Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

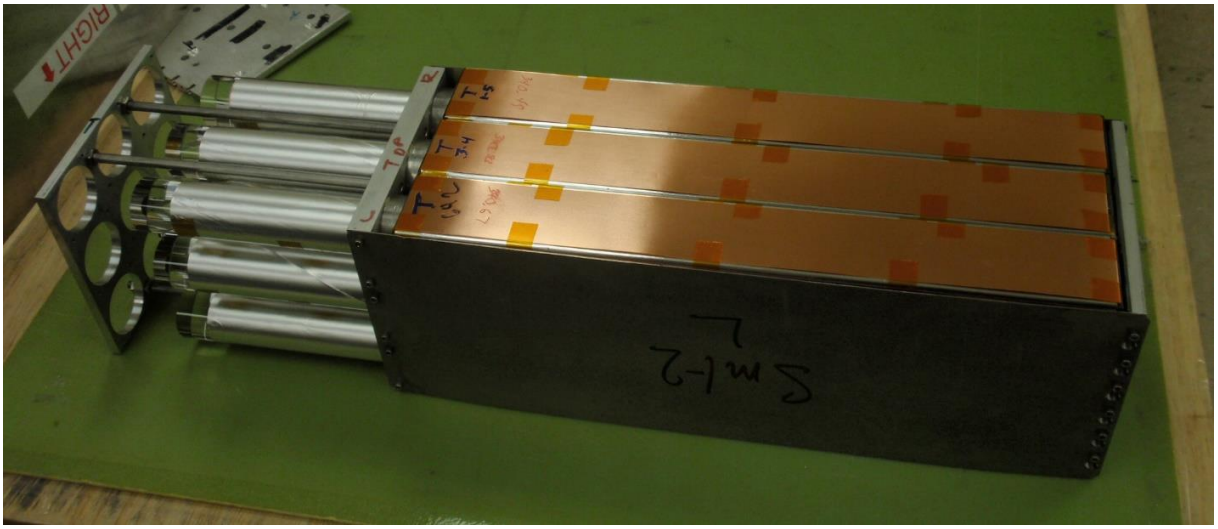
Weekly Report, 2022-02-16

Summary

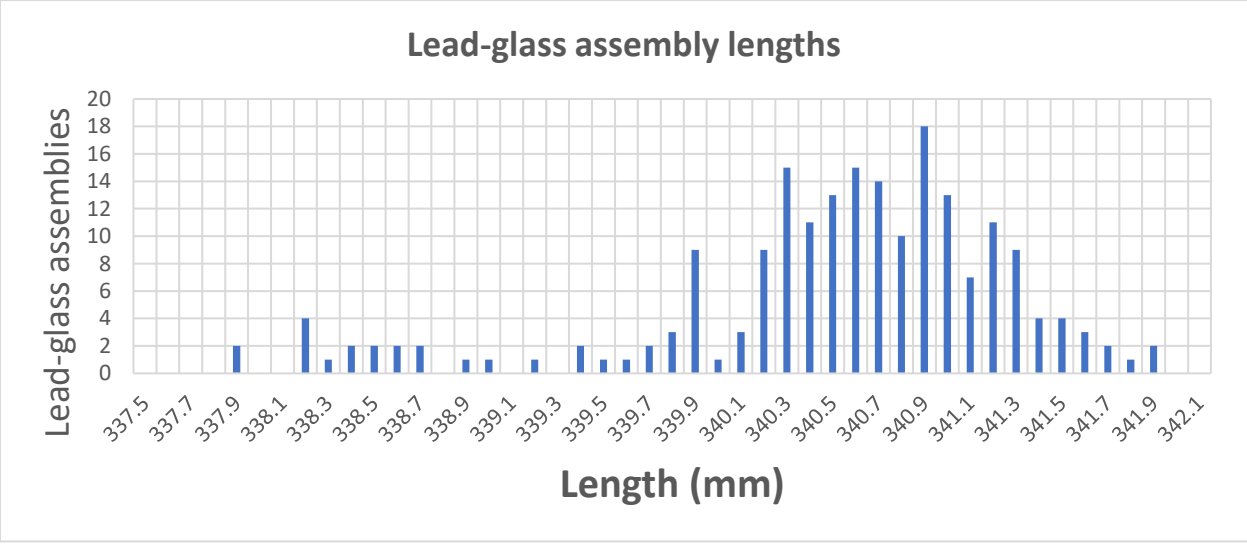
Hall A – ECal

George Jacobs, Mindy Leffel, and Marc McMullen

- Assembling supermodules – 22 of 59 completed
  - ✶ Measured 201 of 514 lead-glass assemblies



