MicroBooNE Update

All Experimenters' Meeting

Dec. 9, 2013

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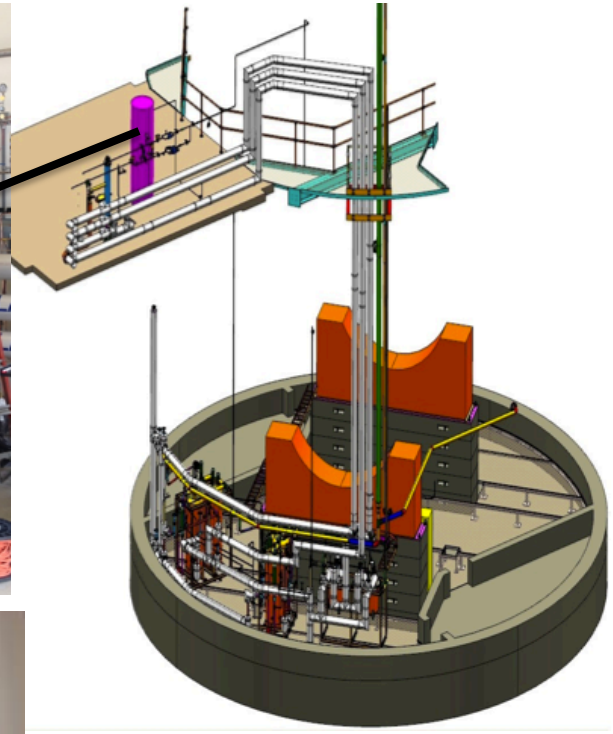
Outline

- Activities at LArTF: Cryo system commissioning
- Detector subsystems:
  - TPC
  - PMT
  - Electronics Racks

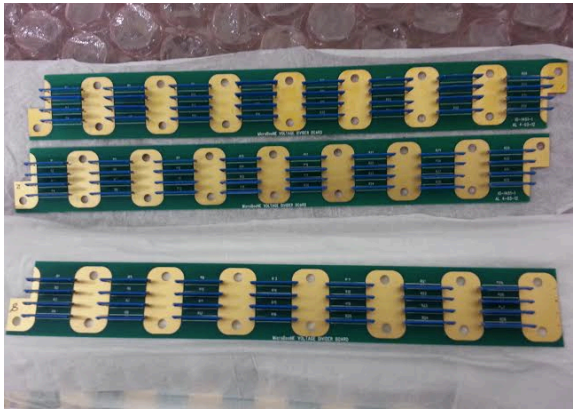
LArTF Activities

- Cryogenics system:
  - Cryo piping fully installed, foamed, and insulated
  - Pressure tests completed
  - Purging with gaseous Argon is underway
  - Later this month: recirculate LAr, LN
  - January: begin LAr purification with installed filters
- LAr HV tests:
  - Test dewar is installed
  - Fill with D0 argon next week and test feedthrough
  - Fill with purified LAr in January
  - Apply HV in pure-LAr at various feedthrough-ground distanes, purities, voltages, etc.



