News

T. Yang (FNAL) and X. Qian (BNL)
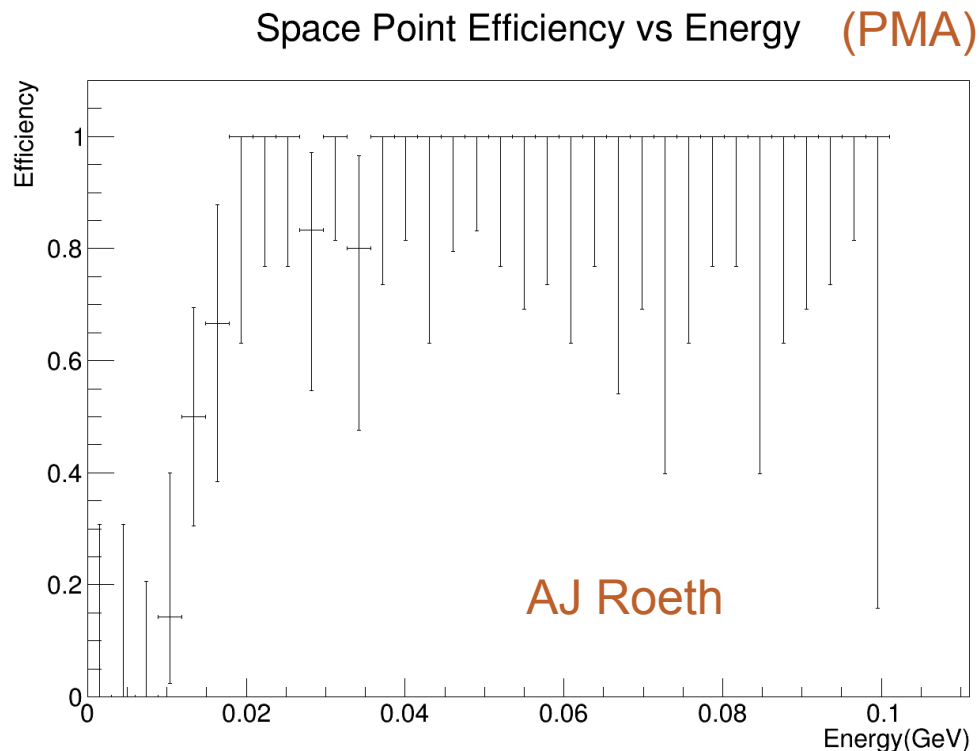
July 18, 2016

Next MCC

- The next Monte Carlo Challenge will produce neutrino samples using optimized flux.

- MEC will be turned on in GENIE.

- New supernova samples using MARLEY?

  - Webinar on Friday: https://indico.fnal.gov/conferenceDisplay.py?confId=12547

- ProtoDUNE dual phase samples

- Will start in August.

New LArSoft Nucleon Decay Module

- I added a new module in larsim: larsim/EventGenerator/GENIE/ NucleonDecay_module.cc with help of Robert Hatcher.

- This was converted from the GENIE application ${GENIE}/src/ support/ndcy/EvGen/gNucleonDecayEvGen.cxx.

- It can simulate nucleon decay events of 11 modes in larsoft. The output can be passed to detector simulation and reconstruction.

- More details:
  https://indico.fnal.gov/getFile.py/access?contribId=5&resId=0&materialId=slides&confId=12465

Supernova event reconstruction

- There will be a supernova workshop at Fermilab from July 25-27.

