# Detector Support Group

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

**Weekly Report, 2022-03-30**

# Summary

## Hall A – ECal

*George Jacobs, Mindy Leffel, and Marc McMullen*

- Assembling supermodules – 41 of 59 complete
- Measured and sorted 40 lead-glass assemblies

## Hall A – GEM

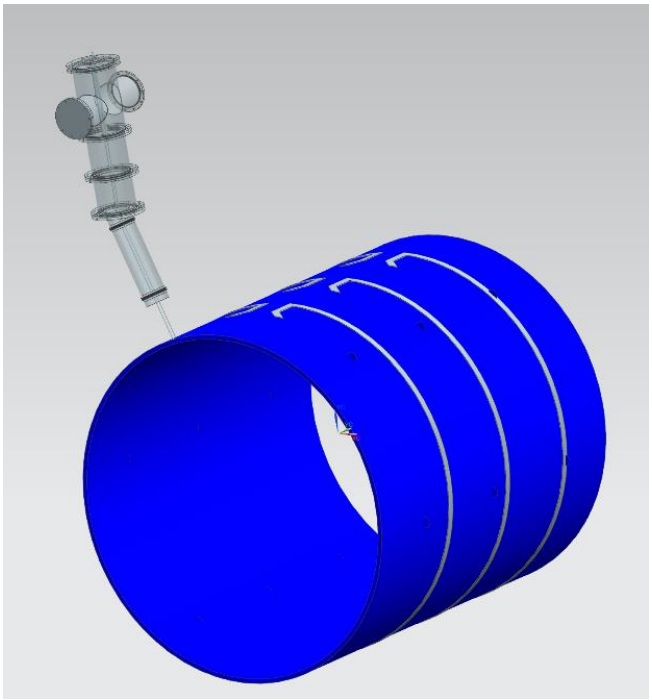
*Brian Eng, George Jacobs, and Marc McMullen*

- Adding curses module (software package for terminal handling) to PID code to better separate thread outputs into different areas of the screen

## Hall A – SoLID

*Pablo Campero, Mindy Leffel, and Marc McMullen*

- Developing *Solenoid Voltage Tap* HMI screen
- Added fault and interlock monitoring features to the *Axial & Radial Supports* and *Radial Support* HMI screens
    - ✶ Text will be shown next to each load indicator when the interlock is disabled, when the sensor is faulted, or when the readout value is outside of the set limits
- Installed resistor for electric ball valve readout; testing in progress
- Wired 14, 100' cables for temperature sensors to terminal blocks in the rack
- Developing NX12 model of SoLID magnet



SoLID magnet and turret rendering with current lead stacks and flux coils

**Hall B – Gas**
*Marc McMullen*

- Recovered space frame cRIO after failure and tested HTCC, SVT, and MVT flow settings

**Hall B – RICH-I**
*Tyler Lemon*

- Replaced RICH-I $N_2$ Volume cRIO with spare after failure

**Hall B – RICH-II**
*Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen*

- Installed exit window on detector shell for fitment check
- Installed hardware interlock chassis in rack in EEL 125 and routed cables under roll-up door so system can be used in cleanroom
- Generated temporary startup script for hardware interlock system's EPICS CSS-BOY screen for use in cleanroom
- Created test print of 3D printed air-cooling exhaust pipe
- Submitted cable duct drawings for fabrication quotes with three vendors; JLab machine shop, Craft Machine, and AMTECH

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

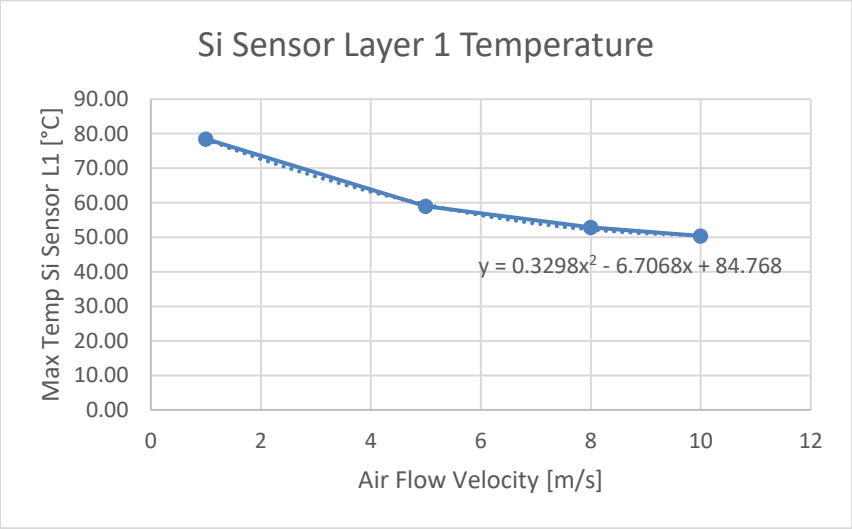
- Conducting Ansys steady-state thermal analysis of electronics zone
  - ✶ Added negative heat flux to the heat exchangers
  - ✶ Researching why the temperature of the inner layers of the electronic volume is ~460°C and outer layers ~34°C when the internal heat generation applied is 982 $W/m^3$
- Developing LabVIEW hardware interlock user interface; completed *Enable Controls* and *Expert* tabs

**Hall D – JEF**
*Mary Ann Antonioli, Aaron Brown, George Jacobs, and Mindy Leffel*

- FCAL foil pre-shaping (total of 538 foils)
- Wrapped 25 crystals with foil and Tedlar

**EIC**
*Pablo Campero, Brian Eng*

- Conducting, using Ansys Fluid Flow Fluent, thermal analysis of Be beam pipe with air velocities of 1, 5, 8, and 10 m/s for the ambient and annulus space



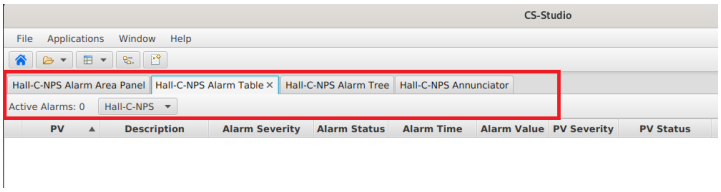

Plot of Si sensor L1 temperature as a function of air flow velocity

- Comparing Reference (from CD1) and ECCE cost spreadsheets with ATHENA as a sanity check

## DSG R&D – CS-Studio Phoebus

*Peter Bonneau*

- Developing a site-specific Phoebus product for Hall C NPS
  - ✶ Generated an alarm system preference properties file in the Phoebus source code to define the alarm configuration name, default values, and user interface settings
  - ✶ Recompiled the entire Phoebus product to implement changes




Custom Phoebus Alarm System User Interface for Hall C NPS

## DSG R&D – EPICS Alarm System

*Peter Bonneau*

- Wrote configuration scripts to create Kafka streams specific to Hall C NPS – the names and operating parameters of the Kafka message streams must be defined prior to initial alarm system startup
  - ✶ Successfully created and tested NPS alarm system message streams using Kafka and the configuration scripts
- Developing a Kafka message stream "spy" program to independently monitor, or write to, a specific Kafka message stream; will be used for debugging the alarm system
  - ✶ The spy program can now successfully monitor the Kafka configuration message stream (used by the alarm server to set alarm parameters for specific PVs) for the Hall C NPS alarm system