Subject: Minutes of Weekly protoDUNE-SP Photon Detector Commissioning Mtg 2018-10-31
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Date: 10/31/18, 10:30 PM
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Hi All,

Here are the *minutes* of the Weekly protoDUNE-SP Photon Detector Installation and Commissioning Meeting. This is a bit of a free-ranging meeting/discussion, so these are more selected highlights.
Please send any corrections or comments to me, and/or the photon mailing list.

Thanks,
Leon

This meeting will likely be transforming into a consortium working group meeting.
I will be continuing as convenor, along with new convenors: Zelimir Djurcic, Paola Sala, and Jaroslav Zalesak

Expect some organizational or doodle-poll type emails as needed.

(If you're seeing this for the first time, you might want to join the np04-photon channel in slack:
https://dunescience.slack.com/messages/CCFAHCTN2)

Reports from protoDUNE:
Chris reported that there was a pressure event on the cryostat that shut off recirculation and purification, with corresponding decrease in electron lifetime, it is recovering and is now back to >3ms.
There are a bunch of new runs with bias scans from last week starting around run 5507. (Detailed list in slack)
In addition, there are runs with the CRT (cosmic ray tagger) that are selecting throughgoing muons from front to back. (or vice versa?) These could be good events to look at illumination of different PD modules. We should get very good position information offline on the order of 5cm, and the trigger paddles cover a vast majority of the front and back area. It would be good to know if we could just use all the front-back coincidences, and do offline selection/correction for absolute yield determination.
Beam is coming back tomorrow night, as planned. should be at 6GeV, 3GEV, then 1GeV, 2GeV, and possibly finishing with 0.5GeV as time allows before beam disappears for LS2.

Updates on Arapuca analysis and integration

Code has been put in development branch of dunetpc. Current version looks like it has a fixed moving average window of 5 samples (unless Leon is wrong) This type of parameter should probably be in a fhicl file, so that we don't have to recompile to adjust things like this.
Lots of other discussion about looking for peaks on the Arapuca, and other MPPC channels. Some discussion of the somewhat smeared distribution shown in the photo sensor meeting earlier this week (or last week.) It's not clear the cause, or what effect it would have on the protoDUNE devices. It would be good to see more peaks to make sure the calibration is following the expected pattern for the arapuca modules. In addition, looking at runs with different bias voltages should yield consistent results, like the gain proportional to overvoltage and pointing back to a common breakdown voltage. This would lend a lot of confidence in the procedure.

In addition to this, there was some discussion of larger signals and the potential of offsets in baseline determination influencing the integrated signal. I'm sure there will be more to come on this subject.

Rounding out the discussion was some additional comments by Alex. There will be a big reprocessing push with a frozen release after December 7. We need to have our best analysis in at that time, any filtering, integration, selection, ... This way the data products will include what we need from the photon detectors, and integration with the TPC or other tracking (CRT) so we can work back to the light levels and light yield.

Comments/questions? Follow along or ask them in pn04-photon and help everyone learn/understand what we're doing.