Preparing for 50L test

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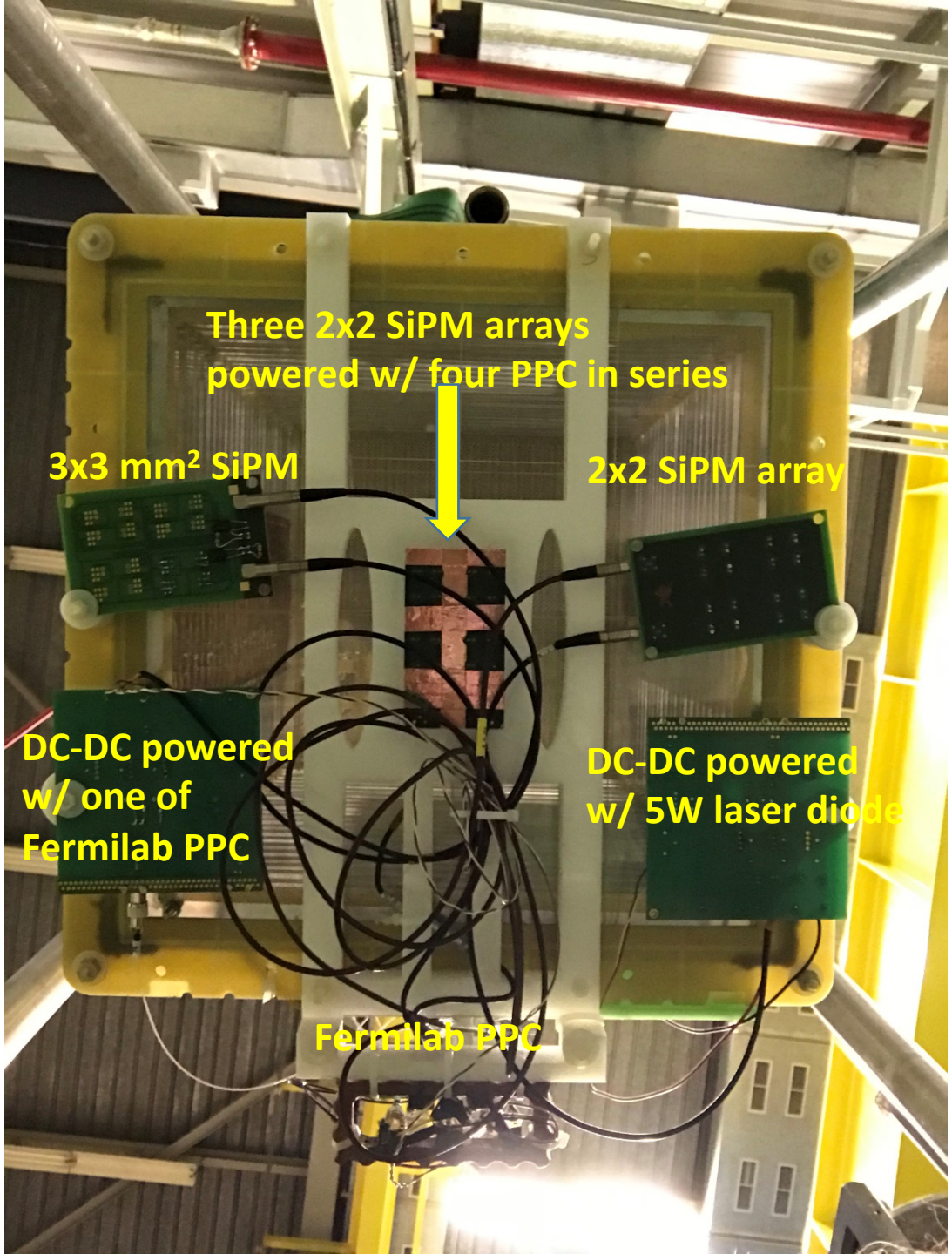
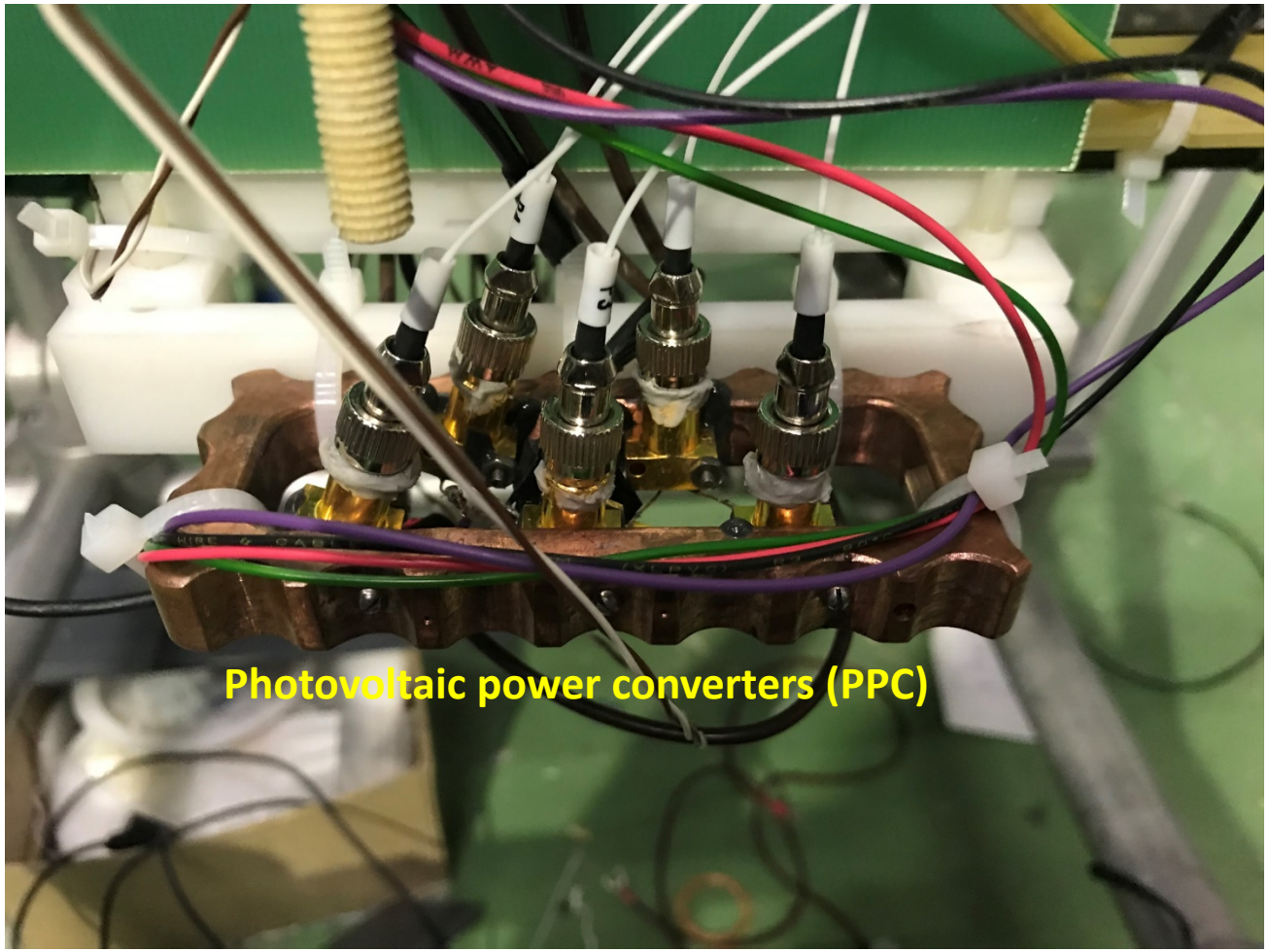
Dec. 13, 2020

