



ANNIE: Accelerator Neutrino Neutron Interaction Experiment

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on behalf of ANNIE collaboration

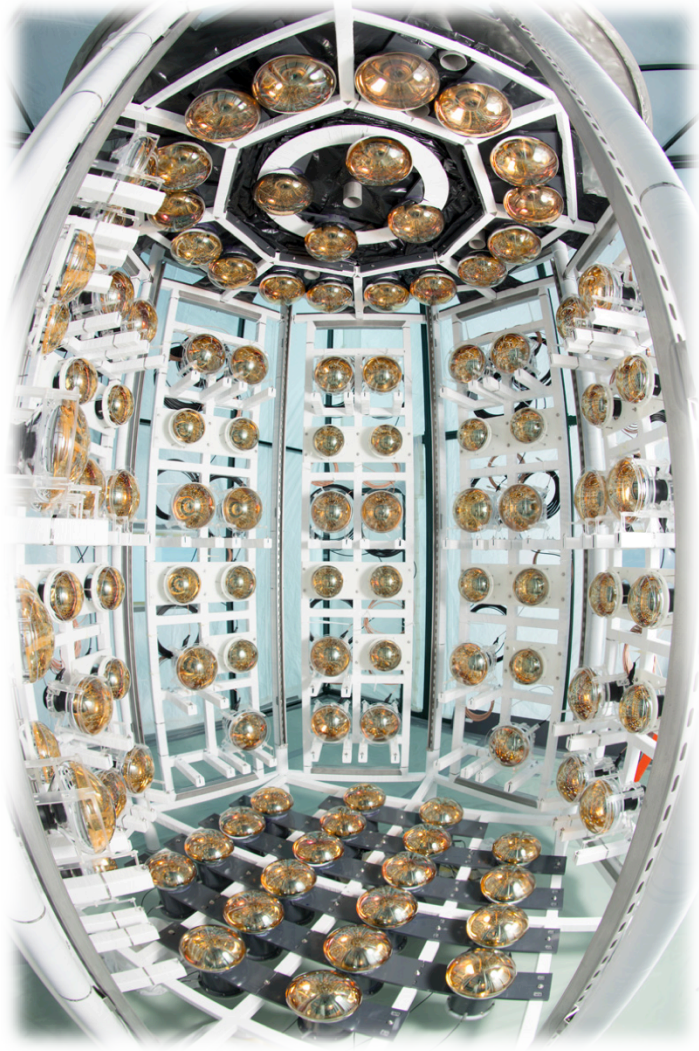
Iowa State University

PMG/All Experiments Meeting, Fermilab

July 9, 2020



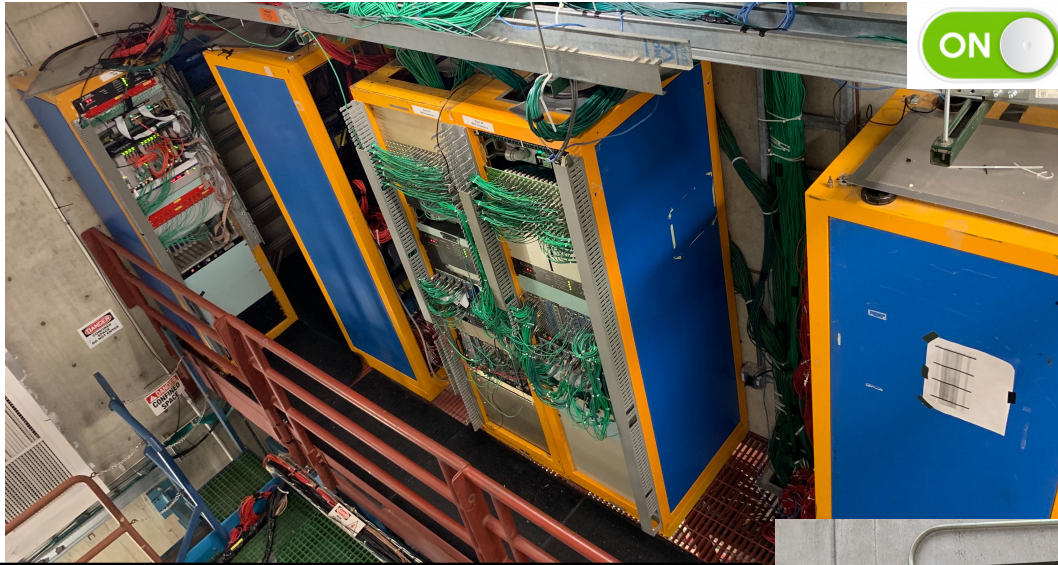
Updates from ANNIE



Since the last PMG meeting:

- ▶ Phase I physics paper of ANNIE about the beam correlated background neutrons was published in JINST.
- ▶ Also, the ion exchange resin developed for Gd-loaded water published in JINST by ANNIE collaborators (V. Fischer et al., JINST 15 (2020) 07, P07004)
- ▶ One more Ph.D. dissertation from ANNIE:
 - ▶ by Dr. Teal Pershing, UC-Davis
 - ▶ his dissertation is available at Fermilab publications archive.
- ▶ We are about to get the full ORC approval for the water system, which will finalize our Experiments Operations Plan (EOP).
- ▶ We have been monitoring the water transparency and keeping an eye on things.

