



Detector Support Group

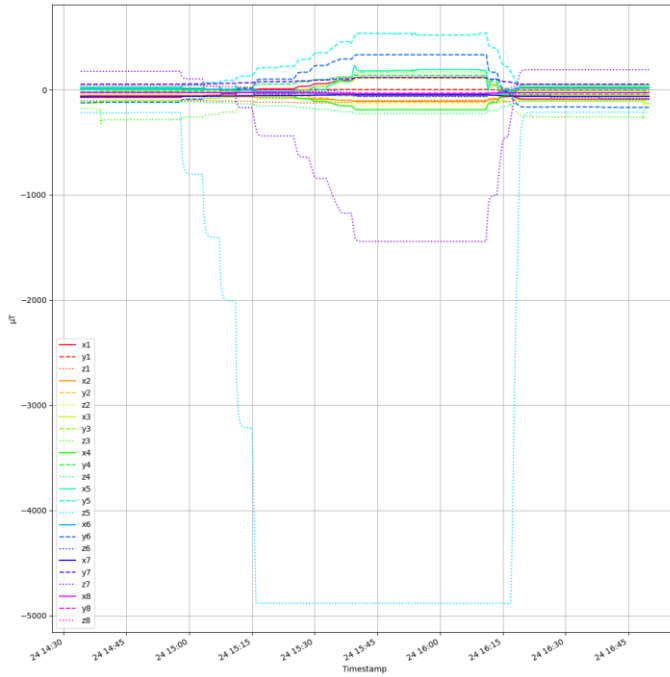
We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2023-03-29

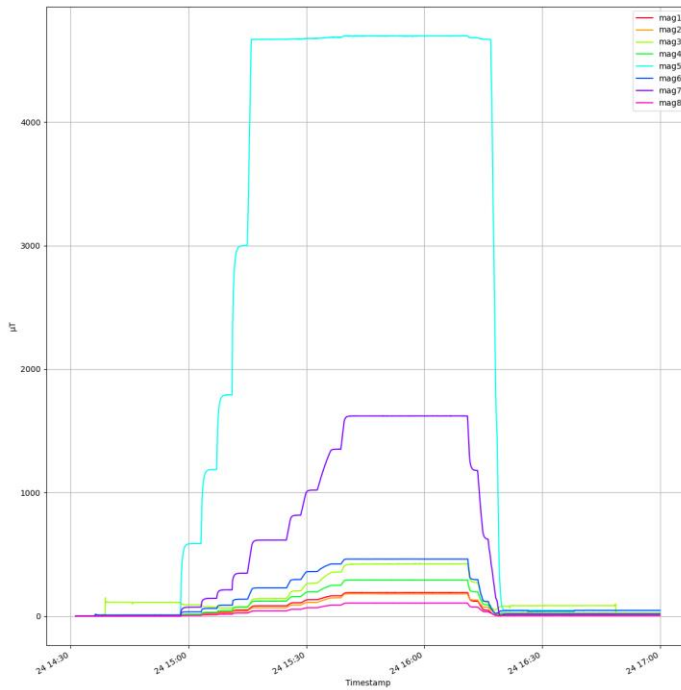
Hall A – CLEO

Brian Eng

- Wrote python script to parse data files; generated plots of raw data from the field mapping units (Plot 1), as well as subtracting baseline and calculating magnitude of vector (Plot 2)



Plot 1



Plot 2



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Hall A – ECAL

Brian Eng, Tyler Lemon, and Marc McMullen

- Installed network cable in the physics storage building for the six-supermodule test stand
- Generated regions for air gaps in supermodule assembly model in SpaceClaim
- Working through process of meshing supermodule model in Fluent

Hall A – Møller

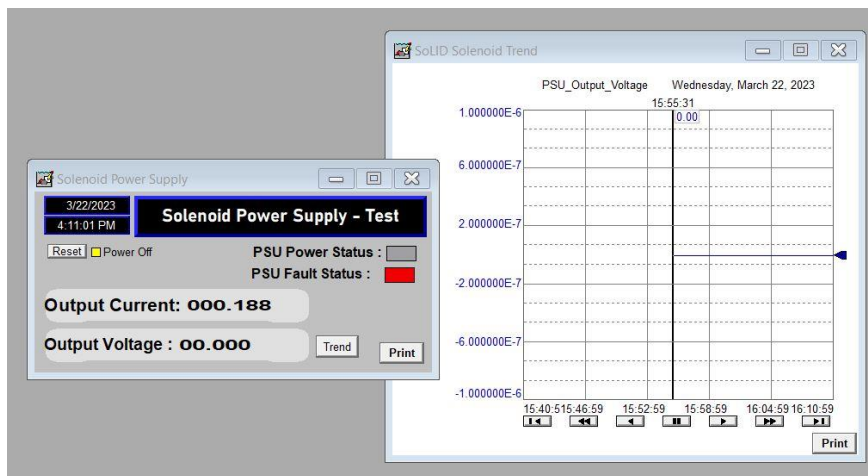
Mary Ann Antonioli and Brian Eng

- Completed Phoebus screen for magnet 4 voltage displays as a list
- Reviewed voltage tap drawings

