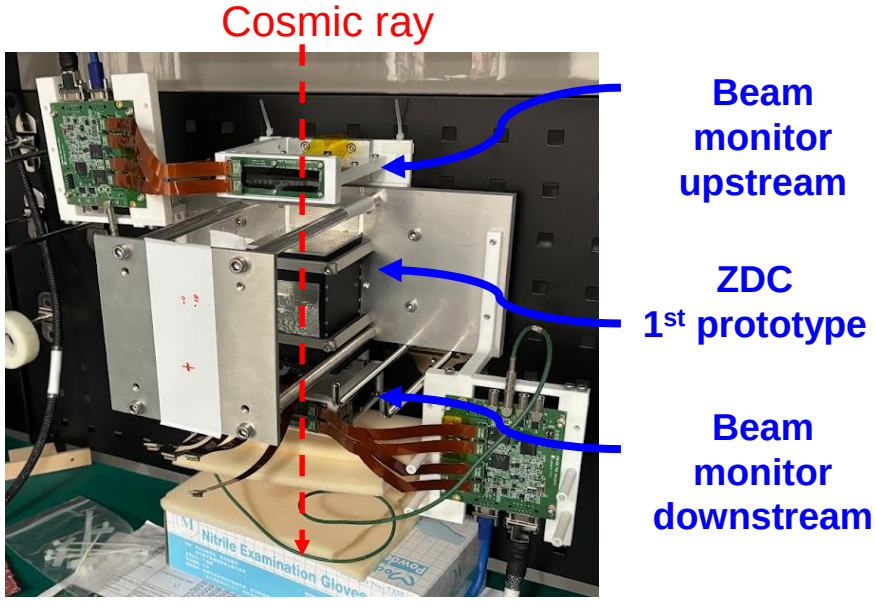
Wen-Chen Chang, Kai-Yu Cheng, Tatsuya Chujo, Yuji Goto, Chia-Yu Hsieh, Motoi Inaba, Subaru Ito, Kentaro Kawade, Yongsun Kim, Chia Ming Kuo, Chih-Hsun Lin, Po-Ju Lin, Rong-Shyang Lu, Jen-Chieh Peng

Lab Test of Beam Monitor : Synchronization between Detectors (1)



Conditions :

- 2 stages beam monitors + 1st LYSO prototype
- Matching 169 CR evts in 2 hrs
- Timing matching : pcnt = same (20Hz), fcnt difference <=1 counts (~40M)
- Position marching in next slide



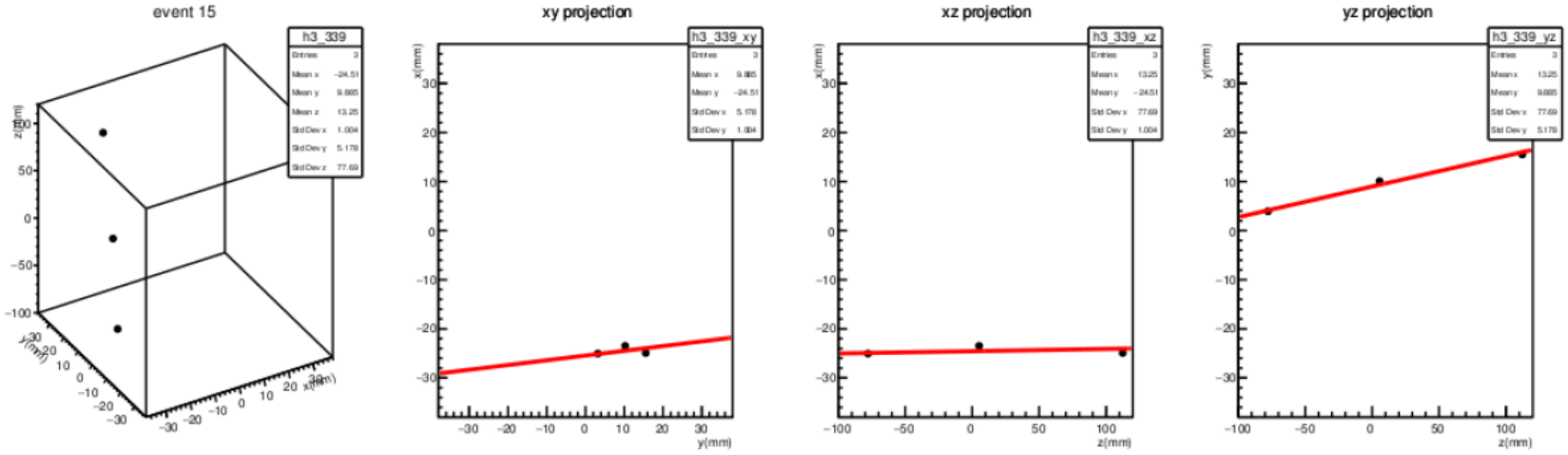
Beam Monitor : Synchronization between Detectors (2)

