Status of the LArIAT light collection system

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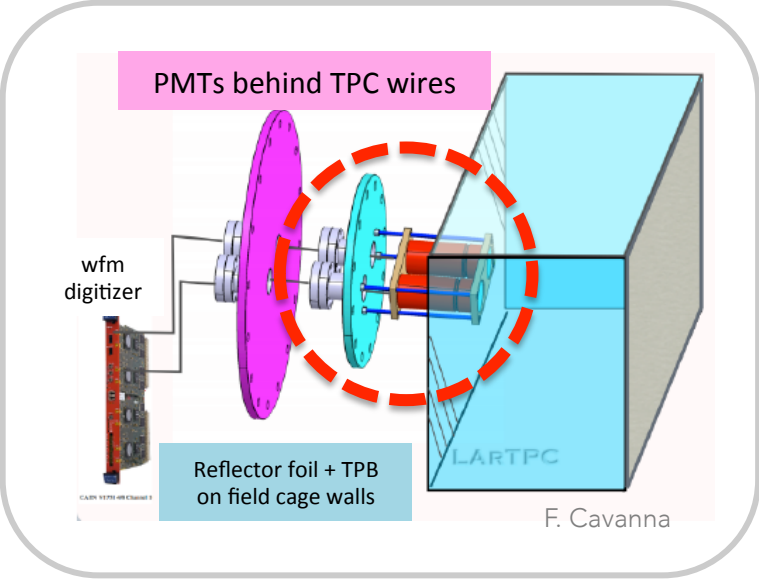
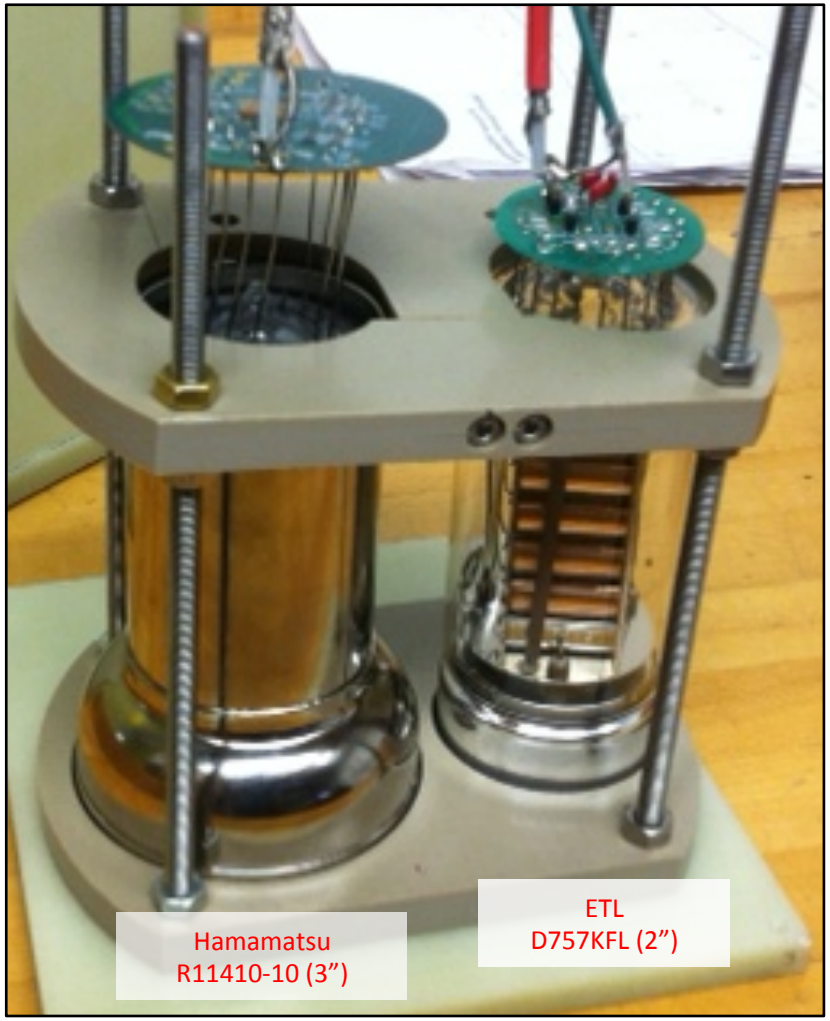
PMT system

