Status of
the FPCCD software

Physics and Software meeting

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Today's report

■ FPCCD clustering
— The random noise from CCD device was implemented.

■ The γγ → hadron background
— Data statistics in previous meeting was wrong. (occupancy was over estimated.)
— The number of cluster by this background was rechecked.

The random noise

■ The random noise from devices was implemented.
  — Previously, the noise was put on only hit pixels.
  — Now, the noise is put on also no hit pixels.

- At σ_{noise} : 50 electrons/pix, threshold : 200 electrons/pix
- The hit probability of each pixel due to noise : ~3.17×10^{-5}
  → layer1 : ~1700 pixels/ladder
  layer2,3 : ~7000 pixels/ladder

- These hits are seemed to be rejected by background rejection algorithm.

The γγ → hadron background

■ The number of clusters from γγ → hadron background was checked.
  — data statistics : 2000 γγ → hadron events
    (corresponds to ~2860 BX)

# Clusters from γγ → hadron for 1 train						
Layer	1a	1b	2a	2b	3a	3b
# Clusters	2090	1700	1830	1700	1500	1430

• Rate : ~ 1.5 clusters/BX.
  • These are real tracks.
  • Almost clusters have only 1 pixel.
  • It is difficult to reject these background using cluster shapes.

Summary/Plan

Summary
- FPCCD Clustering
  - The random noise was implemented.
- The γγ → hadron background was rechecked.
  - ~ 1.5 clusters/BX.
  - Occupancy is very small, but it is difficult to reject these by using cluster shapes.

Plan
- Range cut study is continued.
  - How small range cut value is enough to study for FPCCD?