Detector Support Group

Hall A – CLEO
Brian Eng
- Ran different analyses on field mapping unit data; found gaps in timestamps
  - ✶ Due to fixed delay and variable length loop runtimes, switched to a variable delay, which improved timing, but still runs slightly longer than expected (1002 ms vs 1000 ms)

Hall A – ECAL
Brian Eng and Marc McMullen
- Worked on tuning PID for temperature setpoints to stabilize the heater current
- Assembled the heater test stand in the EEL oven to test PID software using real feedback from the heater/fan setup
  - ✶ Completed DSGList for PID tuning test

Hall A - GEp
Mindy Leffel
- Completed two high voltage boxes; 18 of 22 completed

Hall A – Moller
Brian Eng
- Generated spreadsheet of remote commands for magnet power supply
  - ✶ Spreadsheet will be used as input to Python script to test communications with the supply

Hall C – NPS
Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen
- Debugging high voltage overview screen
  - ✶ The EPICS service names hchv20 and hchv21 used for the NPS high voltage crates 1 and 2, respectively, are already used; service name is part of all PVs
  - ✶ The names were changed to hchv30 and hchv32 for crates 1 and 2, respectively
  - ✶ Preliminary testing shows that EPICS commands are received on the first try, instead of needing to be sent multiple times
- Moved cRIO to the SHMS hut in Hall C; requested change of IP address
- Worked on Phoebus alarm system
  - ✶ Finished development of the softIOC that generates PVs for all NPS signals and additional signal PVs specific to alarm system testing (range, minimum, maximum, and scan rate)
  - ✶ Developing random number generator Python program that assigns a random value to each individual PV

Screenshot of Detector Frame Alarm Testing Phoebus screen. The values in the "read" column are randomly generated.

- Developed and tested simulation implementation of the 112 thermocouple signals
- Ordered serial cable

Hall D – JEF
Mindy Leffel
- Wrapped five crystals with 3M foil and Tedlar; 778 wrapped to date

Hall D – Solenoid
Brian Eng
- Monitoring new PXIe controller; so far there are no major issues
  - ✸ One minor issue is that there is no console output when booted vs the previous controller that printed start time and various run time messages when program was running. New controller only has a blinking status LED to indicate program is running.

## EIC - DIRC
Tyler Lemon and Marc McMullen
- Completed trace routing on the interlock board
  - ✸ The board has two trace layers and two power and ground planes

EIC - Thermal Test Stand
*Pablo Campero, Brian Eng, George Jacobs, and Marc McMullen*
- Discussed multi-layer insulation in engineering meeting, regarding number of layers and types of metal; will use what is on hand and as many layers as possible
- Working on thermal simulation
  - ✸ Set boundary and cell conditions in Fluent
    - ▪ Fixed temperature for heater pipe at 102°C
    - ▪ Inlet air temperature of 23°C
    - ▪ Convection for silicon pipe with air temperature at 23°C and 5 W/m2K

* Ran simulations for different flow rates from 0 to 200 l/min
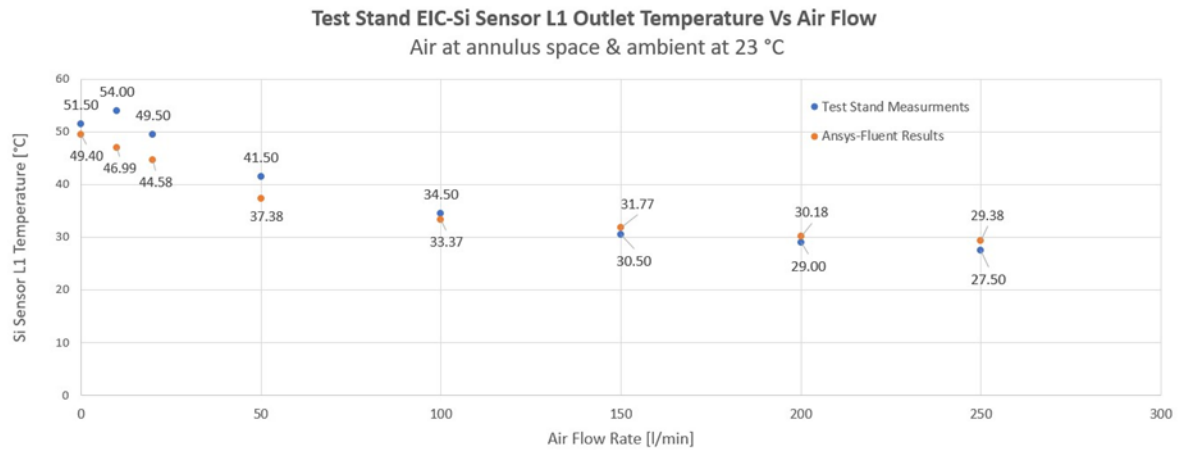
Silicon temperature vs air flow rate

* Modified geometry of the model to more accurately replicate test stand
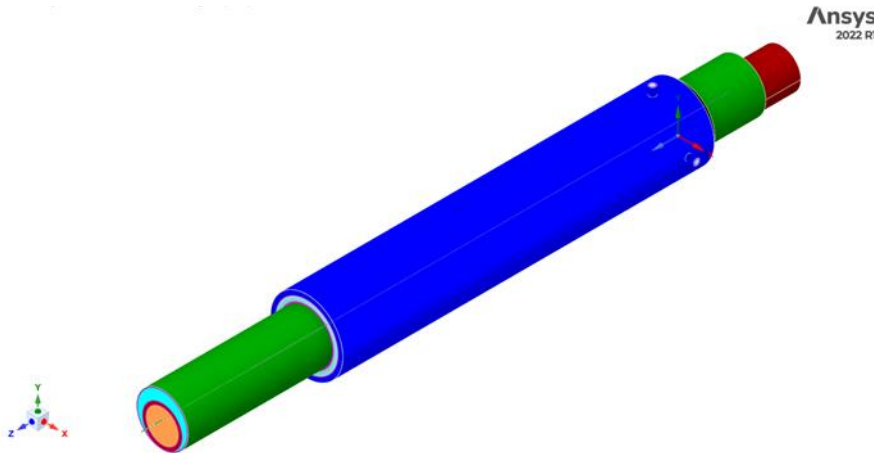
SpaceClaim model of test stand

* Modified boundary conditions so no fixed temperature for heater pipe, but a heat source set at 119,000 W/m3
* Ran 100 iterations of steady state simulation at 100 slm airflow