Hall A – SoLID

Pablo Campero

- Added power supply voltage output readout signal to the data logger system; added button on PSU screen to access data (below)



- Debugging warnings in FactoryTalk View data logger system
 - ★ Researching way to import data from Microsoft Access file to SQL data base file

Hall C – NPS

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

- Made four new Phoebus monitoring screens, which don't use arrays, for the front crystal zone (below), the back crystal zone, crystal zone cooling circuit, and electronics zone; updated spreadsheet with additional PVs



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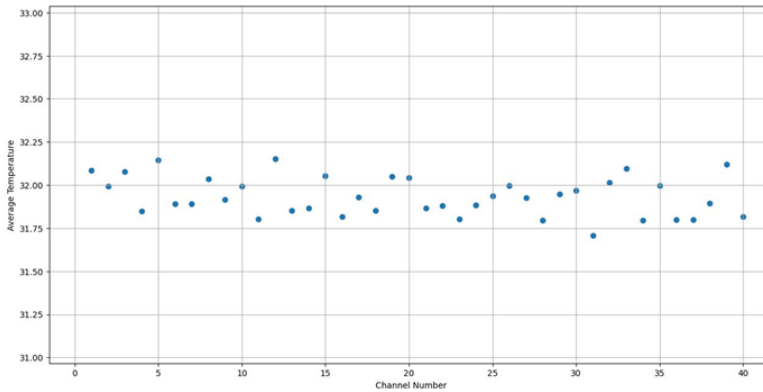
Weekly Report, 2023-03-29

Front Crystal Zone Temperature Sensor Monitoring [°C]

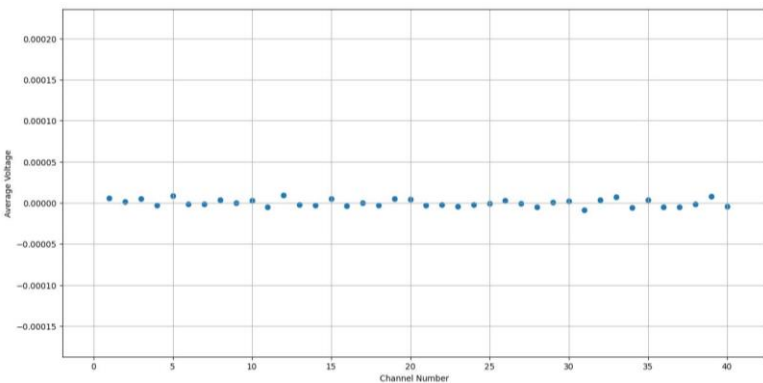
Crystal	T	Avg	SD	Intlk status	Latch status	Crystal	T	Avg	SD	Intlk status	Latch status
0	<hcnps	<hcnps	<hcnps			540	<hcnps	<hcnps	<hcnps		
5	<hcnps	<hcnps	<hcnps			550	<hcnps	<hcnps	<hcnps		
10	<hcnps	<hcnps	<hcnps			560	<hcnps	<hcnps	<hcnps		
15	<hcnps	<hcnps	<hcnps			570	<hcnps	<hcnps	<hcnps		
20	<hcnps	<hcnps	<hcnps			684	<hcnps	<hcnps	<hcnps		
25	<hcnps	<hcnps	<hcnps			689	<hcnps	<hcnps	<hcnps		
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185	<hcnps	<hcnps	<hcnps			709	<hcnps	<hcnps	<hcnps		
190	<hcnps	<hcnps	<hcnps			714	<hcnps	<hcnps	<hcnps		
195	<hcnps	<hcnps	<hcnps			719	<hcnps	<hcnps	<hcnps		
200	<hcnps	<hcnps	<hcnps			864	<hcnps	<hcnps	<hcnps		
205	<hcnps	<hcnps	<hcnps			869	<hcnps	<hcnps	<hcnps		
210	<hcnps	<hcnps	<hcnps			874	<hcnps	<hcnps	<hcnps		
215	<hcnps	<hcnps	<hcnps			879	<hcnps	<hcnps	<hcnps		
360	<hcnps	<hcnps	<hcnps			884	<hcnps	<hcnps	<hcnps		
365	<hcnps	<hcnps	<hcnps			889	<hcnps	<hcnps	<hcnps		
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529	<hcnps	<hcnps	<hcnps			1074	<hcnps	<hcnps	<hcnps		
539	<hcnps	<hcnps	<hcnps			1079	<hcnps	<hcnps	<hcnps		

2023-03-29 06:25:

- Developing a softIOC to host the thermal readback PVs; investigating errors
- Plotted average temperature of room (Plot 3) and average readback voltage of sensors (Plot 4), using Keysight terminal block 1 with one extension cable (channels 1–20) and one Keysight cable (channels 21–40)



Plot 3



Plot 4

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Weekly Report, 2023-03-29

- Developing softIOC for Phoebus alarm system
 - ★ Created Python program that provides random numbers to the 112 crystal temperature PVs
 - ★ Developing a Python script to run both the IOC and the random number generator as background processes
- Debugging communication issue between alarm system applications and user interface for PV alarm settings after upgrade of Phoebus from version 4.6.10 to 4.7.1
 - ★ Discovered that configuration file formats used to set alarm application preferences have changed; new options and settings available

Hall D – JEF

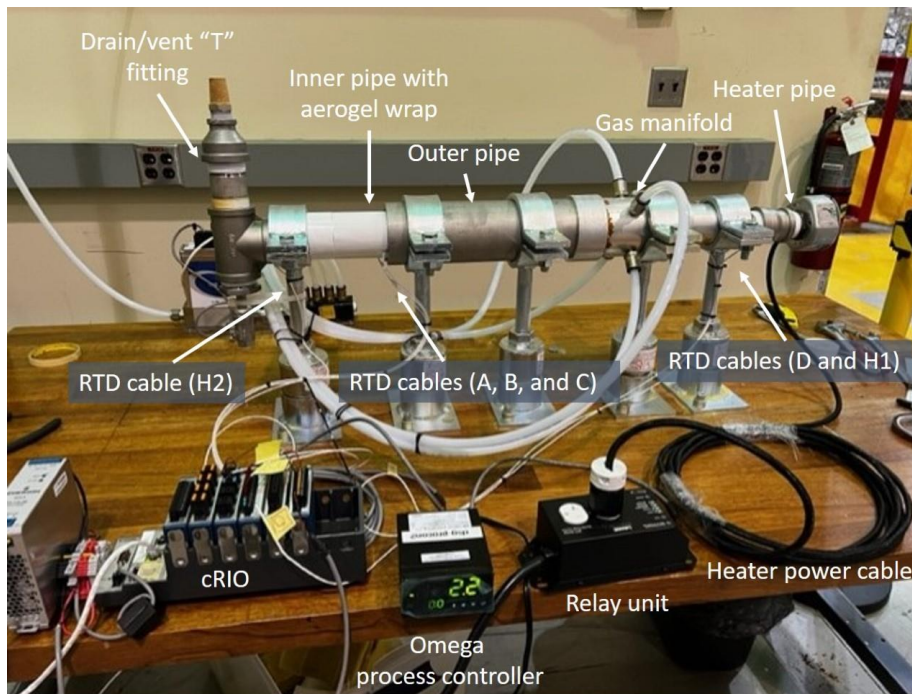
George Jacobs

- Disassembled, cleaned, and inspected three crystals

EIC- Test Stand

Brian Eng, Pablo Campero, George Jacobs, and Marc McMullen

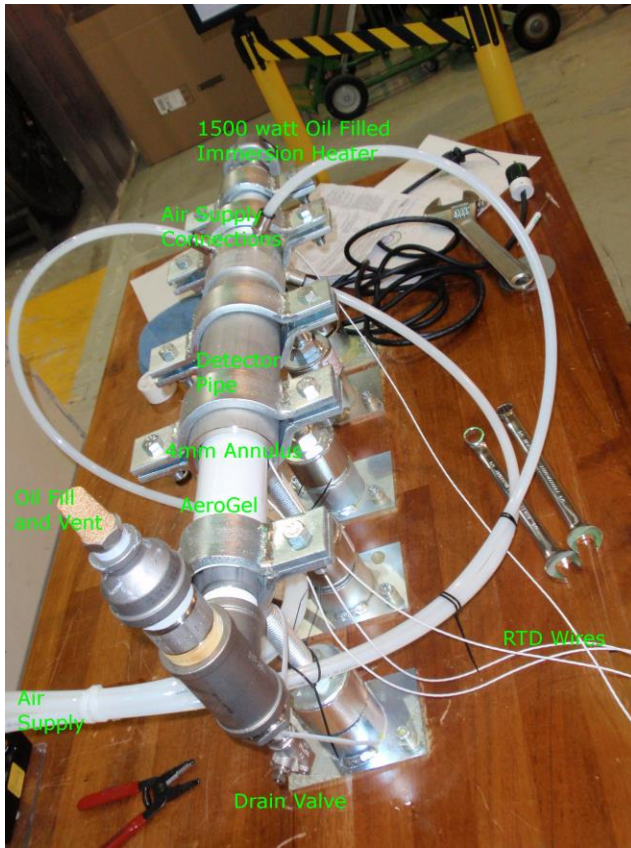
- Replaced 1100-W immersion heater with a 1500-W model
- Installed two additional RTDs, on heater pipe, to monitor the heater temperature
- Reassembling test stand