Position matching

beamMonDn

1st ZDC

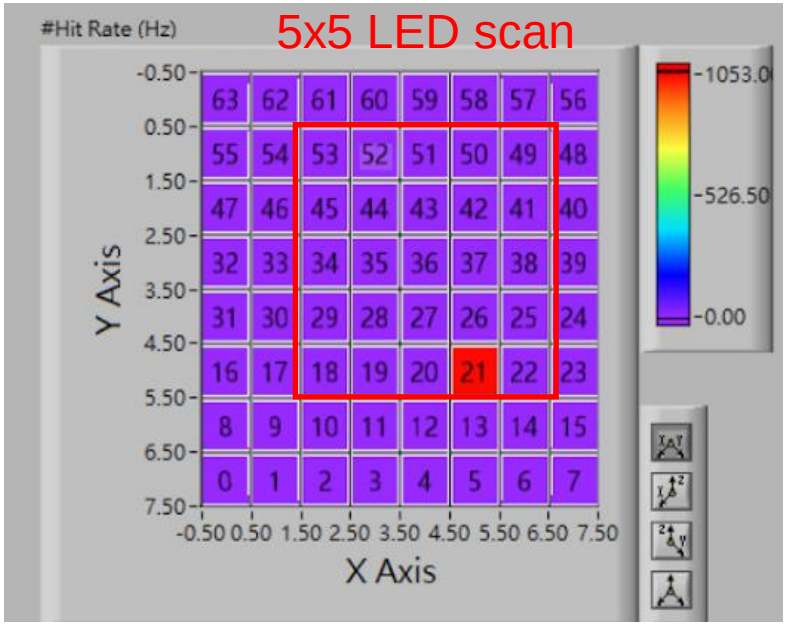
beamMonUp

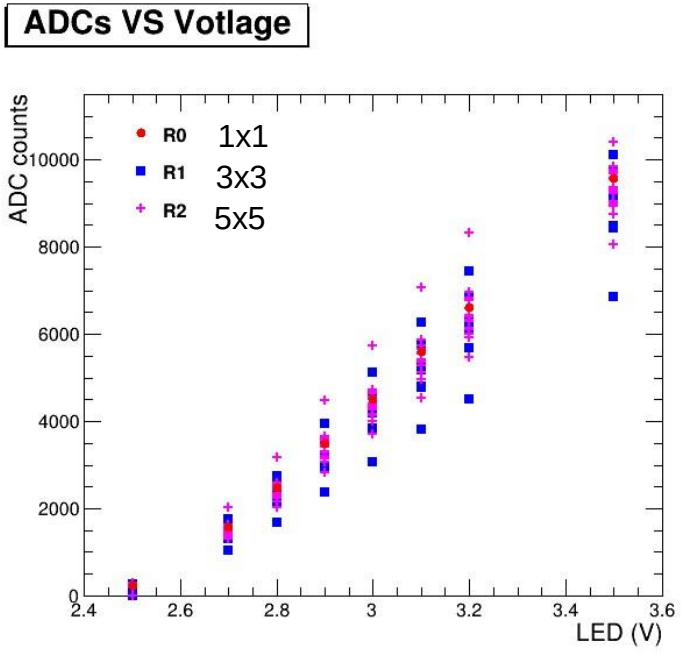


- Check hits distribution in 3D => Project to 2D in xy, xz, yz => linear fit successful
- Tracking looks fine for all the matched evet 169evts/2hrs with 8cm*8cm active area
- Firmware to match the beam monitor and ZDC is ok.

Lab Test of LYSO + APD

- **To do list :**
- Co60 test : not possible due to the low gain of system
- LED test : done (question concerning the Nphoton from LED is still pending)
- CR test : undergoing

