CKOV Software -

Work performed by Peter Sonnek in Spring 2011.

G4MICE

- CkovReco.cc associates fADC channels with Ckov detectors.
- CkovDigit class provides only one field for a photo electron count per PMT (4 per detector).

Extended Capabilty

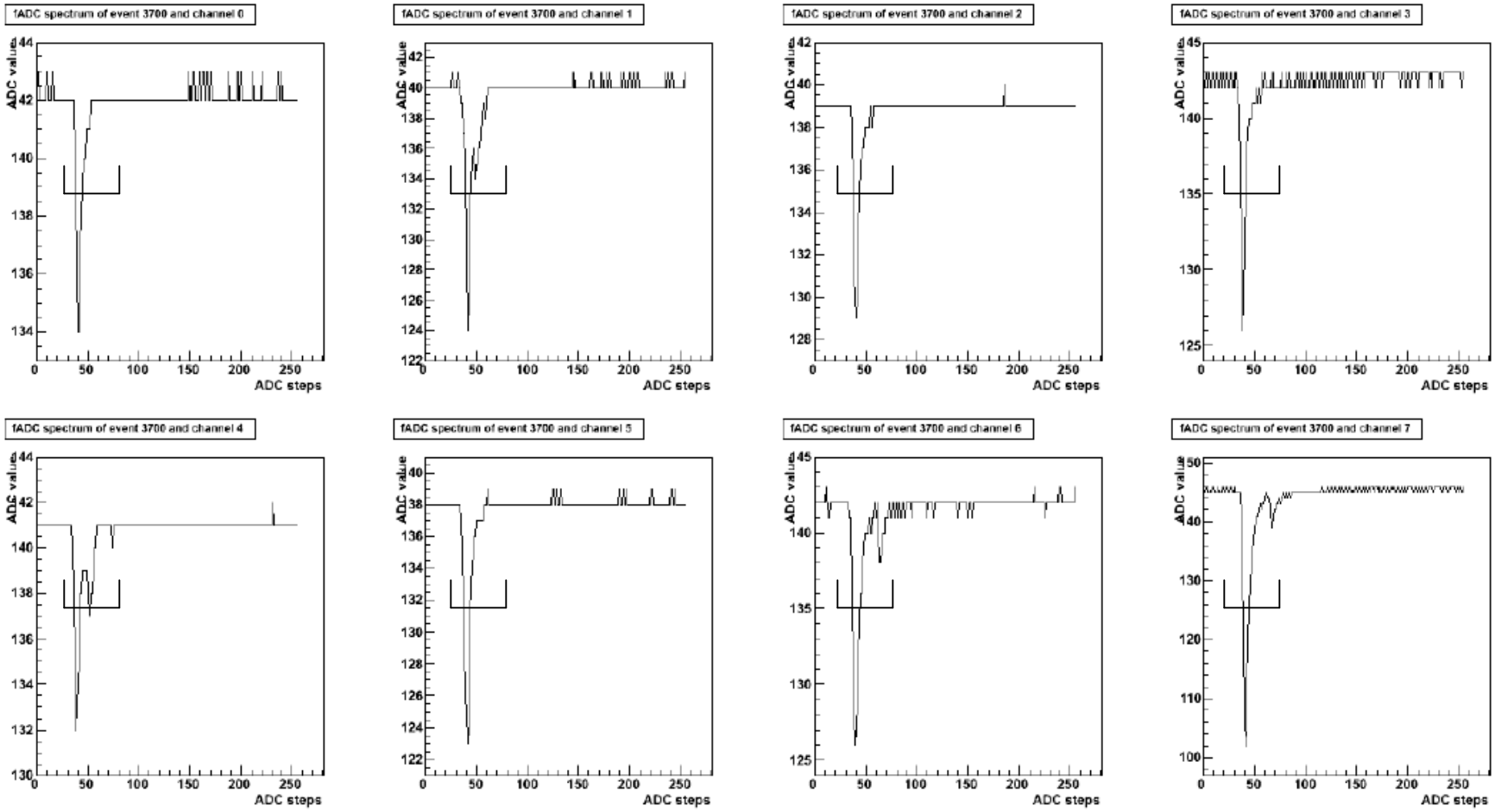
- New CkovReco.cc to associate fADCs, runs multi-peak finding, integrates peaks, generates coincidences, and reports coincidence timing, and maximum coincidence in event*.
- In-line pedestal finder. Single photon levels input by hand.
- Fills CkovDigit vector in MICEEvent with #PE per tube*.

MAUS

- CkovReco.cc and CkovDigit to be converted to MAUS by Gene Kafka (IIT). w guidance.