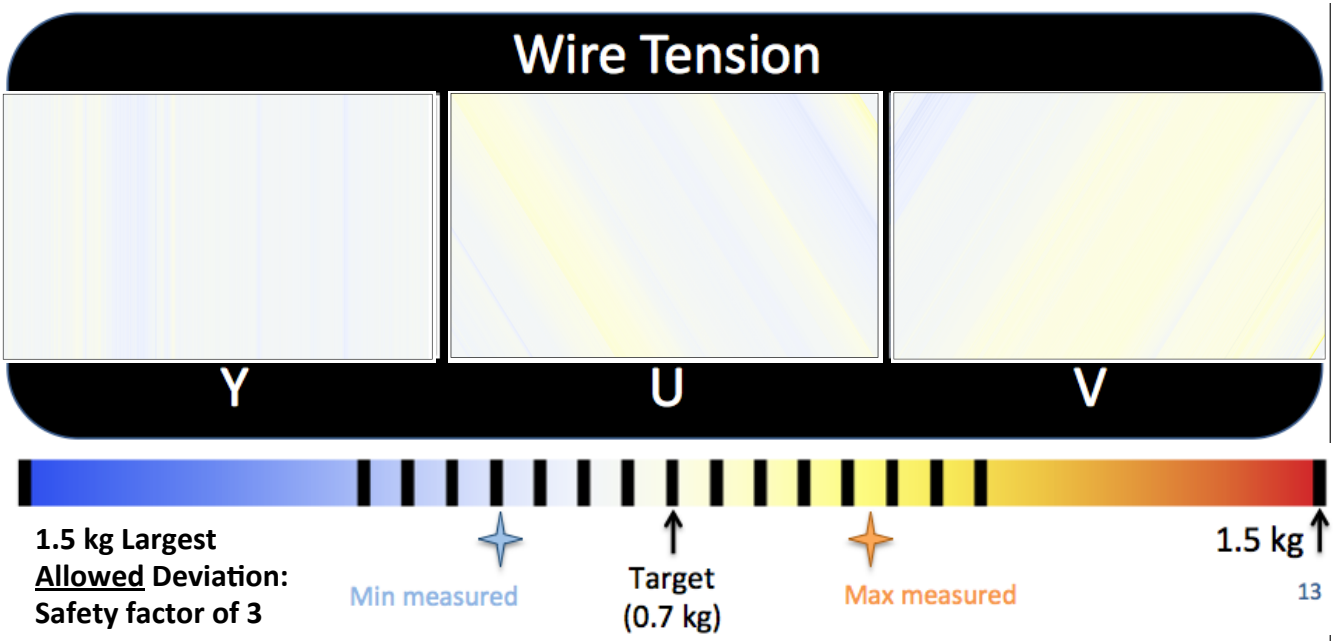
TPC Subsystem

- Structure complete; all wires installed, tensioned, and measured
  - Tension measurement device designed/built by PSL (UW-Madison)
    - • Developed for LBNE Anode Plane Assemblies (APAs)
  - All wires well within tolerance
- Electronics, cold cables, tray installed, tested
- Upcoming:
  - Few remaining parts must be installed on TPC
  - Clean and prepare tent/TPC/cryostat for push-in
  - Push TPC into cryostat next week!