- Currently there is effort to improve reconstruction of low energy electrons.
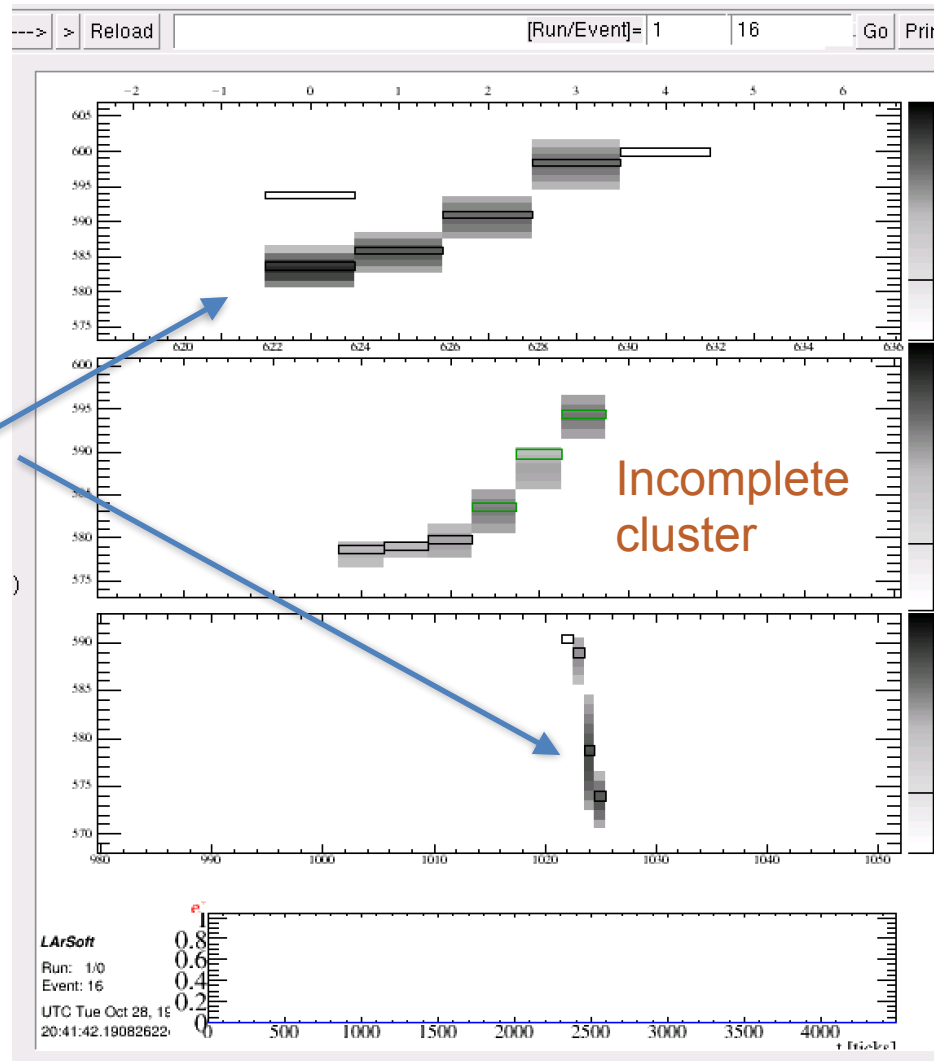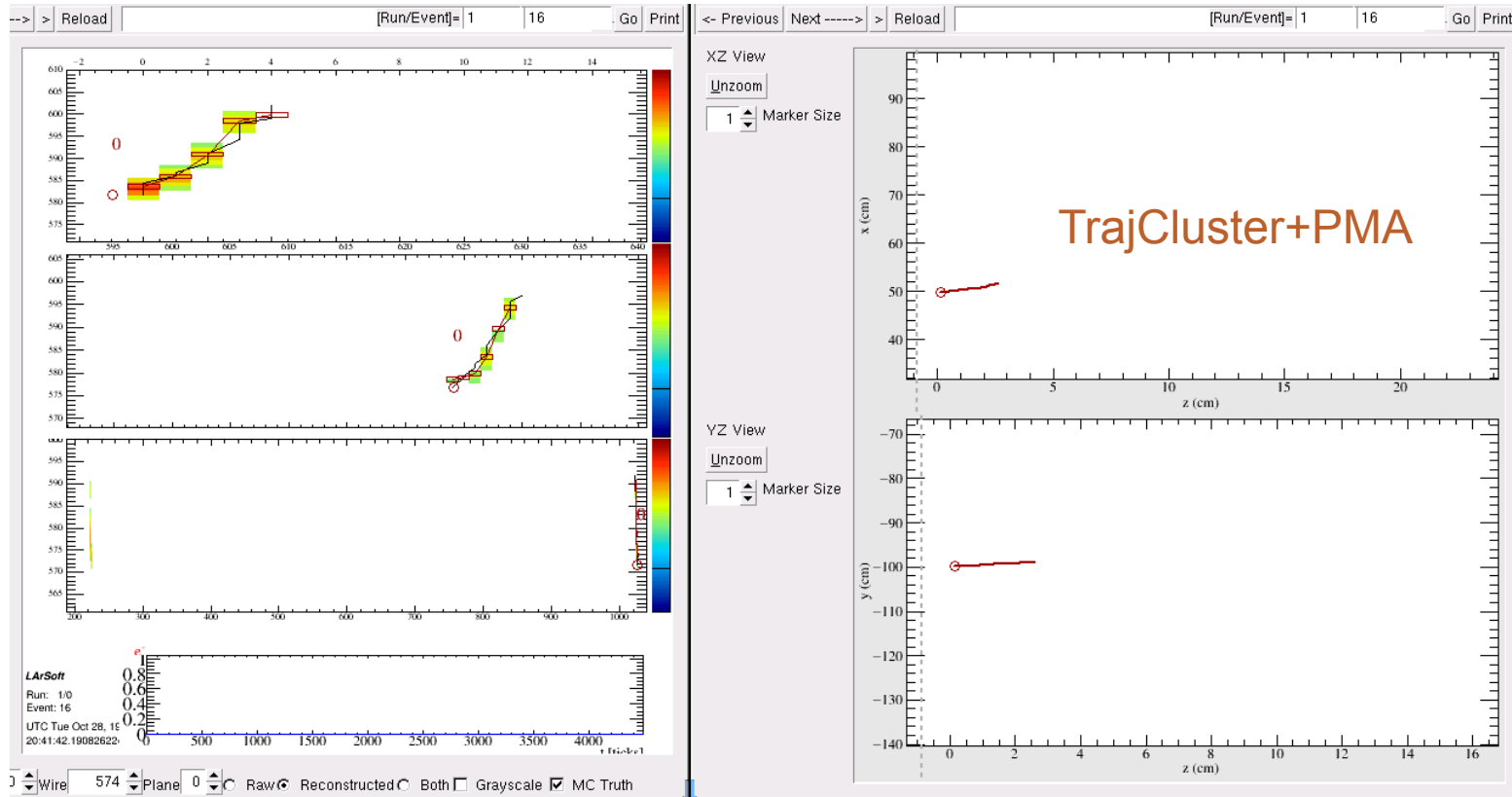
Space Point Efficiency vs Energy   (PMA)

AJ Roeth

Low efficiency below 20 MeV.

Problem with Cluster Reconstruction

8 MeV electron
LineCluster does
not work well

No cluster

Incomplete
cluster

Improved Cluster Reconstruction

- Bruce Baller suggested we use TrajCluster, which supersedes LineCluster.

- It does have much lower threshold and works better with short curved tracks.

- Thanks Robert Sulej for fixing the PMA interface so it can use any cluster reconstruction as input.

- The reconstruction group is working closely with physics working groups.

- It is important to understand the physics needs to improve reconstruction.

Document simulation and reconstruction

- Lisa Whitehead is organizing the FD task force preliminary report.

- The FD sim/reco group is asked to provide text on the simulation and reconstruction chain.

- We have started a draft several weeks ago:

  - https://www.overleaf.com/5565604ftcwxj#/17932618/

  - Quite complete, missing photon detector simulation and reconstruction, some place holders.

- Other documents:

  - https://www.overleaf.com/5407539vwbbds#/17203153/

  - Detector orientation studies by Xin et al.