Detector Support Group

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

Weekly Report, 2022-04-27

Summary

Hall A – ECal

George Jacobs, Mindy Leffel, and Marc McMullen

- Assembling supermodules – 57 of 59 complete

Hall A – GEM Gas

Brian Eng

- Adding curses module (software package for terminal handling) to threaded PID control code to give threads (flow setpoint and PID control) separate window areas to handle each of their respective input/output functionality

Hall A – GEn-II

Mindy Leffel

- Fabricating RTD cables – cut and stripped 40 cables

Hall A – SoLID

Mary Ann Antonioli, Pablo Campero, Mindy Leffel, and Marc McMullen

- Completed *Solenoid Coil Fast Trends* HMI screen which is accessible from the *Solenoid Voltage Tap* HMI screen
- Developing *Solenoid Cooldown* HMI screen
  - ✶ Added control buttons for cooldown and warmup
  - ✶ Added number inputs to allow setting of limits for cooldown
  - ✶ Added trends to monitor average and delta temperatures
- Modified *CCR Expert* HMI screen
  - ✶ Added colors to the valve position indicators to display the operation control mode of the valves

Hall B – Magnets

Aaron Brown, Pablo Campero, and Brian Eng

- Completed solenoid and torus instrumentation pre-power-up checkouts

Hall B – RICH-II

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

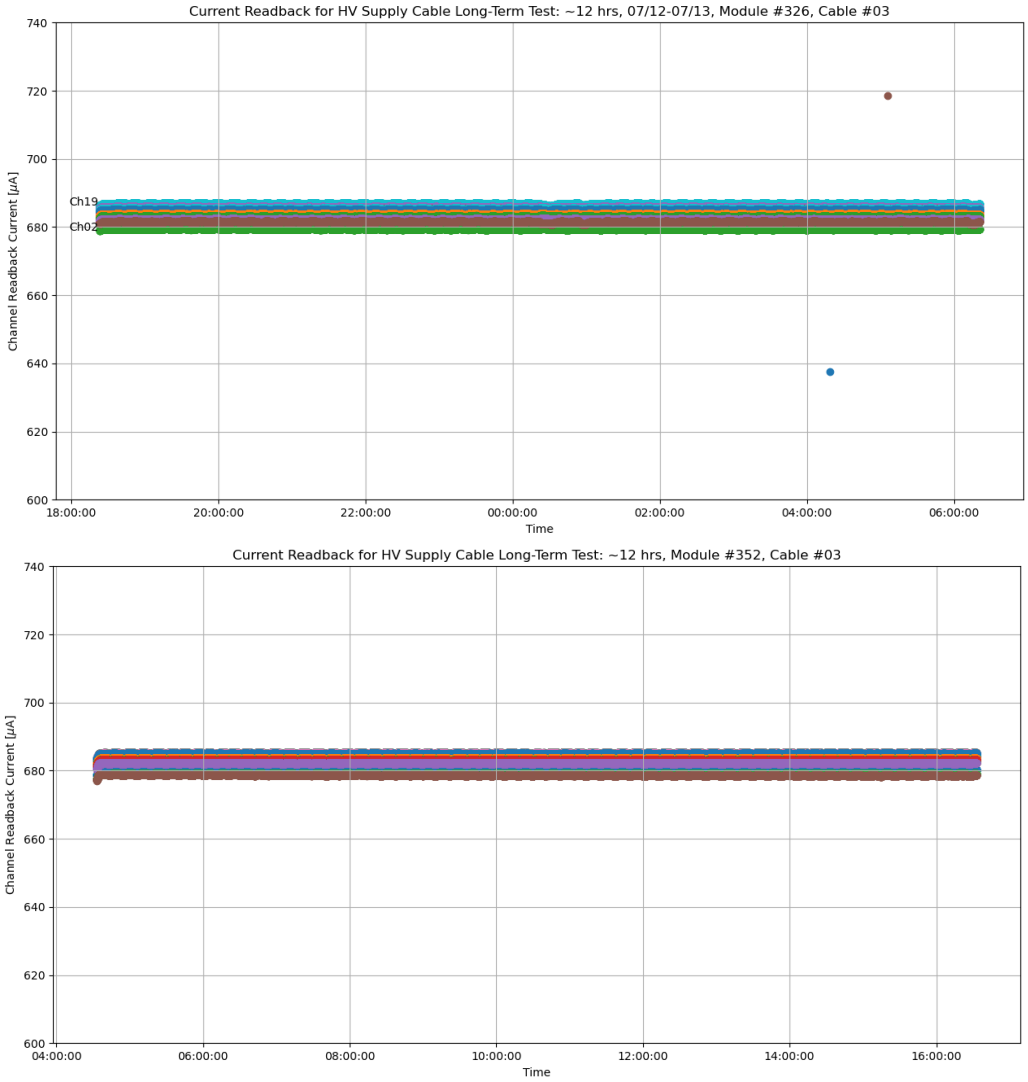
- Continued 3D printing of parts
- Investigating wavelength spectrum capability of new reflectivity test station
- Received parts for Aerogel dry tent frame construction

