

Update on MWPC Construction

- Large prototype MWPC is assembled
- Two fixes implemented to improve gas tightness seem to have worked:
 - “painted” all G10 and PCB surfaces that come in contact with the O-ring with a 2:1 mixture of 5-min epoxy and acetone
 - Greased the O-ring with vacuum grease, Apiezon M
 - I will try to quantify the degree of gas leakage in the next few days
- The entire detector holds voltage at +2,000 V, corresponding to a detector gain of $\approx 10^5$. We have a thin port on the plate, that we can use with a ^{55}Fe source.
 - The 16 carbon tubes do not draw current.
 - All wires have sensitivity to cosmic rays, with the following exceptions:
 - i. One wire does not work
 - ii. Two wires have low gain
 - iii. One wire runs “hot” (not a carbon tube wire)

- Next steps with this detector:
 - Fix the 1 non-functioning wire, and the 2 low-gain wires. Electronic issues to blame?
 - Open detector and replace the “hot” wire. We have had 2 “hot” wires on this detector previously, and wire replacement fixed the problem.
 - Not sure that using carbon tubes to deaden the central region is the best approach. Will try electroplating sense wires in the next few weeks. If successful, will install a few electroplated wires in the detector. There are advantages to plating:
 - i. Don't have to worry about micron size graphite fibers shorting to ground.
 - ii. Bonding the tube to the wire is very difficult to get right. The bond is fragile, and probably sensitive to vibration.
 - iii. The wire tension for electroplated wires can probably be relaxed to ≈ 25 g, from the 50 g for wires with carbon tubes. Standard sense wires are tensioned at 25 g.
 - Bring MWPC to JLab

Construction of New Detectors

- The HV bias PCB's for 8 detectors have been delivered. Still waiting for the preamp PCB's.
- We've had all of the small corner PCB's (4 per detector) since early in the summer.
- Machinists are starting on the G10 slats for 8 detectors. Will finish all slats of one type before moving to the next slat type.
- The honey-comb aluminum plates have been ordered, status (Andrew)?
- We have another set of honey-comb plates in the lab. When we're finished with the large prototype detector, we'll start prep'ing these plates.