Session 1 and 2 Minutes

Use Cases -- Non Beam

SuperNova detection, solar neutrinos, dark matter, nucleon decay, atmospheric neutrinos

Argonne purity analysis?

Other calibrations? Laser inside of the detector – ionize liquid and reconstruct track

Radioactive source inside a scintillator that you can move around your detector that have energies similar to SN for instance – could have different types of sources for different energies

Not sure calibrations need to be within the framework – can be handled other ways – such as injecting light in a phototube can be handled any ways…

Data Collected during calibrations need to be self identified as calibration and separate from a “data” event into different files. Conditions database needs to store all calibration constants

Auxillary detectors need to be able to simply be integrated into the framework – such as a TPC on the surface.

Can you do astrophysical pointing with a detector like this? If so, you can do crazy things like solar cosmic rays, air showers, etc. This would involve timing information. Different physics have different timing requirements

Removing radon – match charge in TPC to see radon decays – need to see at nanosecond scale PMT timing to do this… Would also need sufficient light coverage to do this.

Radiological stuff are really low energy – 10MeV type stuff. Might need to do this in multiple reconstruction passes – first a region of interest and then do reconstruction. Would be coupled to cosmic removal as well.

Interface to all identified event generators

Output from detector simulation programs have to have a common format – and also common detector geometry that can be used for what ever simulation you use.

Need to do some sort of cross calibration between near and far detectors to handle a variety of systematic effects, flux comparisons, cross section models, rock backgrounds,

Ability to handle neutrino events where interaction is not in detector but the decay makes it into the detector – “earth events”

Ability to do a realistic beam simulation and have the framework be able to leverage it and be able to interface with beam parameterization – a true end to end simulation.

* + Where are the interfaces
  + Upstream detectors part of the beam line need to be part of simulation
  + How do you define the responsibilities -- should lartpc project worry about beam simulation?
  + Ditto for generators

Need to pay attention to framework that its manageable to build, downloaded etc – and head off the problem of the invention of mini-larsofts…