Simple Event in CKOVa (top), CKOVb(bot)

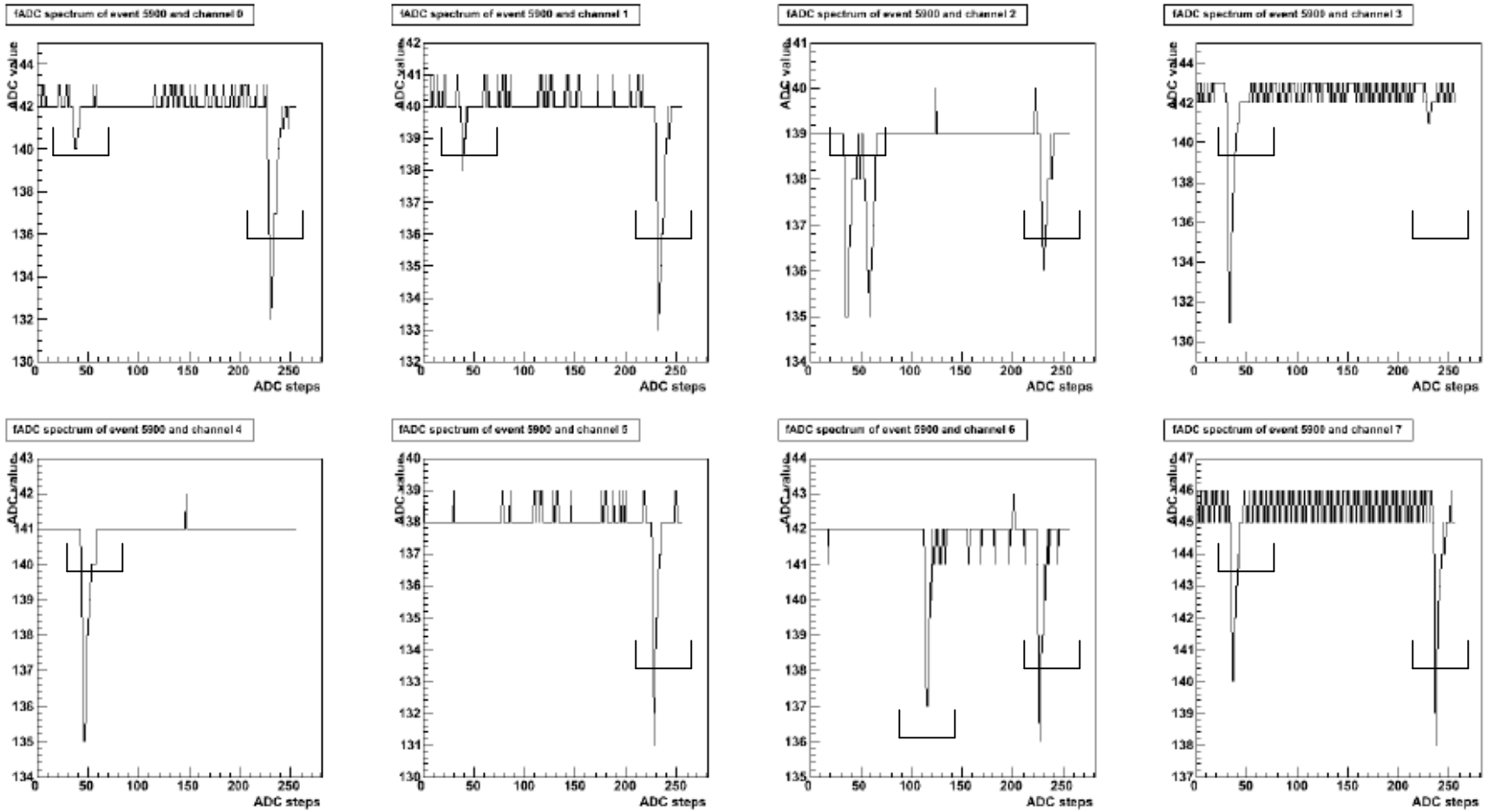
- 1 track event with (8-fold) coincidence.



Multi-peak search, (-20,+40) integration window, inline pedestal finder.

Complex Event in CKOVa (top), CKOVb(bot)

- Multi-track event (6-fold),(7-fold) (1-fold).



Summary

- New CkovDigit class expanded to multi-track capability w in-line pedestal finder.

- Work on a Calibrator (Qped, Q1pe) necessary. Either special runs or data-driven.

$$NPE = (Q-Qped)/Q1pe$$

- Work on final PID likelihood (e,mu,pi) simply based on Ckov p-thresholds: Light/no-Light or Likelihood hypothesis.

- Conversion to MAUS not complex, but we should not destroy G4MICE capability until MAUS code verified.

- Welcome to the project Gene.