DSG-HDice Meeting – fsNMR Review

Date: May 14, 2020
Time: 2:00PM – 3:00PM

Attendees: Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, Xiangdong Wei

1. Stage 1 and Stage 2 fsNMR programs run as expected and provide results that look as expected
    1.1. Program tested with no magnetic field and with a warm dewar
    1.2. Xiangdong Wei will send DSG his document containing results and comments from his tests

2. Requests for additions to fsNMR program
    2.1. Request user to input attenuator power to use during cylces
    2.2. Automatically read in and use power setting from background data settings file if background subtraction/normalization to be used
    2.3. Add ability to manually scale y-axis on plots
    2.4. Add ability to implement delay, or wait time (T_{wait}), between consecutive cycles
    2.5. Add ability to log raw data from lock-in amplifier in addition to background normalized data
    2.6. Change program to log cycles as they complete rather than only when program finishes

3. Cryogenic sensor monitoring will be implemented into fsNMR program in same way as latest NMR program.
    3.1. Rather than separate subVIs for monitoring, it will be integrated into fsNMR program

4. Discussed data acquisition methods of fsNMR program
    4.1. Program should continue to run multiple, full frequency sweeps, collecting one data point at every frequency in a sweep
    4.2. Acquiring multiple data points at a frequency while performing only one sweep may negatively affect target
    4.3. More information on fsNMR results will be needed to be able to determine if using lock-in amplifier buffer would be usedful
    4.4. Further tests required with current program with cold dewar and target to determine its behavior
    4.5. Alternate DAQ methods will be revisited at a later data

5. For future testing, DSG will coordinate with HDice group to avoid conflicting programs from attempting to use same resources (RS-485 ports, GPIB ports) on PC.