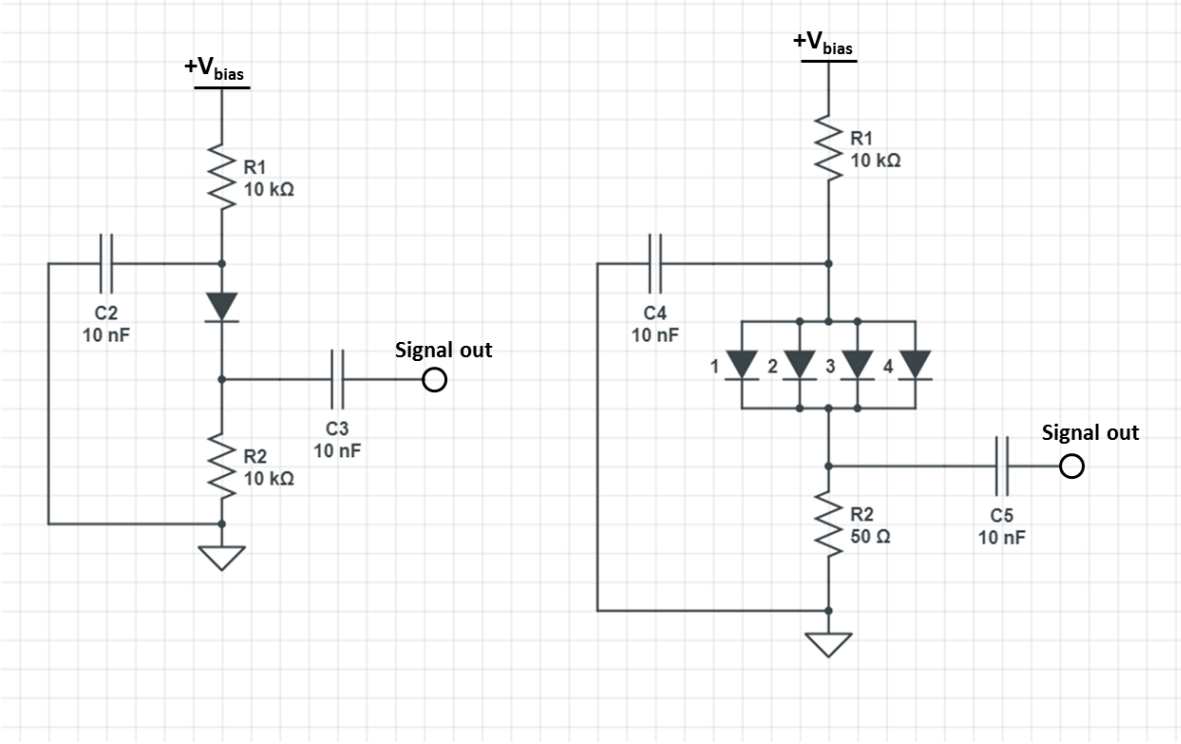
Placing fiber flange and fibers

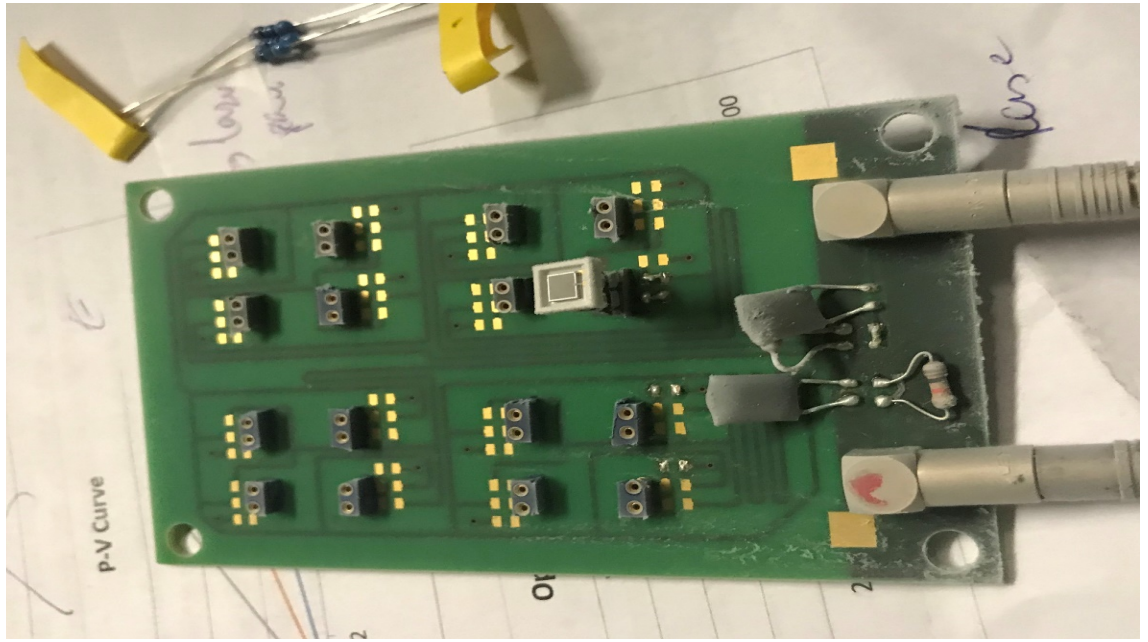