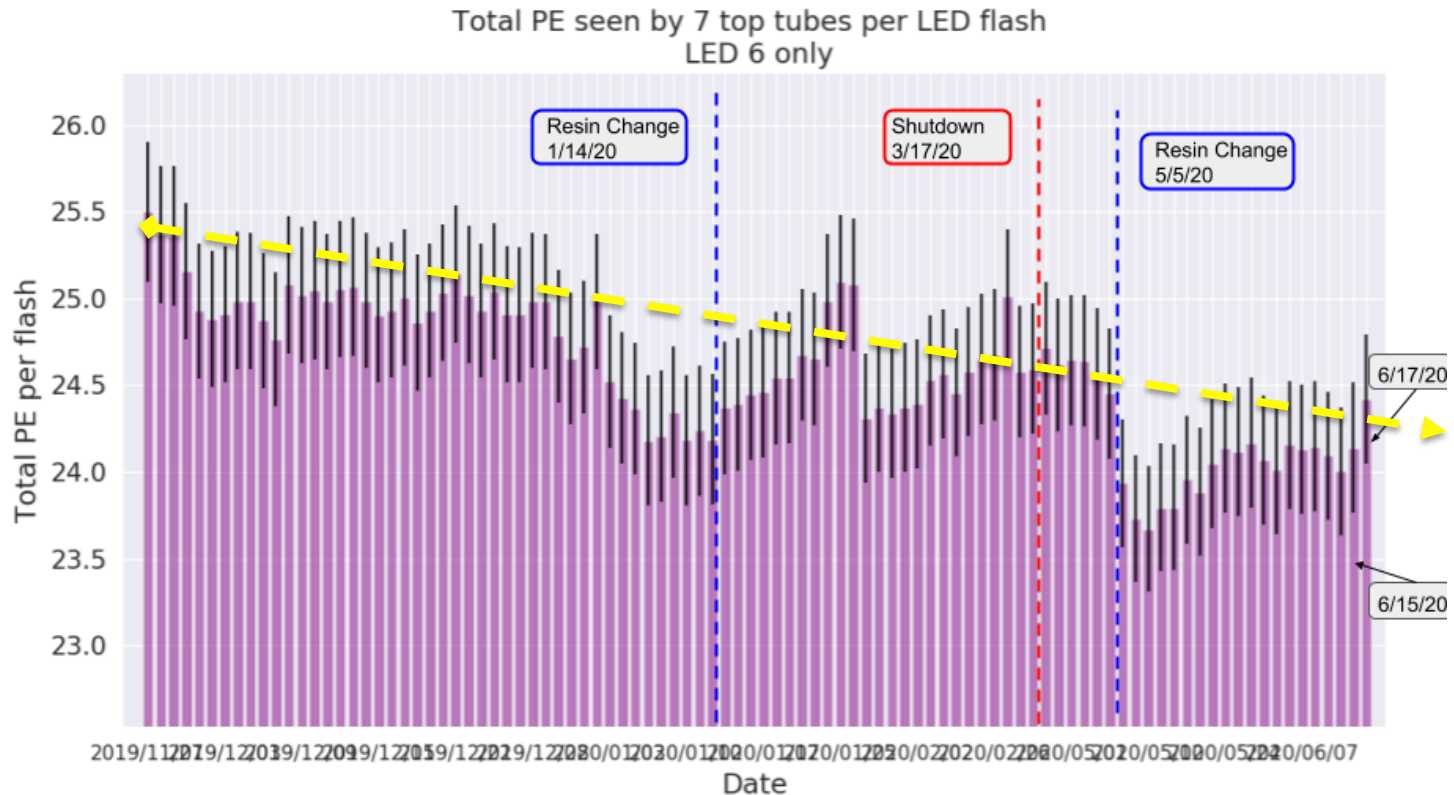
Switched from Standby Mode to Secure Operations Mode



- All the PMTs, VME and HV systems were turned on.
- Water filtration/recirculation system is working. It's remotely controlled and being monitored 24/7.
- The water volume is being flushed by Nitrogen to prevent bacterial growth in the tank.
- We are keeping an eye on things and weekly checks performed by ND.

Water Transparency Monitoring

- We were taking LED data and monitoring the water transparency until we had a recent VME issue.
- It helps ANNIE to identify any issues in the detector due to bacterial growth, dissolved iron etc.
- The water transparency dropped only 4-5% in the last 7-8 months.



Current issues and plans

- We had an issue recovering one of the VME crates after a planned power outage.
- We have 2 spare VMEs on hand now, and the replacement was planned to happen this afternoon.
- Some drippings on the water leak sensors. It might be due to a leak from the roof or condensation.
- We are trying to find the dripping sources and we had a temporary solution with small trays on the sensors.

Plans:

- Once the lab moves to Stage 6, two people from ANNIE will be added to the permanent access list.
- We will continue with the water transparency measurements, source calibration tests and LAPPD characterization at Lab6.

