

LArSoft minutes, 26-Jan-2011. -- Eric Church

LArSoft minutes appear at <https://cdcvs.fnal.gov/redmine/projects/activity/larsoftsvn>. (The location presumably at which you found these!) For further details of matters reported here drill down into the wiki, etc, at that redmine site. Everyone is welcome to attend the bi-weekly meetings. We go to a new schedule starting now. Next meeting will be 2/23/2011. It will be in 7th floor x-over Racetrack. This is our new home, every other Wednesday.

There are pdfs on the documents link of the redmine site for today's presentations by Bruce, Georgia, Kinga. Click Documents, sort by Date.

We've cutover to new ART, and all externals. The biggest impact is a new job scripting language, fhicl. There are links on the redmine site for how to use that new scripting language. Links there have been updated to reflect particulars of coding/running under new ART. edm:: becomes art:: for example. People are porting py job script files to fcl now. Ask any of us for help.

Kinga showed the output results from Service-izing many tasks currently coded as Modules. The idea being that the new modules will consist of many instances of these services, and those modules will write out canonical RecoBase objects. Kinga showed fine agreement between the output of the new Services written for now from individual Modules, vs the old Modules w Services. All looks fine. There was at least one entry in the slope of clusters histo up at some huge value. One worries about a bug, per Mitch. Kinga/Josh/Brian R will chase this. (Breaking News, 9-Feb-20:06:: Brian R and Josh found a float to double casting problem that made this infinite slope go away and while they were at it, also found a problem that might explain Josh's unsettling calorimetry findings presented at the last ArgoNeuT mtg regarding summing hit energies for equal length tracks of all pitches.) Some changes were performed to RecoBase classes too, which might be buggy. Stay tuned. Brian proposed making the Cluster module now work by calling these new services. It's assured nothing can break. Ben Jones suggested however that if one wants to call a service a second time w new parameters and since the module that called that service would stomp on the already written chunk of the event, we hold off and think about it another 2 wks, at least.

Bruce gave a nice overview of how a Cluster and Tracking algorithm all in 2D should work conceptually, with hit swapping and vtx (2D) calculations. He suggests a Kalman track fit in 2D, unlike what we have now (in a very early stage) in 3D. One new idea is to cluster hits with some requirement on their MIP and Width consistency with some Cluster avg. There was some iterative procedure of the steps above, which Bruce advocates, and is for now informed by hand-scanning and an event display. Much of this is implemented in LArSoft already, and we urge Bruce to dive in and make use of what's there and then blaze new trails, by all means.

Georgia discussed the uBooNE oscillation results work she's doing with Roxanne. She needs the parent meson of the neutrino, currently not in there. The new histo file will have that. We clarified that GENIE handles all the nuclear final state interactions. We need to dive in and pull out the 01-99 2-digit "NUANCE" neutrino interaction code from GENIE, which indicates CC/NC/CC w charge exchange/DIS etc; it's there, but it's unclear if it's being saved out where we can load it up into the MCNeutrino object. Josh directed us to his tech note from 11/3/2008 which has much discussion on the neutrino generators. Georgia stops after GENIE. No LArG4 yet, let

alone any recon'ing. She acknowledges slide 11 is the money slide, basically suggesting we must make some headway on uBooNE reconstruction to really understand efficiencies/resolutions. Mary Bishai says she'd like us to get all the way up to 4 GeV in reconstructed visible neutrino energy to compare with the resolutions WCv studies cite. So, yes, there's some pressure now to get to a state where we can claim realistic LAr detector response parameters. Both LAr and WCv need to justify cut values and give some reproducible and thought-through detector response parameters. Mary and Sam are pushing this effort at LBNE LBL physics working group, after the UCLA mtg made it clear there is a demand for a better understanding of the detectors. LBNE LBL group and LArSoft have invited Bruce to present some hand-scan results that an ArgoNeuT undergrad, Andrea ____, performed last summer. This work and other hand-scan results will serve as a start. MicroBooNE MC studies and the natural continuation of the development of the recon chain and filters, etc, in uBooNE will eventually provide the real answers. Those can then be extrapolated with some assumptions to LBNE. So, we need more personnel in the LArSoft trenches to support the ongoing work and to expedite and extend it. It's good to be reminded that the wider neutrino physics world is waiting our work and counting on it.

Details for the next meeting:

>>> video: 85LARSW
>>> phone: 510 883 7860 (ID 85LARSW)
>>> final location: ____, 7th floor x-over