Optical Digitization

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Data structures of LBNE10kt optical simulation

Products in the Simulation Package

- sim::LBNE10ktPhotons class
  - OpChannel: The Channel ID for this optical detector.
  - DetectedPhotons: A map of time ticks and the number of photons in the time tick.

A vector of LBNE10ktPhotons is stored in the simulation result. The new data structure could reduce the memory use below the limit of condor job. A genie+CRY job has run successfully($\sim$7000s). The result could be found here: \lbne\data\users\zpli\Grid\10735003_0

A new LBNE10ktSimPhotonCounter module based on the MicroBooNE SimPhotonCounter has been created and checked into the repository.

Products in the RawData.
The LBNE10kt digitization uses the same data product as MicroBooNE,
but uses a different module LBNE10ktOpMCDigi, sensl waveform.

The code has been checked into repository.

Optimizing the optical simulation

A LBNE10kt specific optical sorting method is introduced. This method first sorts the optical channels in x direction, next in z direction, and last in y direction. So the optical detectors in the same cage or same TPC are numbered consecutively.

Optical parameterization only needs to be done in the cage where the photons are produced after introducing the new sorting method.

Energy resolution

Strange event in AJ's kinematic file.