Assembled supermodule



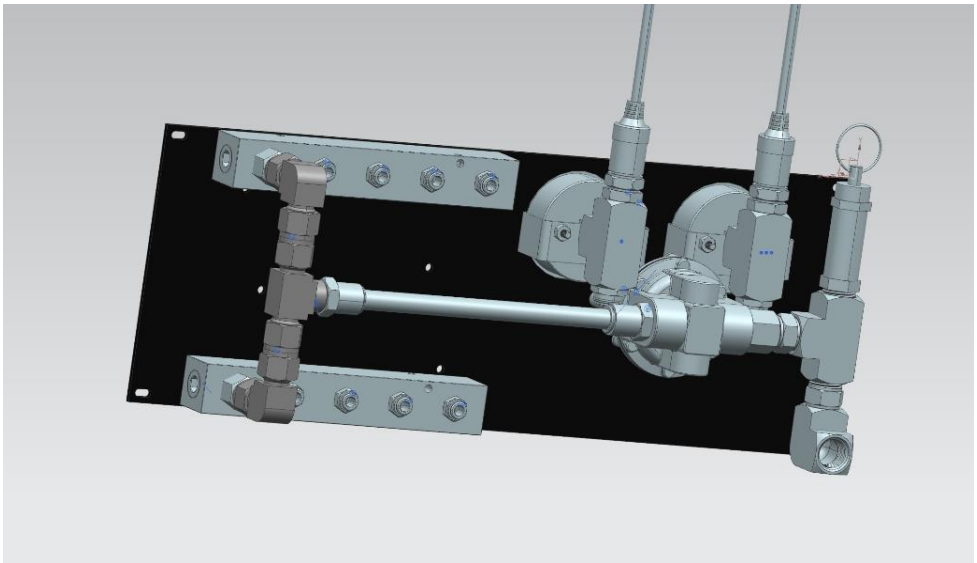
Plot of number of lead-glass assemblies versus length

- Inventoried supermodules
  - ✶ 156 of 192 supermodules have been assembled
  - ✶ Evaluated frame parts for assembly – five additional long frames can be assembled if parts (12 threaded rods and 18 long spacers) are procured/fabricated

Hall A – GEM

Brian Eng, George Jacobs, and Marc McMullen

- Rendering, using NX12, three-dimensional model of regulator panel



Rear view of GEM regulator panel with eight output channels

Hall A – SoLID

Pablo Campero, Mindy Leffel, and Marc McMullen

- Debugged instrumentation in racks
  - ✶ Configured PLC hardware watchdog
  - ✶ Replaced six signal conditioning modules used for the diode sensors readout
  - ✶ Resolved issues found on constant current source (CCS) boards
    - Replaced faulty CCS board #3; voltage measured across testing point was high (1.7 V instead of expected 1 V)
    - Replacing resistors for CCS board #6
- Fabricating 100' cables
  - ✶ Cut and added ferrules to three cables
  - ✶ Terminated nine cables with military specification connectors

Hall B – RICH-II

Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen

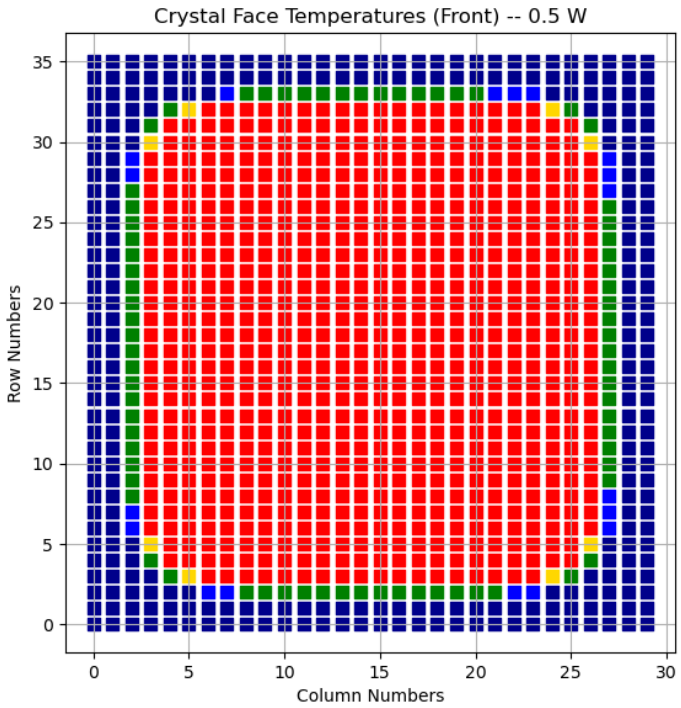
- Developing Python program to create LabVIEW network shared variable library configuration file and EPICS database file
  - ✶ Program reads in an Excel file and outputs necessary files for LabVIEW project
- 3-D printed three more batches of spring supports
  - ✶ Third batch with regenerated supports (but same model orientation) still printed incorrectly
  - ✶ Fourth batch with model rotated differently is much better but imperfection is visible

