

Midterm report

B.T.Fleming
LB Workshop
June 27-28, 2006

Long Baseline Study: LAr

Simulation Studies:

- Scenarios

- Off axis NuMI beam at 14 mrad, 810 km
- at 40 mrad, 810km, and 200km
- Wide-band beam

efficiencies and resolutions for signal and background



sensitivity studies

Technical Issues:

- Depth vs background
- energy threshold for different channels
physics beyond accelerator neutrino oscillations
- Technical feasibility vs detector size
- R&D towards massive detectors

LB Study: Liquid Argon working group

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FNAL-BNL Long Baseline Study 2006: Liquid Argon TPCs working group

This webpage outlines the goals and progress of the Liquid Argon TPC component of the FNAL-BNL Long Baseline Study. Links to the study webpage can be found below. The worklist for the Liquid Argon TPC component of the study is described below. Progress within specific smaller working groups can be found in the links bar to the left.

Worklist for LAr part of study from study leaders

1. Simulation studies using a off-axis (14 and 40 mrad) beam and a wide band beam: This should result in plots of efficiency and resolution for signal and background. This information should be in a form that can be used for studies of sensitivity for the parameters as requested by Sally and Mont.
2. Technical issues:
 - Depth versus background and energy threshold and/or access to physics other than accelerator neutrinos
 - Short summary of technical feasibility versus detector size and the R&D that is needed

Deadlines: Preliminary report due in mid-July. Final report due in October.

Please send questions/comments to [Bonnie Fleming](#)

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www-lartpc.fnal.gov/LBStudy_LAr/2006LB.html

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*efficiencies and resolutions for signal and background
sensitivity studies*

Developed tools for calculations of

- event rates
 - MC simulation
 - automated reconstruction
- > Alessandro's talk

Calculated Sensitivites using GLOBES

- > Scott's talk, Gina's work

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*Included study
of 3kton LArTPC
on-axis at Soudan*

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Calculations of rates from a surface detector

-> Stephen P.'s talk

Simulation of cosmics using GEANT MC underway

Technical feasibility and R&D: Detector design goals and costing

-> Dave F.'s talk

Additional Physics: Will draw together information (no report here)

Midterm reports:

Specific writeups in progress:

- Event rates, simulation and reconstruction
- Sensitivities
- Surface rates

-> Overall progress: in general report.....
(fold in questions from NuSAG -- what questions?)