

LArSoft Simulations Brief Status Report

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Fermilab

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We Met on April 12

- The to-do list, introductions and who's working on what
- Meeting of the Neutrino Simulations Group on Apr. 23 was also very productive. Plenty of work to do!

LArSoft Simulation Projects to Work on

- Drift model Simulation:
“Hot Swappable” (or at least Swappable) would be good, if we would like to test multiple models for evaluation of systematic uncertainties

Check to see where the boundaries of the electron propagation model are so we can cut and paste a new model in

- Better true energy storage in the event record (before Birks' Law Corrections) for use with MC truth comparisons. A. Szec
- Additional active material simulation: See W. Seligman's talk today
 - Light Collectors
 - Scintillator paddles
 - Strips
 - Tubes
 - Veto

LArSoft Simulation Projects to Work on

- Performance studies (Ben Jones made some important improvements last year)
Idea – run valgrind and gprof on lar while simulating events
- I'm more concerned about memory usage (>3 Gb/job)

LBNE and MicroBooNE GPVM's are getting/have gotten RAM boosts to 12 Gb per VM (had been 4 Gb). LBNE machines were upgraded April 24.

I did one of the simple tasks on my to-do list already – converted Mary Bishai's LBNE far detector flux histograms from text files to rootfiles with normalizations in `/grid/fermiapp/lbne/lar/aux/lbne`

Was: $\text{neutrinos}/\text{POT}/\text{GeV}/\text{m}^2$. Want: $\text{neutrinos}/(10^{20} \text{ POT})/\text{cm}^2/\text{GeV}$, or at least that's what I could glean from GENIEHelper.cxx's comments. Generated some events. Got some experience with GENIEHelper. For example, found the “generate one event per spill” flag – very useful, otherwise the job spins forever on empty spills.

To do: Make oscillated files, or pure nue and numu files.

New Effort

In addition to a strong core team – Brian, Eric, Herb, Robert, Bill, Andrzej, Kevin, Georgia, Ben, Roxanne, Christina, Adam, and more I'm missing, we have some new faces:

David McKee (KSU) – will arrive this summer

New Students and Postdocs from Duke, Hawaii, and Colorado State University

Kate Scholberg's student Zepeng is getting involved.

Next Meeting: [Weds May 2 at 4:00 PM \(Doodle Poll preferred Weds but we had a one-off on Thursday last week\)](#)