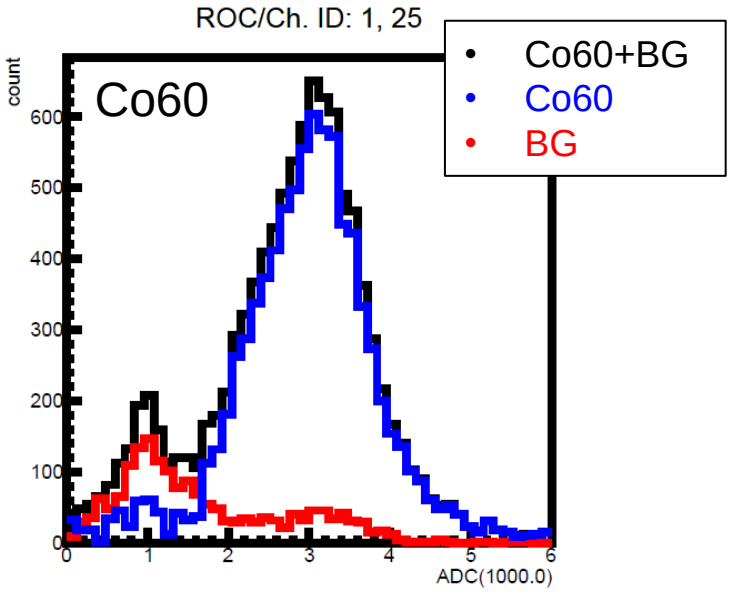


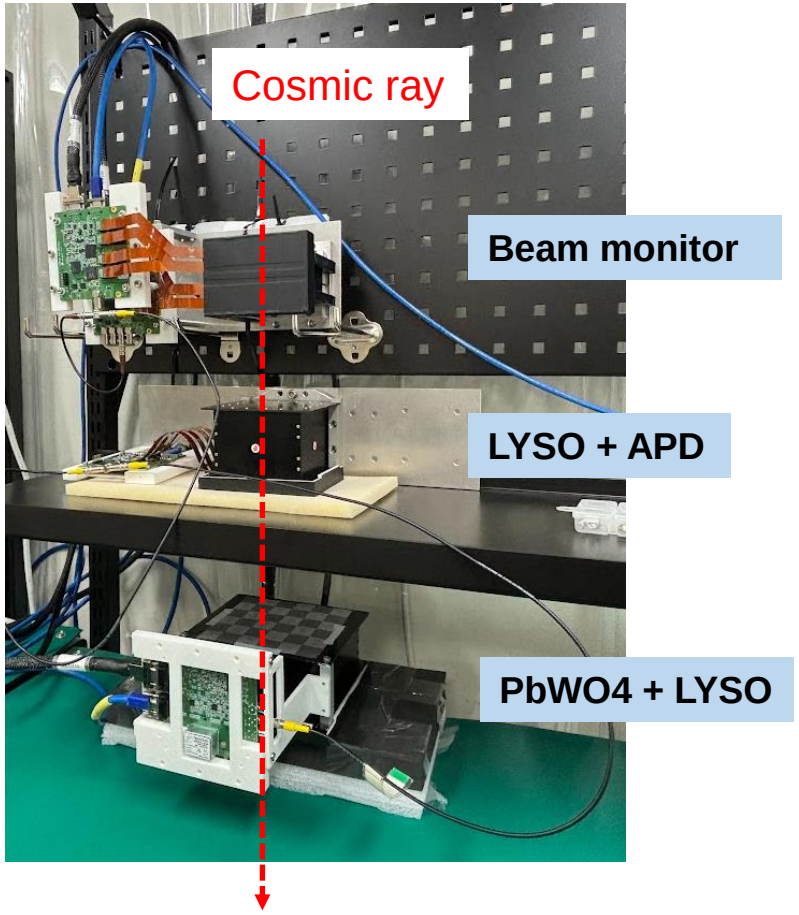


Gain of 3 channels are different from the others.

Lab Test of PbWO4 + SiPM

- **To do list :**
  - Co60 test : done (we do not plan to calibrate w/ source this time)
  - CR test : undergoing





Test Beam List

- **02/14~02/16 (preparation)**
  - Setup
  - Radiation source test : PbWO4 + SiPM
  - Cosmic ray test : PbWO4 + SiPM, LYSO + APD
  - Can we work during weekend without beam?
- **02/17 ~ 02/20 (beam time, expect to have three days)**
  - **Online doc.:**
    - https://docs.google.com/spreadsheets/d/1LkThhA2lm_xjokVYZWyPzydupzIb78aze39_htACcjk/edit?gid=0#gid=0
    - https://docs.google.com/document/d/1LEvoRliwQiXXA33Fa4fJ77pLHiESG9EH9yZ5Vw4f7n0/edit?tab=t.0
  - **LYSO + APD (~125 runs, 10mins/run, ~ 21hrs)**
    - Find the best configuration : 36 runs
      HV = [385, 395, 405] V
      Amp = [5, 10, 20]
      beamE = [50, 400, 600, 800] MeV
    - Scan beam energy for center crystal * 8 energies @ best setup => 8 runs
    - Scan position at different energy = 5x5 cluster * 3 energies @ best setup => 75 runs
    - Scan rotation at different energy = 5, 10 degree * 3 energies @ best setup => 6 runs
  - **PbWO4 + SiPM (~77 runs, 10mins/run, ~ 13hrs)**
    - Find the best configuration : 36 runs
      HV = [16, 17, 17.5] V
      Amp = [1, 4, 10]
      beamE = [50, 400, 600, 800] MeV
    - Scan beam energy for center crystal * 8 energies @ best setup => 8 runs
    - Scan position at different energy = 3x3 cluster * 3 energies @ best setup => 27 runs
    - Scan rotation at different energy = 5, 10 degree * 3 energies @ best setup => 6 runs