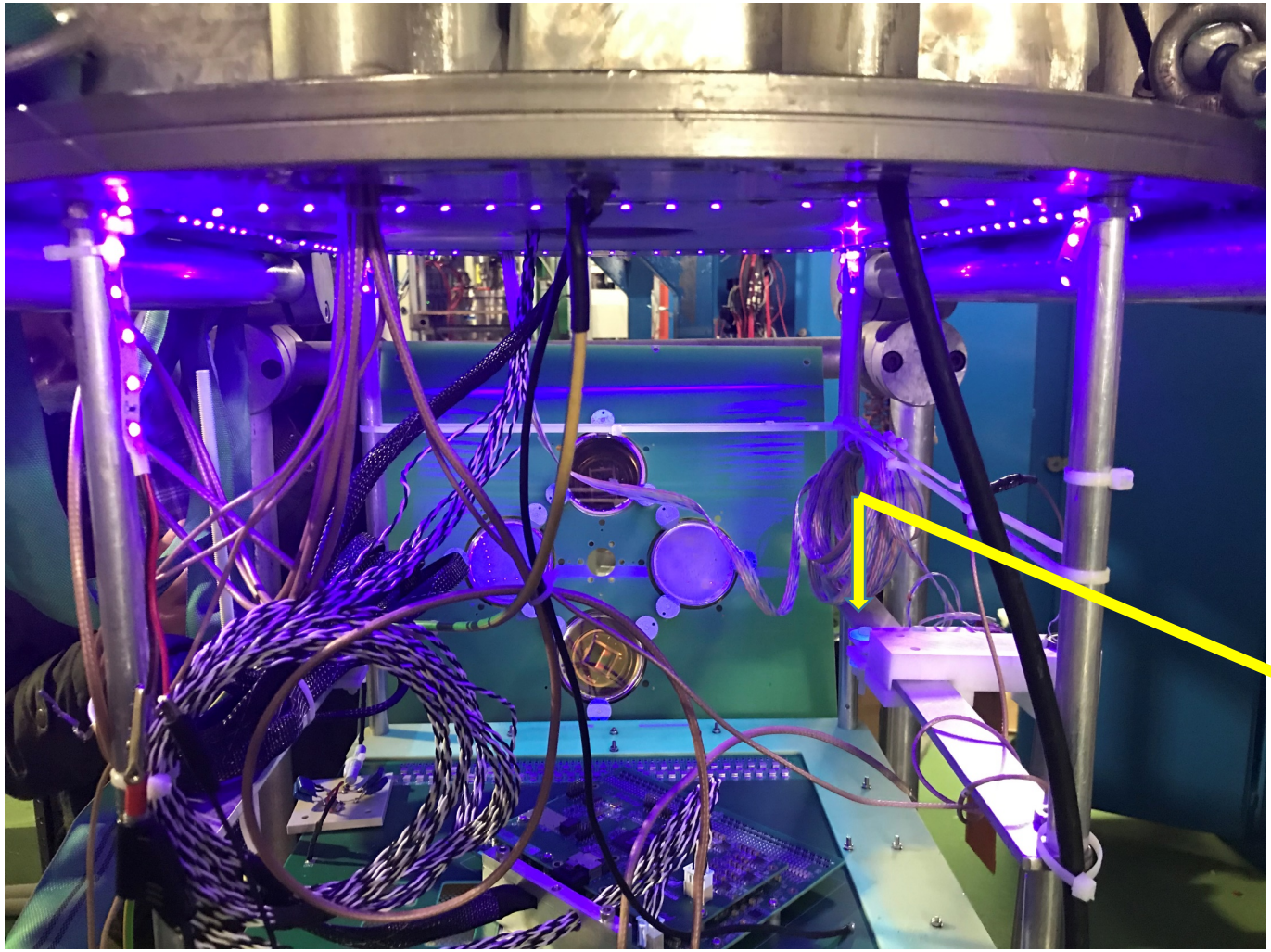
One PPC provides ~12 Volts in LAr
Four in series used to get 48 Volts for SiPM arrays