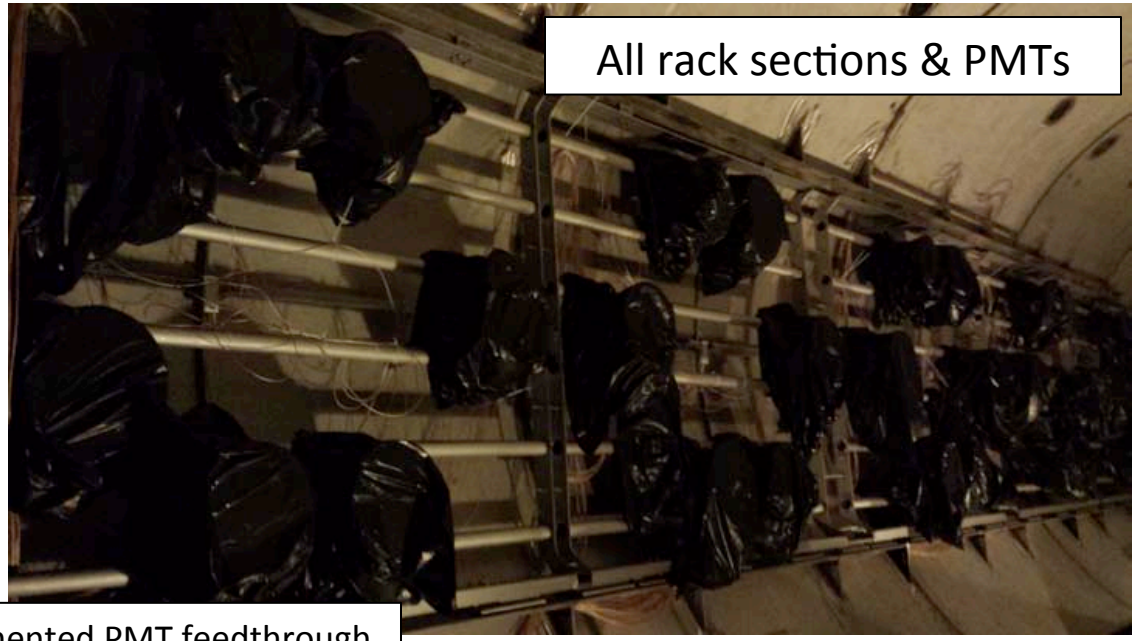
Install: field cage resistor chain

Install: field cage tube sections



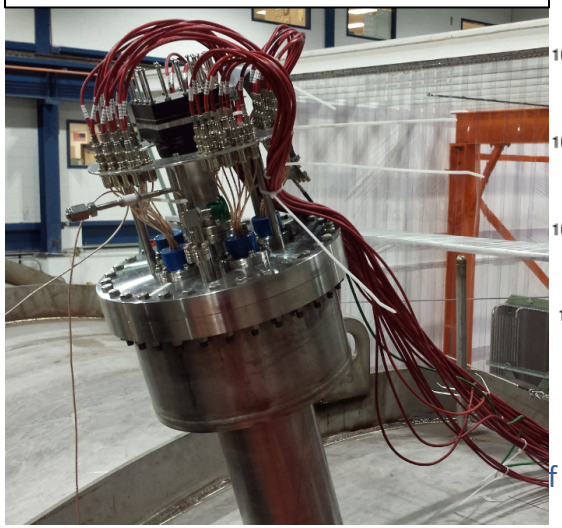
PMT Subsystem

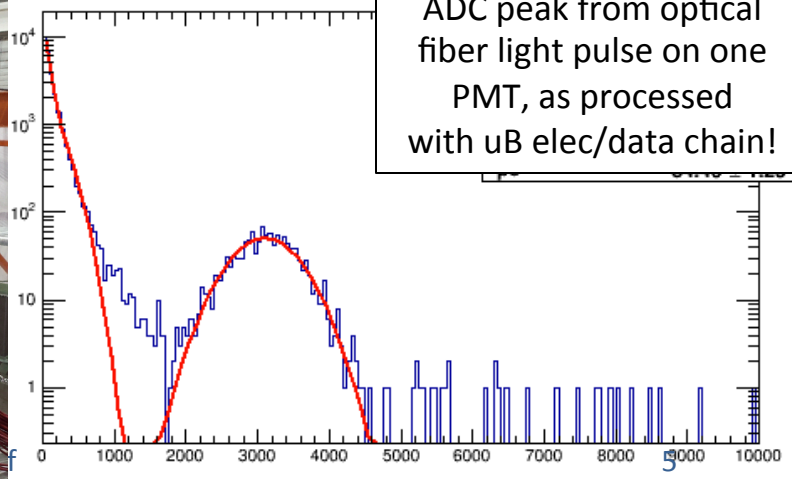
- First subsystem to be installed in cryostat
- Cables, optical fibers run inside and outside detector
- Successful simultaneous readout of optical fiber light pulses on all PMTs
- Complete data processing with entire electronics/ DAQ chain



All rack sections & PMTs

Instrumented PMT feedthrough





ADC peak from optical fiber light pulse on one PMT, as processed with uB elec/data chain!

Subsystem Electronics Racks

- Nearly all rack infrastructure components constructed: Smoke detection, AC distribution, fans, temperature monitoring, slow controls, and grounding
- Computer room at LArTF:
  - Network, DAQ server racks installed and networked
  - CD has tested, installed necessary systems on all DAQ machines
- Remaining Racks at DAB: Most racks nearly complete
  - All will be installed on platform above cryostat
  - 5 TPC readout racks
  - 1 PMT/Trigger rack
  - 1 cryogenics Purity Monitor rack
  - 1 High Voltage rack
  - 2 Laser calibration racks
- Remaining to construct:
  - Second Purity Monitor rack
  - Power supply rack

LarTF computer room: machines humming!

Wired TPC backplanes

Summary

- Lots of parallel progress on detector subsystems
- Currently commissioning many detector subsystems: Cryogenics, PMTs, TPC Electronics, Trigger, DAQ
- Preparing for TPC installation in cryostat this month
- Move closed-up cryostat this winter to LArTF