



Detector Support Group

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

Weekly Report, 2022-04-20

Summary

Hall A – ECal

George Jacobs, Mindy Leffel, and Marc McMullen

- Assembling supermodules – 54 of 59 complete

Hall A – GEM

Brian Eng, George Jacobs, and Marc McMullen

- Completed software update to the SBS test stand in the EEL

Hall A – GEn-II

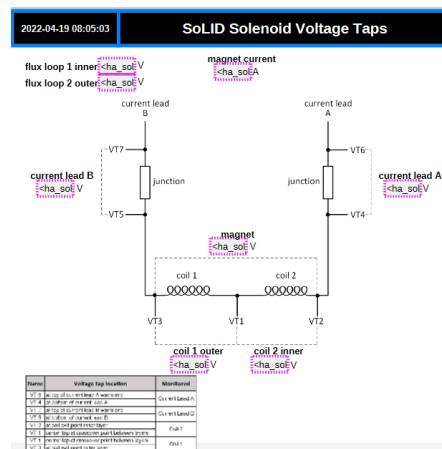
Mindy Leffel

- Fabricating RTD cables – cut and stripped 11 of 48 cables

Hall A – SoLID

Mary Ann Antonioli, Pablo Campero, and Marc McMullen

- Developing *Solenoid Cooldown* HMI screen
 - ★ Adding valve position readout indicators
- Completed *SoLID Solenoid Voltage Taps* EPICS Phoebus screen



SoLID Solenoid Voltage Taps Phoebus screen

- Debugged and calibrated electric ball valve readout – PLC valve position readout: valve closed: 4 mA, valve opened: 16.7 mA

Hall B – Heavy Proton Search

Tyler Lemon

- Set up SHT35 monitoring program on Raspberry Pi for use in Hall B HPS SVT storage freezer
 - ★ Program reads temperature and humidity from one SHT35 sensor, calculates moisture content and dew point, and publishes data to EPICS



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Hall B – Magnets

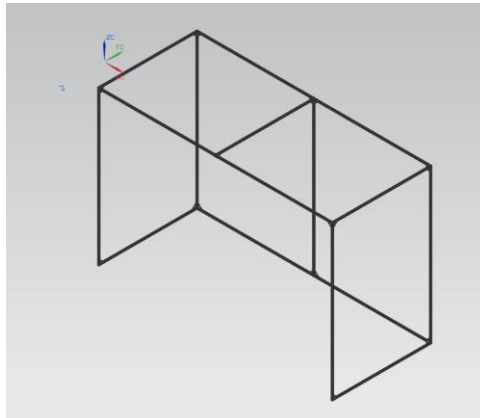
Pablo Campero and Brian Eng

- Updating instrumentation checkout procedure to better reflect the reduced testing currently performed

Hall B – RICH-II

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

- Re-installed and tested cables for N₂ Volume hardware interlock system cabling
- Continued 3D printing of parts
 - ★ Six of six air exhaust adapters fabricated
 - ★ Test prints of one N₂ tube bracket and fiber support bracket underway
- Measured ECI sample from RICH-I with new reflectivity test station
- Developing Aerogel dry tent (12'L x 5'D x 8'H) using 1" T-framed extruded aluminum and fire retardant plastic sheeting



Aerogel dry tent frame designed in NX12 using 1" T-framed extruded aluminum

- Cut, terminated, and tested Molex end of all 11 Molex-RJ45 cables

Hall C – NPS

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

- Developing hardware interlock LabVIEW program code for setting interlocks and trip delays
- Investigating using 2-wire and 4-wire sensors connected to the same multiplexer of the Keysight switch/measurement unit
 - ★ Can use 40, 2-wire sensors, 20, 4-wire sensors, or a combination of the two in each multiplexer
 - ★ Investigating exact number of each sensor type that can be used together in one multiplexer
- Generated model of NPS enclosure extents and added 10 sensor locations
 - ★ Each location has two humidity and two temperature sensors
 - ★ Sensor locations: Back (x4), Right (x3), and Left (x3)