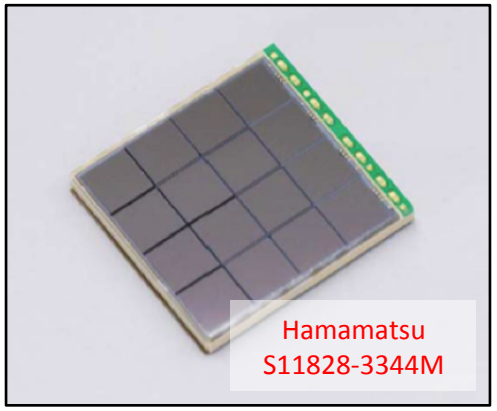
- Ready to go
- Threaded rods supporting the plastic holder will mount onto inner flange
  - Connections from PMTs -> inner feedthroughs to be done outside cryostat
  - Need to work out best way to do this without putting too much pressure on PMT bases (but shouldn't be too difficult)

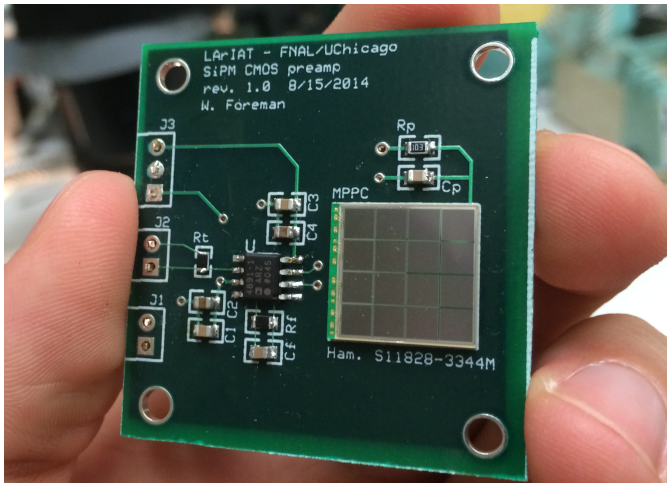


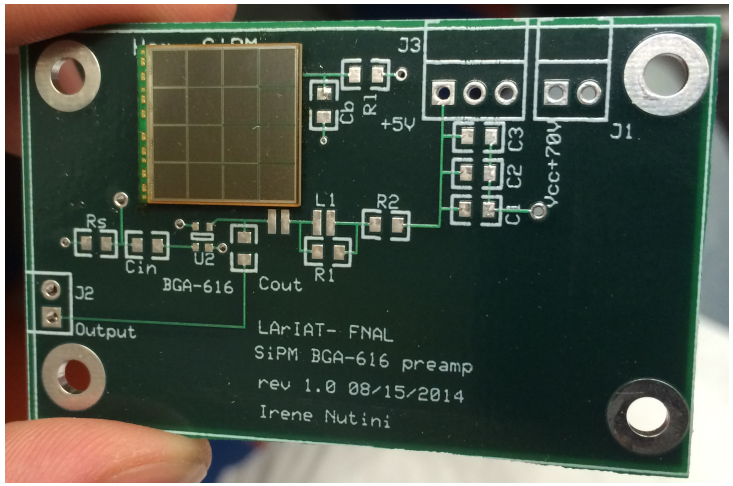


Silicon Photomultipliers (SiPMs)

- Want to include SiPMs alongside PMTs, though will not play significant role in light collection
- What we have:
  - 2 Hamamatsu S11828-3344M 4x4 arrays (12 x 12 mm^2)
  - 1 SensL MicroFB-60035 (6 x 6 mm^2)
- Irene Nutini and I designed preamp circuits to mount Hams (different amplification schemes)
- Currently in the process of testing + debugging
- Will do the same for SensL