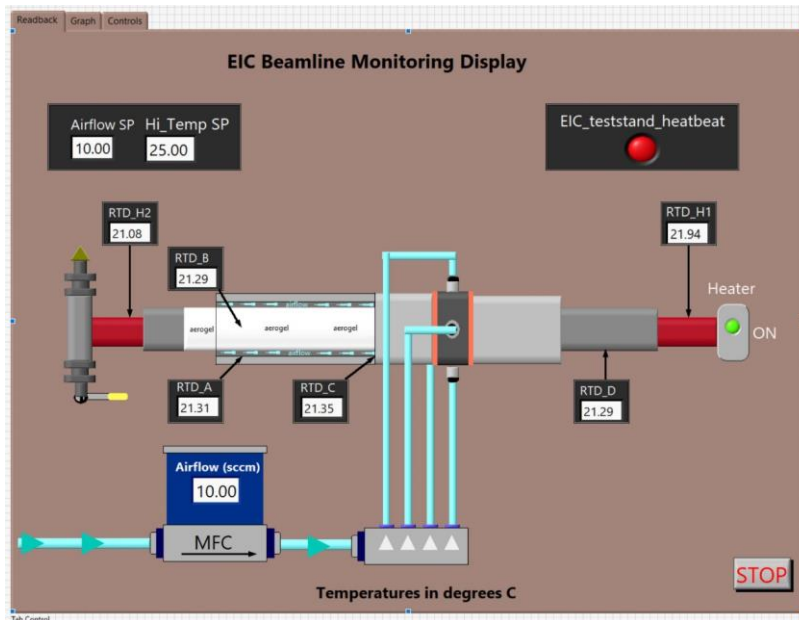
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- Ordered thermal insulation
- Completed upgrading the control and monitoring software; developed a new monitoring user interface



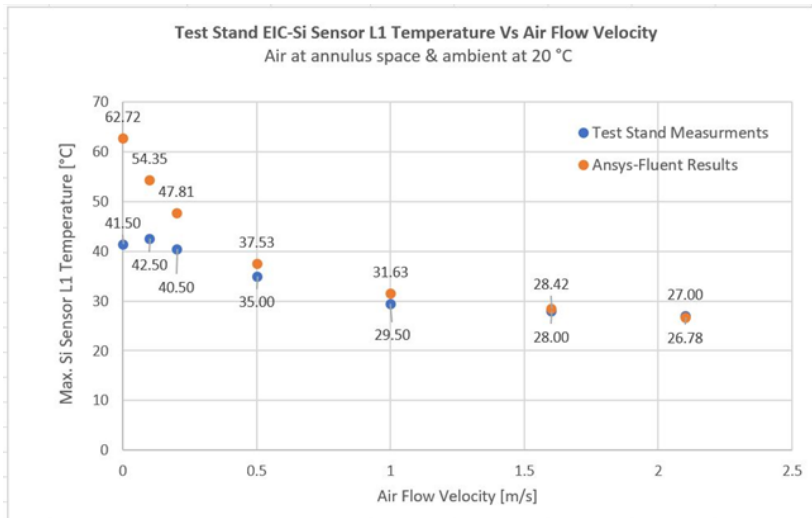


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- Set up *Ansys Fluent* to simulate the test stand beampipe and plotted results for silicon sensor layer 1 temperature and actual data from the test stand RTD measurements



EIC-DIRC

Tyler Lemon and Marc McMullen

- Continued component placement on the laser interlock board design
- Designed and simulated transimpedance amplifier circuit for photodiode readout
 - ★ Transimpedance feedback capacitor calculated to be ≤ 1.1 nF
 - Capacitor helps stabilize output of op-amp used in transimpedance amplifier
 - ★ Feedback resistor calculated to be 330Ω
 - Resistor value sets gain of circuit
 - With 330Ω , expect 4.95 V with 15 mA input (maximum expected from photodiodes)
 - ★ Designed low-pass RC filter to reduce effects from laser power's noise on final voltage signal
 - With a resistor of $10 \text{ k}\Omega$, a $1.5\text{-}\mu\text{F}$ capacitor is needed to reduce the $\sim 500\text{-mV}$ noise to below $180 \mu\text{V}$, the resolution of the ADC selected
 - ★ Creating a breadboard prototype of circuit
 - ★ Researching how to set up circuit with a single +12 VDC supply to avoid an additional -12 VDC supply
- Designing holder for optical table sidewall position monitor

DSG Website

Peter Bonneau

- Edited main [DSG webpage](#)
- Revised and added additional content to the [Technical Documentation](#), [Weekly Reports](#), and [Monthly Memos](#) webpages