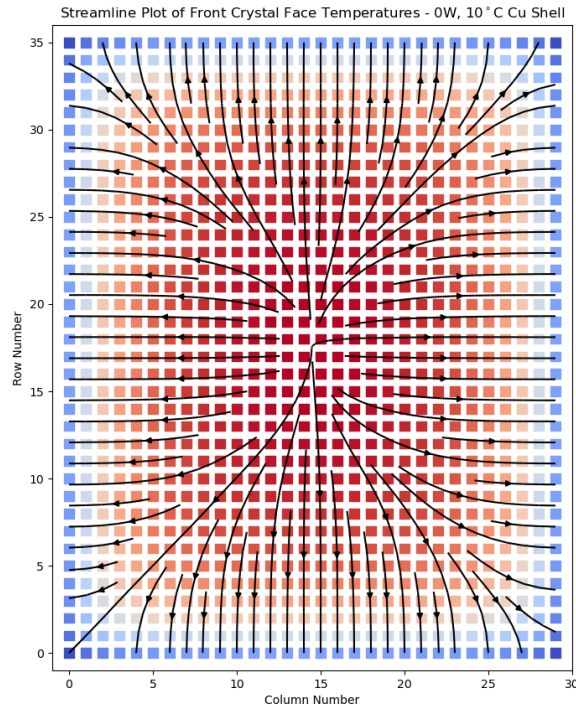


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- Combined streamline and gradient plots of front crystal face temperatures using temperature probe data exported from Ansys steady-state thermal analysis



Gradient streamline plot of front crystal face temperatures; arrows point from areas of high to low temp.

Hall D – JEF

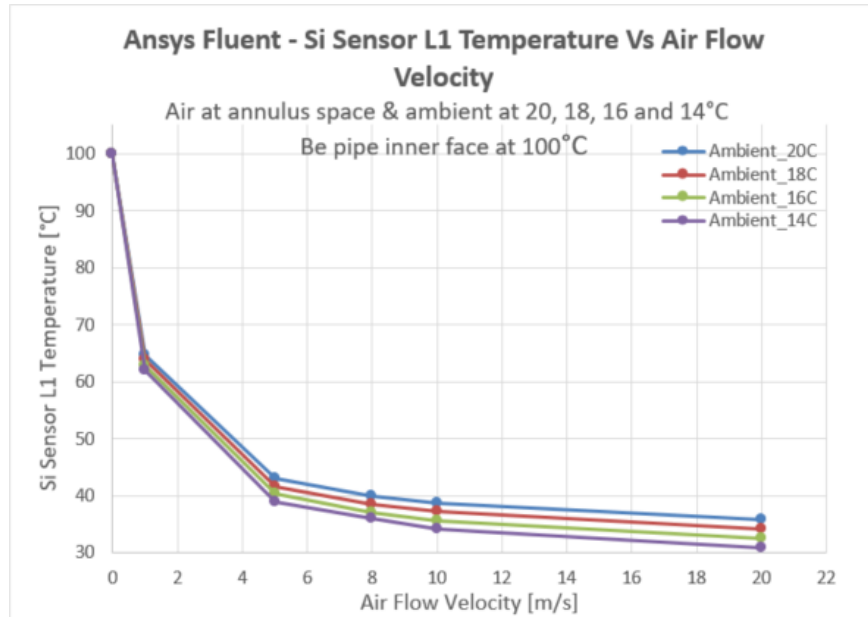
Mary Ann Antonioli, Aaron Brown, George Jacobs, and Mindy Leffel

- FCal foil pre-shaping (total of 752 foils)
- Wrapped 13 crystals with ESR foil and Tedlar

EIC

Pablo Campero, Brian Eng

- Conducting simulations in *Ansys Fluid Flow Fluent* to get the maximum temperature at the Si sensor layer 1
 - ★ Modified model to have a separation of 2 mm and 3 mm between the outer face of the Be pipe and the inner face of the Si sensor L1
 - ★ Assumed air temperature in the annulus space and enclosed (ambient) of 20, 18, 16, and 14°C
 - ★ For each temperature, air velocities of 0, 1, 5, 8, and 10 m/s were used for the ambient and annulus space



DSG R&D – EPICS Alarm System

Peter Bonneau

- Developing a user interface for alarm system guidance and control for process variables (PVs)
 - ★ During the operation of the alarm system, guidance and alarm control for a PV can be obtained from the alarm tree
 - ★ Completed programming and initial debugging of the guidance and control for the PV alarm tree
 - ★ The PV pop-up alarm control and guidance menu can be accessed at any time – the PV doesn't need to be in an alarm state
 - ★ Menu also provides user with access to the alarm configuration settings for a PV
- Debugged IOC initialization for input PVs used for testing the alarm system
 - ★ Some PV records were showing as invalid (disconnected) after IOC initialization – by setting the “process at initialization” (PINI) field to true, all PVs consistently connected correctly at IOC initialization