HDice Work Status Summary

Detector Support Group

Thursday, April 12, 2018

NMR Programming Summary

1. Helium temperature and level sensors need to be disabled when the IBC is used.
   Status: Completed
   Debugged and implemented *fix* for helium sensors.

2. Manual control of power supply on LabVIEW front panel not working correctly. Field read-back value has offset of up to ~10 Gauss from set-point.
   Status: Completed.
   Power supply software for manual mode developed by BNL was not working. Software debugged and tested on HDice test station. Updated software to be installed in NMR rack #2 in HDice lab when the system is available for use by DSG.

3. Incorporate a precision current shunt into field controls and synchronize the current shunt measurements with the Lock-In Amplifier data. Write synchronized measurements to the data file.
   Status: DSG work in progress.
   - Completed development and test of :
     - triggering interface code between lock-in amplifier and current shunt
     - synchronization subroutines to read and align lock-in amplifier and current shunt data arrays after acquisition cycles
     - program to check lock-in amplifier's external triggering rate efficiency
   - Development of error checking routines to verify the integrity of the current shunt read-out data array is underway

4. Amanda is developing VISA device drivers and NMR interface code to facilitate use of original Oxford or the new Oxford Mercury iPS (no GPIB interface) power supplies.

NMR Hardware Summary

1. Fabricate and install Molex semi-flexible low loss NMR (RF) cables in RF box #1
   Status: Completed

2. Revise RF Splitter/Attenuation box #1 to add local instrumentation status read-back.
   Status: DSG work in progress.
   Rewiring completed instrumentation status read-back. Debug and testing in progress.

3. Design, build, install, debug, and test hardware triggering system to synchronize the current shunt measurements with the Lock-In Amplifier data sampling.
   Status: DSG work in progress.
   Prototype of hardware trigger interface successfully tested and is being used for the program development of NMR synchronization.

4. Isolate NRM instrumentation in NMR rack #1.
   Status: Isolation padding cut, to be installed when instrumentation is re-installed into rack #1.