

DSG - HDice Meeting

Date: June 11, 2020

Time: 2:00PM – 2:30PM

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

1. Presented slides on fsNMR program additions

- 1.1. https://www.jlab.org/div_dept/physics_division/dsg/presentations2/Additional_fsNMR_features_progress.pdf

2. Cryogenic sensor monitoring in fsNMR

- 2.1. Marc McMullen is developing sensor monitoring interface for fsNMR program
- 2.2. Controls will be added to program to allow user to enable/disable sensor monitoring
 - 2.2.1. In-Beam Cryostat (IBC) sensors are not able to be monitored with LabVIEW, so ability to enable/disable sensor monitoring is important to allow fsNMR program to be run without errors for target in IBC.
- 2.3. If Production Dewar (PD) is used, program will also have alarm capabilities to send emails
- 2.4. Sensor data will be logged in same data directories as fsNMR data

3. Offline polarization calculations

- 3.1. Offline calculations currently performed using SigmaPlot
- 3.2. Each data file is manually entered into program to calculate polarization
- 3.3. Eventually, a more automated analysis procedure is desired
 - 3.3.1. Time constraints have prevented and will prevent development of automated analysis.

4. Zurich lock-in amplifier

- 4.1. Once fsNMR program is finalized and fine-tuned, HDice will be able to use fsNMR program in place of Zurich lock-in amplifier
- 4.2. At this point, DSG will be able to use Zurich lock-in amplifier to develop a new program that includes signal averaging and analysis.

5. Discussion of background analysis and scaling

- 5.1. Background subtraction and scaling performed with the assumption that the background data is the same shape as the scan signal
- 5.2. With background subtraction and scaling, end result of calculations are data with NMR signal extracted.