Hall C – NPS

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

- Testing high voltage supply cables after their Radiall connectors have been back-potted – four of 40 cables tested

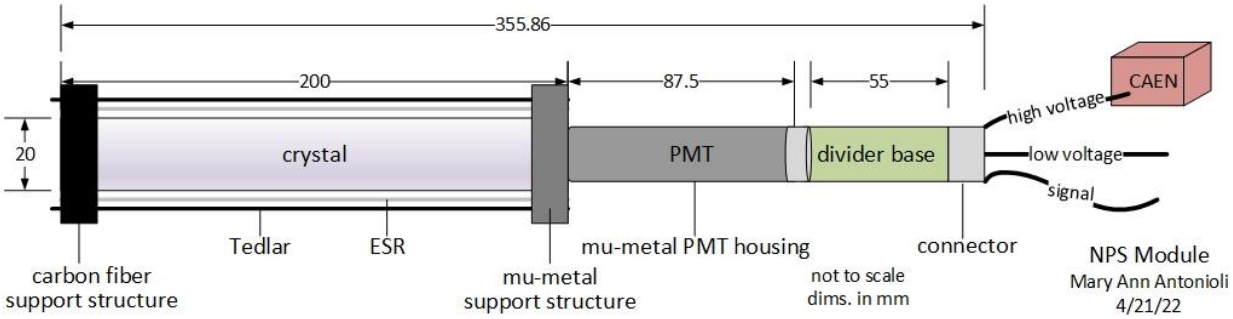
- Developed two Python programs to analyze high voltage supply cable testing data – one program plots the readback current for each channel, the other plots the average readback voltage for each channel



Plots of readback current before back-potting (top) and after (bottom) for cable #03

- Completed hardware interlock LabVIEW program code for setting interlocks and trip delays
- Investigating cRIO-to-Keysight communication methods for hardware interlock system
- Conducted steady-state thermal simulation for model without heat removal effects from heat exchangers
  - ✶ Model includes detector frame (box), electronic zone volume, and an air volume surrounding electronics zone volume
  - ✶ Set internal heat generation for the electronics zone of 982 W/m^3
  - ✶ Electronics volume ambient temperature: 20°C, film coefficient: 5 W/m^2*C

- ✶ Generated section plane (or slice) to display temperature profile inside the electronics volume
- Completed model of detector enclosure extents and added 10 sensor locations
- Generated Visio drawing of crystal module



Visio drawing of NPS crystal module

Hall D – JEF

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

- ESR foil pre-shaping (total of 806 foils)
- Wrapped 19 crystals with ESR foil and Tedlar

EIC

Pablo Campero, Brian Eng

- Proto-collaborations (ATHENA & ECCE) winding down; merging into Detector 1 WG after DPAP (Defense Procurement and Acquisition Policy)

DSG R&D – EPICS Alarm System

Peter Bonneau

- Debugged and tested import and export of the alarm server configuration file for EPICS process variables (PVs)
  - ✶ When the alarm server is initialized, this .XML formatted file loads the alarm settings for each monitored PV
  - ✶ During alarm system operation, the Phoebus user interface is used to edit the PV alarm settings
  - ✶ The PV configuration file can be exported via the alarm command console
- Developing an IOC (Input/Output Controller) for testing of the alarm system
  - ✶ Added alarm threshold controls in IOC for test PVs
  - ✶ Debugging intermittent channel access errors on test PVs