Detector Support Group

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

Weekly Report, 2021-10-27

Summary

Hall A – SoLID

Mary Ann Antonioli, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

- Designing, using NX-12, a three-dimensional model of the mounting plate for the CCS boards to be included in a model of the magnet controls rack
- Wiring instrumentation racks for magnet control system – reorganized and installed 3-level and 1-level terminal blocks to match rack layout design drawings

Hall B – RICH-II

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

- Performed d0 testing of spherical mirrors 5 and 5C
- Prepared cleanroom for floor refinishing

Hall C – NPS

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

- Conducted thermal simulations of 36x30 $PbWO_4$ crystal matrix with Cu shell, carbon fiber and mu metal dividers with various heat loads and ambient temperatures
    - ✶ Found that temperature of central crystal is determined by the ambient temperature for heat loads up to 3.5 W

Cu Shell Temp [C]	Ambient Temp [C]	Heat Load [W]	Central Crystal Temp [C]
10	14	0	13.9
10	14	0.01	13.9
10	14	0.1	13.9
10	14	3.5	14.1
10	14	7	14.3
10	14	70	17.5
10	14	700	49.8

- Researched the ability to readout and control the Keysight switch/measurement unit by a Python script
    - ✶ Investigating the instrument initialization procedure - comparing responses to commands of the web interface to that of a Python script
- Worked on ESR film pre-shaping – 110 of ~600 films complete
- Converting CAEN HV module trip test plots from PNG to PDF format to include them in the NPS testing and analysis database – 23 of 33 modules (828 of 1188 channels) complete

EIC
Pablo Campero, Brian Eng
- Generated, using NX-12, new three-dimensional model for the Be beam pipe section, Barrel L1-Sensor, and Barrel L1-PEEK rings
  - ✶ Modified original dimensions for the Barrel L1 Silicon sensors and Barrel L1-PEEK rings so that separation between the Be beam pipe and the Barrel L1 Silicon sensors is 5 mm
- Attended OPA status review

DSG R&D – EPICS Alarm Handler
Peter Bonneau
- Researched configurations and version differences in EPICS alarm handlers

DSG R&D – GEM
Brian Eng
- Set up high output (up to 200 mA) DAC to drive proportional valves for gas control
- Initial testing seems promising as it can control the flow using a pump setup

DSG R&D – PID Control Simulation
Mary Ann Antonioli, Pablo Campero
- Generated Visio drawing of software and hardware components for RSLogix PID Control simulation
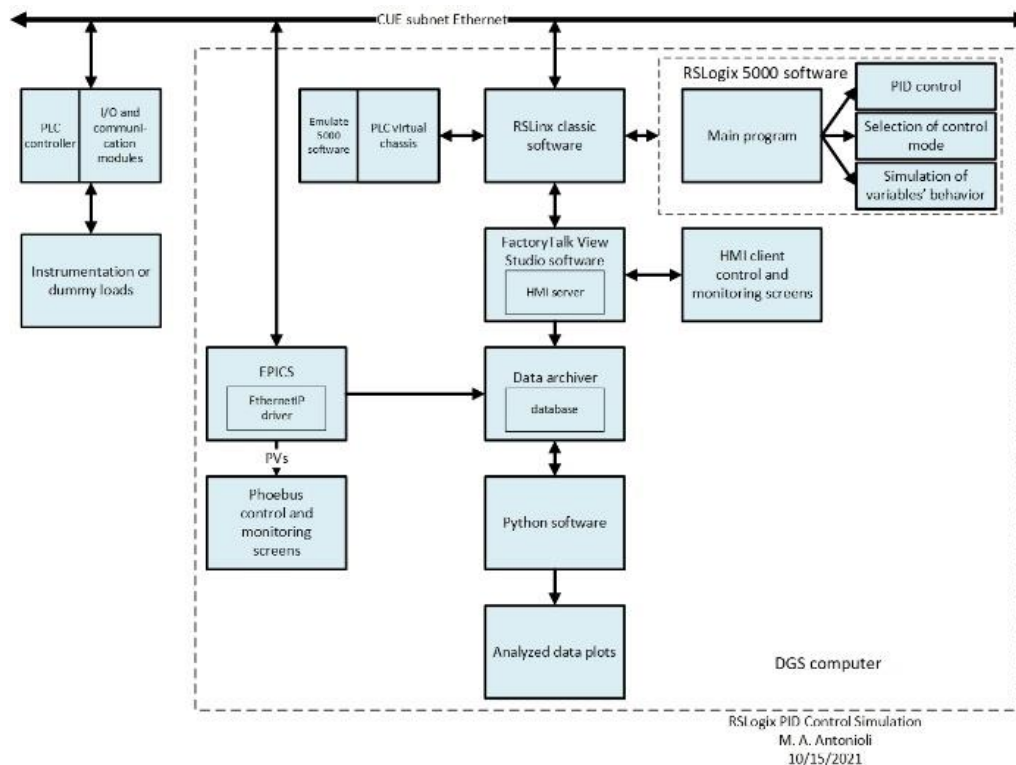

Diagram showing software and hardware components for the simulation of PID controls