- ✶ Fifth batch with model rotated 90 degrees (now can only fit nine parts per batch instead of 12) is finished and waiting for post-processing: cleaning/curing
- Verified that assembled hardware interlock system chassis is wired correctly
- Terminated two position female connectors and three Molex/RJ45 cables for the hardware interlock chassis
- Set up chassis in EEL 121C for long-term testing
- Procured 2' x 4' clear plastic to fabricate pinch-point cover

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

- Developing LabVIEW hardware interlock program user interface
  - ✶ Laid out interlock sensor enables tab
- Developing Phoebus hardware monitoring program user interface
  - ✶ Setting up and laying out the crystal zone's main tab
- Conducted new Ansys thermal simulation of crystal array model: crystals, Cu shell, mu metal and carbon fiber dividers
  - ✶ Ambient = 22°C, Cu shell = 10°C and 20°C, Q = 0.5 W
- Generated Python plots of extracted Ansys thermal simulation temperature probe data
  - ✶ $T < 17.50°C$, $17.50°C \leq T < 17.25°C$, $17.25°C \leq T \leq 18.25°C$, $18.25°C < T \leq 18.50°C$, $T > 18.50°C$



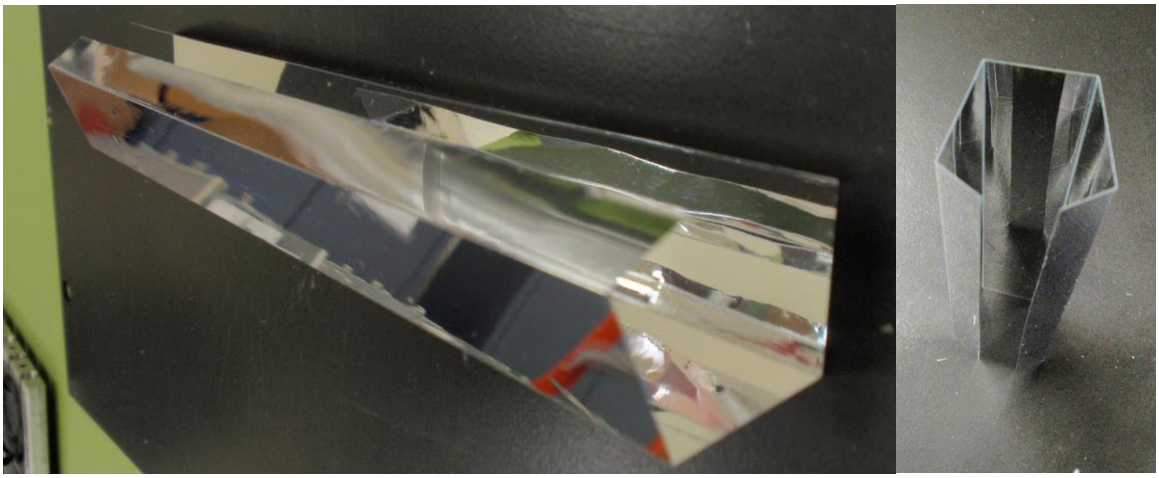
Python plot of front crystal face temperature probe values

- Made Visio drawing of flow of hardware monitoring/interlock systems

Hall D – JEF

Mary Ann Antonioli, Aaron Brown, George Jacobs, and Mindy Leffel

- Cut 69 ESR foils – 109 of ~1500 complete
- ESR foil pre-shaping – 71 of ~1500 complete



Pre-shaped ESR films

EIC

Pablo Campero, Brian Eng

- Extracted NX models of large UVA GEM detectors from TeamCenter

DSG R&D – EPICS Alarm System

Peter Bonneau

- Completed build of EPICS base 3.14
  - ✶ The EPICS base will be used to create an Input/Output Controller (IOC) for the development and testing of the alarm system

DSG R&D – PLC PID Controls Test Station

Pablo Campero

- Writing PLC code to simulate filling and emptying of a He tank
  - ✶ Added conditions to limit the level from 0 to 100%
  - ✶ Added code to control the filling flow rate