

Minutes for the ICARUS BNL group meeting 1/3/2020

Attendees:

Diana, Andrea, Aiwu, Milind, Jim, Chao, Xin, Wenqiang, Brett, Haiwang, Vittorio

Topic #1: detector status

(1) The cooling down is scheduled in Mid Feb, no guarantee but the goal is to catch neutrino events before the shutdown on 1st June

(2) We will show our group at the PAC meeting in the week of 14th Jan. Wenqiang, Andrea, Milind and Aiwu will be there, Diana is already there.

During the PAC meeting we'll need to figure out the schedules for taking shifts. Then we'll have better ideas on planning taking shifts on-site.

(3) The daq tests for combined PMT and TPC are to be done, hopefully in the week of 14th Jan and the week after. Aiwu is coordinating with TPC WG.

(4) Aiwu plans to take another run of calibration data before the cooling down. In terms of data taking there's help from Animesh of Pittsburgh (who resides at Fermilab), help could come from our group in the analysis from Andrea and Wenqiang.

The above two parts of work, plus whatever other tasks in other WGs, need to be concluded before the cooling down.

(5) The CRT system is not planned in the first stage of commissioning (per Aiwu's understanding). We'll need to know more accurately the status/problems

Topic #2 simulation work in our group

(Aiwu note: my understanding on this may not be fully correct ..)

(1) Andrea discussed the preparation of signal processing. Got good understanding about the TPC is in place. The work is ongoing in:

- Implement the geometry;

- Explore the noise in the ROOT files in last simulation

- Electric field response (by Yichen)

(2) There was question about how noise will be changing when in cold for the TPC. The short answer is that we'll have to measure it out. What is known is that the capacitance will change.

(3) We discussed a little bit about data reduction, by comparing with MicroBooNE. Some info on the TPC electronics:

$64 * 9 * 96 = 55296$ channels

CAEN A2759 is the digitizer board,

12 bit ADCs

sampling freq. 2.5 MHz, so time interval 0.4 us

buffer programmable from 4k to 16 samples, so max. window 1.6 us.

I (Aiwu) did this calculation:

Data size estimate: 4k sample/channel * 2 byte/sample * 55296 channels = 442 Mb per event; At 5 Hz data taking rate, without suppression, it is 2.2 Gb/s