Summer projects 2017

Groups meetings: Tuesday at 1:30 and Friday at 11:00. At the Tuesday meetings we'll do presentations of the science we're doing. The Friday meetings will be group discussion and presentations, and joint meetings with JLab every other Friday.

Studies with the small prototype:

1. the detector is leaky (leaks gas). Removed 2 o-rings, epoxyed. Mixing epoxy with acetone to paint on bottom of o-ring to improve sealing of the o-ring. Trying a 5:1 epoxy:acetone mix.
2. Reassemble detector, test with gas, hopefully gas tight.
3. Cosmic ray tests, detector efficiency, detector gain. Nick working Andrew

Reassembling the big detector:

1. Attach the wire stringing fixtures.
2. Put down 3 dummy wires, for checking
3. Remove dummy wires, place 3 sense wires with carbon tubes. Need to cut and prepare carbon tubes.
4. Do a voltage test with open detector, up to +500 V, do the new sense wires draw current?
5. Paint G10 slats where there's contact with the o-ring.
6. Put the lid onto the detector, with bottom up (interior side up). Paint epoxy paint on the bottom of the o-ring groove (hopefully improves gas sealing).
7. If at step 4, no current draw: then seal detector, run gas, do HV testing. Focus testing on the central wires with carbon tubes. Prepare detector for shipping to JLab. Done.
8. If at step 4, there's current draw: find out which wires are shorting, new or old? Probable conclusion: carbon tube design isn't reliable.
9. Presuming carbon tube concept isn't working, then start R&D on wire plating. Plating kit in lab, get started on R&D for wire plating.
10. Remove all carbon tubes, and electroplate 16 wires.
11. Do HV testing, and prepare detector for shipping. Done.

Getting ready for next detectors:

1. Prepare the big plates in the lab. Cleaning, and sanding/roughing up the edge of plates.
2. Machinists are finishing next set of G10 slats
3. Epoxy G10 slats to the aluminum honey-comb plates
4. Bring plates inside clean room.
5. Attach electronics
6. Wire stringing.

Completing the electronics orders:

1. Do the electronics order, preamp boards and the HV boards. (Bobby)
2. When the boards arrive, we do LV testing of the preamp boards.

Order the aluminum honey-comb plates:

1. Order the plates. (Andrew)

Independent projects:

1. Linear summing board for the preamp electronics on the detector. (Alexander)

2. GEANT4 simulation, working with David and Ilya. (Nick)

3. Getting up to speed on ROOT. (All)

4. Monte carlo simulation for muon photoproduction (Mathematica ?) (Andrew, all)