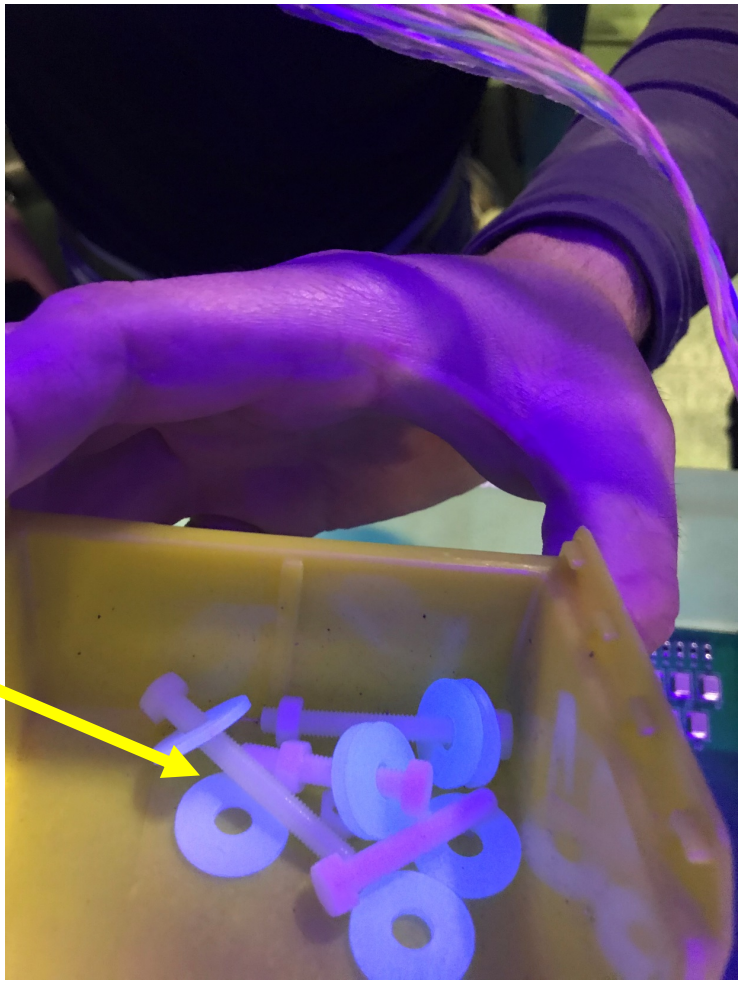
SiPM board circuits:





LED strips set inside the cryostat





Interesting observations, the led light is shifted into blue and red on some of the washers, bolts and nuts!
We also see the same effect once we set the white fibers!

Flanges used for test:

[1] Fiber and Signal flanges:

- five fibers connect Fermilab PoF units to PPC units inside the cryostat
- one fiber connects 5W laser diode to PPC unit on one of the DC-DC circuit
- Signal cables:
  - One 3x3 mm^2 VUV SiPM
  - One 2x2 array of 6x6 mm^2 VUV SiPMs
  - Three 2x2 array of 6x6 mm^2 VUV SiPMs

[2] LED and feedback flanges:

- 48 Volts output
- 12-Volt DC-DC output
- 5-Volt DC-DC output
- LED strips power (12 Volts)
- 250 nm LED pulse

- **Fiber and electrical connections including power output checked in the room temperatures.**

- **FC-FC adapters getting very hot (>50^{0}C). Once we fill the cryostat with liquid argon, placing adapters onto dewar would help to limit the heat dissipations.**

- **After powering on PoF units, we have checked whether we were injecting any noise into charge readout system. Everything looks very calm and no any noise.**

Next steps:

December 14, Monday:

- recheck all the connections and testing PoF units in room temperature.
- Placing additional camera inside the cryostat.
- Noise test
- Close and start the vacuum

December 15-16:

- Filling with liquid argon

December 17:

- Start data taking

- Data from the SiPMs will be acquired by use of scope.
- We would also setup a PC with labview to check the stability of the output voltage from PPCs and also DC-DC converters.
- Placing also some PT1000 sensors on a few FC-FC adapters
- Acquiring data every 1 minutes during the whole operations.