Detector Support Group

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

Weekly Report, 2022-05-11

Summary

Hal A – GEn-II

Mindy Leffel

- Fabricating RTD cables; cut and twisted 14 pairs – 54 of 66 pairs cut and twisted

Hall A – SoLID

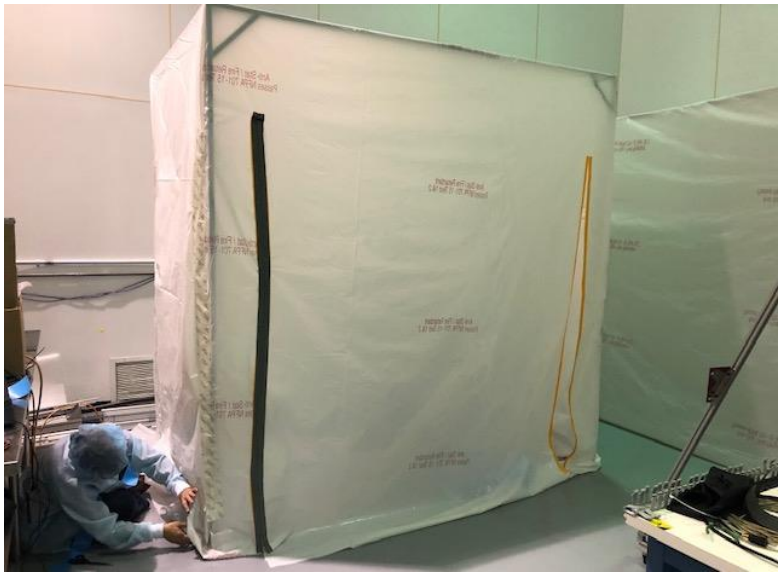
Pablo Campero, Mindy Leffel, and Marc McMullen

- Developing *SoLID Solenoid Cooldown* Phoebus screen

Hall B – RICH-II

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

- Corrected issue preventing individual values from being written to EPICS on hardware interlock system's sbRIO
  - ✶ LabVIEW variables corresponding to some EPICS process variables were set to read-only, so LabVIEW was not able to write to variables
- Synchronized the clock for the hardware interlock system's sbRIO with JLab time server to resolve issues with MYA archiving
  - ✶ Previously, sbRIO was ~5 minutes in the future with respect to JLab time server used for archiver, causing archiver to think there is an error with the data and not log it
- Set up d0 test station in DSG cleanroom to check radius of curvature for spherical mirrors
- Developing SHT35 sensor cyclic redundancy check (CRC) error monitoring in CSS-BOY for expert screen
- Completed second Aerogel dry-tent assembly – added fire-retardant plastic and tape, installed magnetic self-sealing door flaps