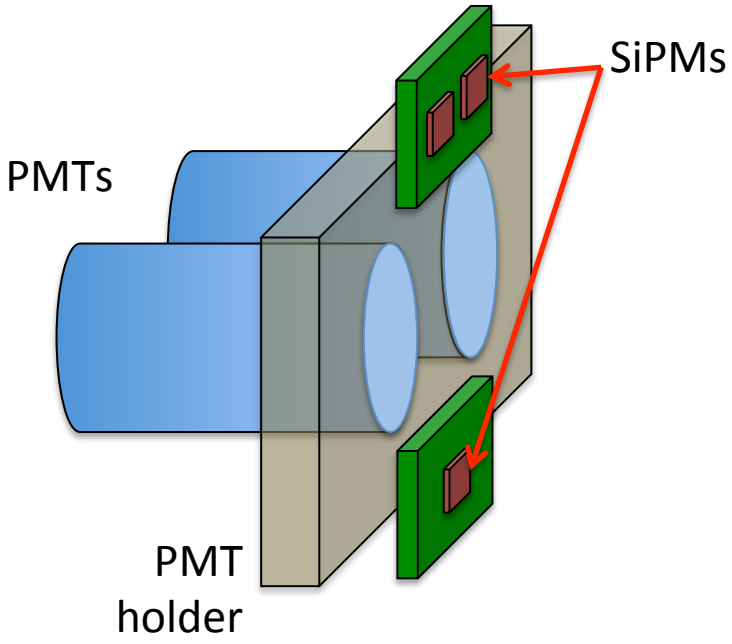


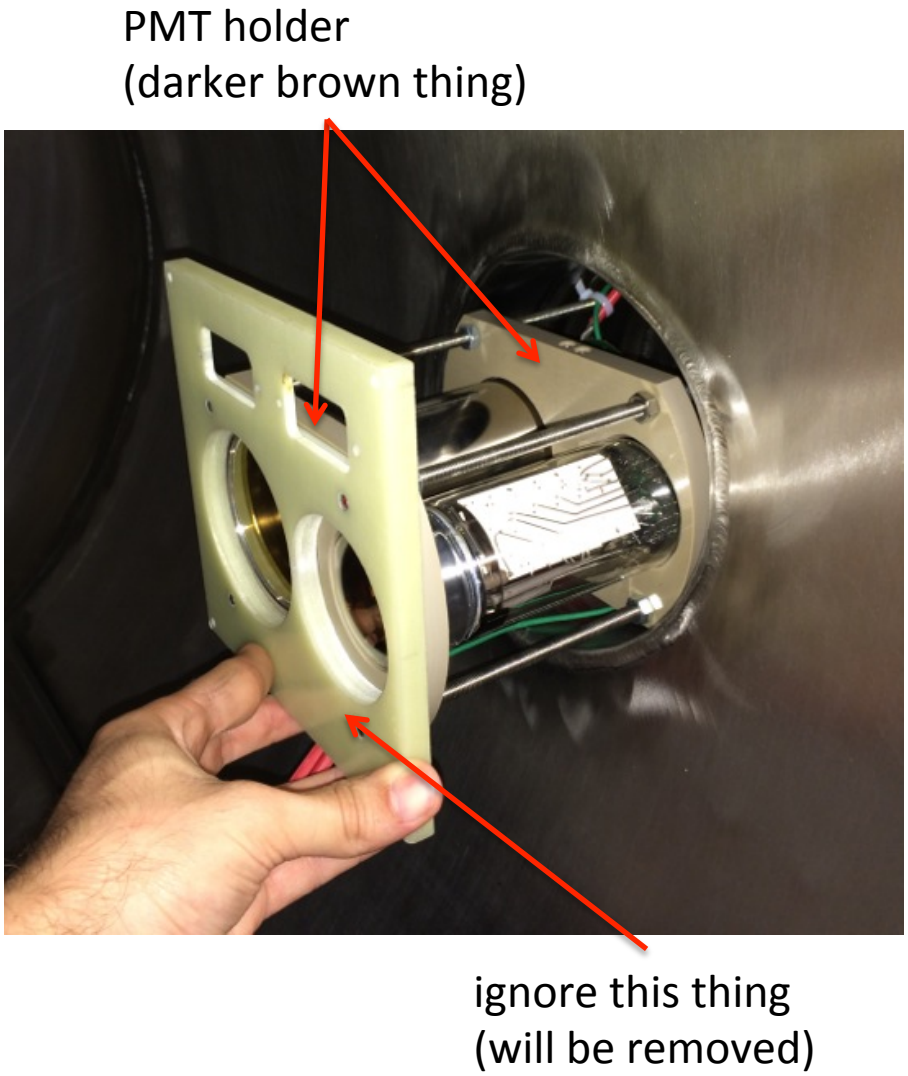




SiPM installation

- SiPM boards to be screwed onto edge of plastic PMT holder





Feedthrough space

- 5pins on FT1
  - 2 HV for PMTs (~ -1500V)
  - 2 signal readout
  - 1 common ground

- 6pins on FT2
  - 2-3 SiPM power (~ +70V, ??V)
    - Can 2 Hamamatsu arrays share a power supply?
    - Not sure yet what the SensL needs
  - 2-3 SiPM readout
  - 1 +5V amp supply
  - (also a -5V supply?)

Best case 3-SiPM scenario (2 Hams share supply, need only +5V for amps)

→ Exactly 6 pins

If we need -5V as well, or if Hams can't share a supply, then we will have to exclude 1 SiPM…

Foils

- Onsite
- We know more-or-less how we'll do this based on practice runs with paper
- Need to be mounted at last possible moment before wire plane is added
- There were some clearance holes in TPC that needed to be re-machined (is this still the case?)