

DSG – HDice Meeting

Date: July 9, 2020

Time: 2:00PM – 2:30PM

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

1. Discussed how to address fsNMR feedback

- 1.1. Phase's average data not plotting in red
 - 1.1.1. Resolve issue by forcing settings of plots to show in expected colors
 - 1.1.1.1. Averaged data should be in red; live data in white
- 1.2. What is source of unexpected spikes in background scaled data
 - 1.2.1. Spikes in test data may be due to background data being ~0 V for certain frequencies
 - 1.2.2. With formula in point 2.1, if $B = \sim 0$ V, resulting scaled value will tend to infinity (aka spike)
- 1.3. Scaling can be removed for phase measurements
 - 1.3.1. Background data will still be subtracted from phase measurements
- 1.4. Moving prompt for run comments to start of program
 - 1.4.1. Currently, prompt opens at end of all cycles
 - 1.4.2. Because cycle times vary by up to a few seconds, the only way to ensure the user can enter a comment is if they sit at the PC for entire run
 - 1.4.3. Moving prompt for entering comments will more easily allow comments to be entered for runs

2. Verified background subtraction and scaling method is correct

- 2.1. Equation used: $S = (N - B) \times \frac{M}{B}$
 - 2.1.1. S = resulting scaled data
 - 2.1.2. N = newly acquired data at frequency f
 - 2.1.3. B = background data point at frequency f
 - 2.1.4. M = absolute maximum of background data

3. Status of adding temperature and liquid helium level monitoring to fsNMR program

- 3.1. Marc McMullen is in process of adding monitoring capabilities to fsNMR program
 - 3.1.1. All development is done offline with simulated data
- 3.2. Monitoring capabilities are an additional feature (not part of Stage 1 or Stage 2 fsNMR program)

4. Zurich lock-in amplifier

- 4.1. Xiangdong Wei will set up the lock-in amplifier to allow further testing of its capabilities
- 4.2. Lock-in amplifier will be connected to network to allow remote usage
 - 4.2.1. Xiangdong Wei will inform DSG of its MAC address
 - 4.2.2. DSG will coordinate with Computer Center to get it assigned to Hall B subnet

5. UITSF "Run 0" scheduled for week of July 20, 2020

- 5.1. Run 0 is mainly a test of Accelerator's UITSF setup, not HDice equipment
- 5.2. Run 1, which will use HDice equipment, is scheduled for ~August 20.