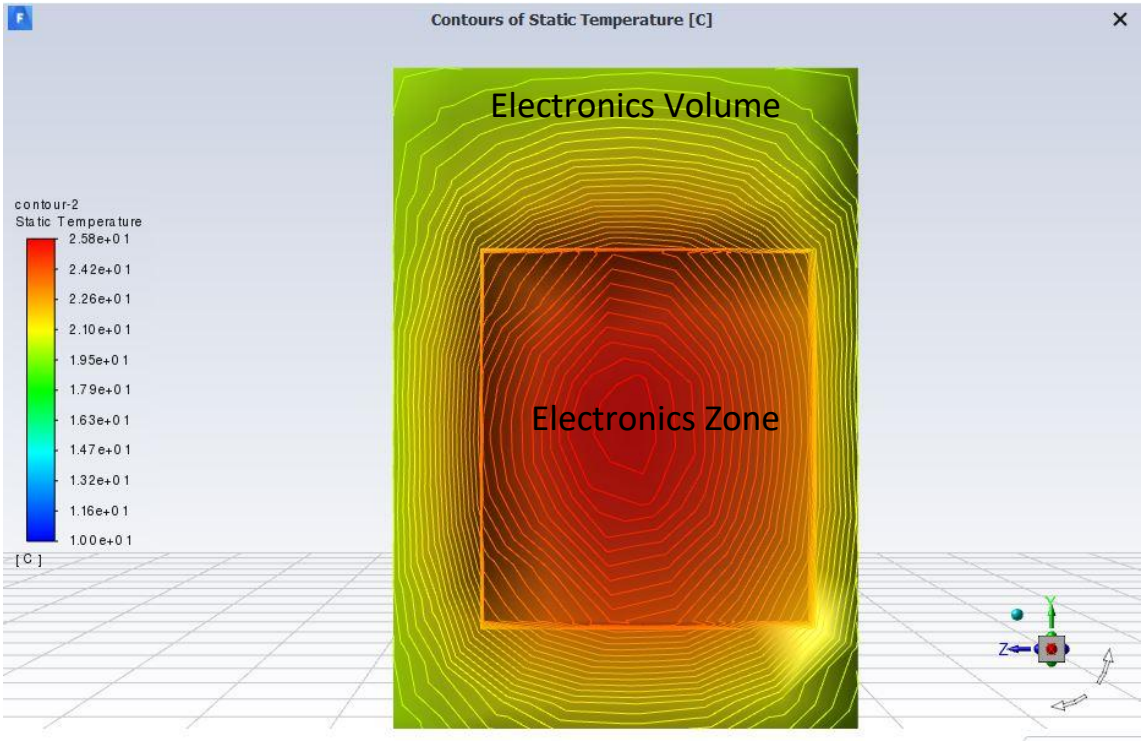


Mindy Leffel adjusting the flame-retardant plastic on the second Aerogel dry-tent

Hall C – NPS

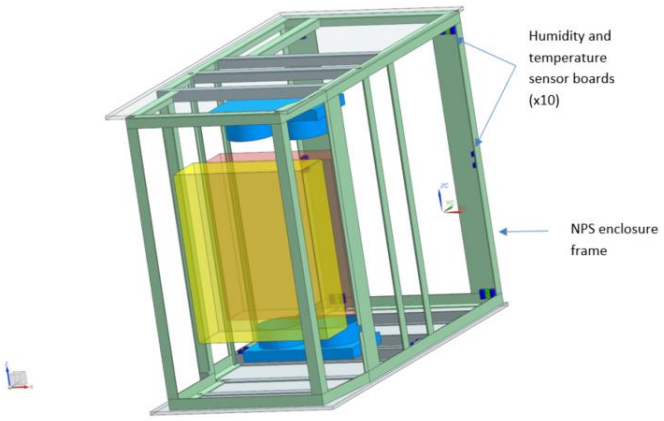
Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

- Developing Ansys Fluent thermal simulation which includes heat removal effects of heat exchangers
  - ✶ Ambient air set at 20°C
  - ✶ Internal heat generated in space occupied by the PMTs, bases, and dividers set to 1000 W
  - ✶ Preliminary results show maximum temperature in electronics zone is 25.49°C
  - ✶ Generated contour plots for temperature, velocity, and turbulent mass



Contour plot of temperature for Ansys Fluent thermal simulation

- Developing hardware interlock LabVIEW program – adding 119 shared network variables to the project library and 119 matching local variables to the program code
- Testing EPICS Phoebus hardware monitoring program using process variables based on the shared network variables from the hardware interlock LabVIEW program
- Modified model of NPS sensors and locations in NX12 – added frame and placed all sensors on internal surfaces of the frame



Three dimensional rendering in NX12 of detector frame showing proposed sensor locations

- HV CAEN cable testing using Python – 11 of 40 cables completed
- Glued six Radiall connectors – 25 of 40 complete

Hall D – JEF

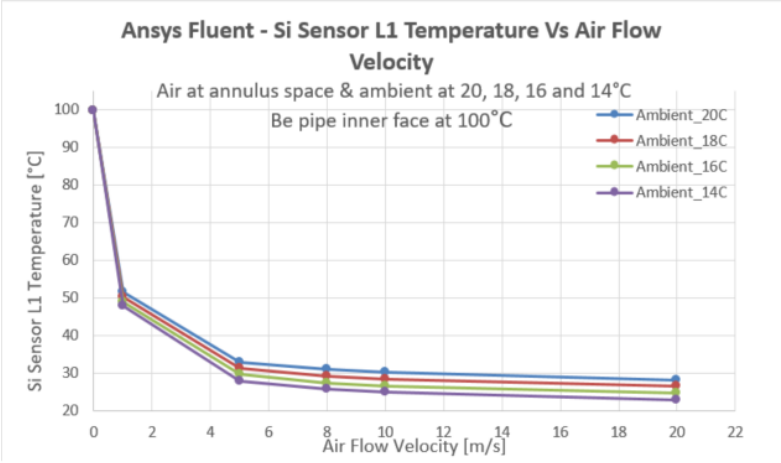
Mary Ann Antonioli, Aaron Brown, George Jacobs, and Mindy Leffel

- ESR foil pre-shaping – 939 of 1600 foils complete
- Wrapped 21 crystals with ESR foil and Tedlar

EIC

Pablo Campero, Brian Eng

- Generated simplified model of Be pipe with 5 mm gap between the Be pipe outer face and the Si Sensor L1 inner face
- Imported model to Ansys Fluent; set inner face of Be pipe at 100°C and forced convection with air at different velocities and temperatures



Plot of Si sensor temperature vs air flow velocity for various ambient temperatures

- Updating cost/schedule for CD2 – mostly based on ECCE, but some from reference and some from ATHENA (namely the schedule for the silicon)