



Detector Support Group

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

Weekly Report, 2020-08-19

Summary

Hall A – SoLID Magnet Controls

Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, Marc McMullen

- Developing PLC code to control and monitor current lead heaters
 - ★ Determined number of PLC terminal blocks needed to connect heaters to the PLC relay modules
- Completed *PLC Rack Frame Layout* and *Instrumentation Rack Frame Layout – Front View* drawings
- Developing *Instrumentation Rack Layout* Drawing A00000-16-03-0200
 - ★ Added quench detector unit, PSU crate, liquid level controller, and valve panels
- Reviewing motor controller relay PCB

Hall A – GEM Detector Gas System

Peter Bonneau, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, Marc McMullen

- Procured level translators to allow 3.3 V Raspberry Pi to communicate with the 5 V gas flow sensor boards
- Generated NX12 assembly drawing for Super BigBite gas panel
- Generated dimensional drawings of regulator panel and rotameter panel for fabrication
- Developed Python code to verify the operation of test gas flow sensor
- Developed LabVIEW code to operate gas flow sensors and provide data to EPICS

HDice – fsNMR Program

Peter Bonneau, Tyler Lemon

- Developed LabVIEW subVI for fitting peak of the lock-in amplifier’s signal to background’s amplitude to find peak’s value
 - ★ SubVI then interpolates amplitude and phase data to determine values used to scale X and Y data
- Installed data logging VI in the fsNMR program

Hall C - NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, George Jacobs, Mindy Leffel, Tyler Lemon

- Investigating sensors and supporting instrumentation for use in the high radiation environment within the NPS detector
 - ★ E.g. the Ohmic Instruments UPS-600 humidity sensor used at CERN in high radiation environment
 - ★ Resistive based sensor that has a relative humidity range of 10% to 95%
- Developing CSS-BOY voltage and current readback screen
 - ★ Changing 1080 PMT readback grid to 30x36 instead of 36x30
- Submitted PRs for Radial connectors and tools needed for cable fabrication



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- Continued voltage stability testing (with load) using EPICS on CAEN crate and modules
- Six hundred and twenty of 1100 high voltage divider cables fabricated

Hall C- HMS/SHMS Magnets' CSS Screen Development

Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon

- Completed *SHMS Dipole Valve Setup* screen
- Started *SHMS Dipole NMR Setup* and *SHMS Dipole PSU* screens

Screenshot of the *SHMS Dipole Valve Setup* CSS-BOY screen

DSG – Website Design

Mary Ann Antonioli, Peter Bonneau, Aaron Brown

- Restructuring of the website's technical documentation sections