

Transversity

He3 Target Status

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Status Summary

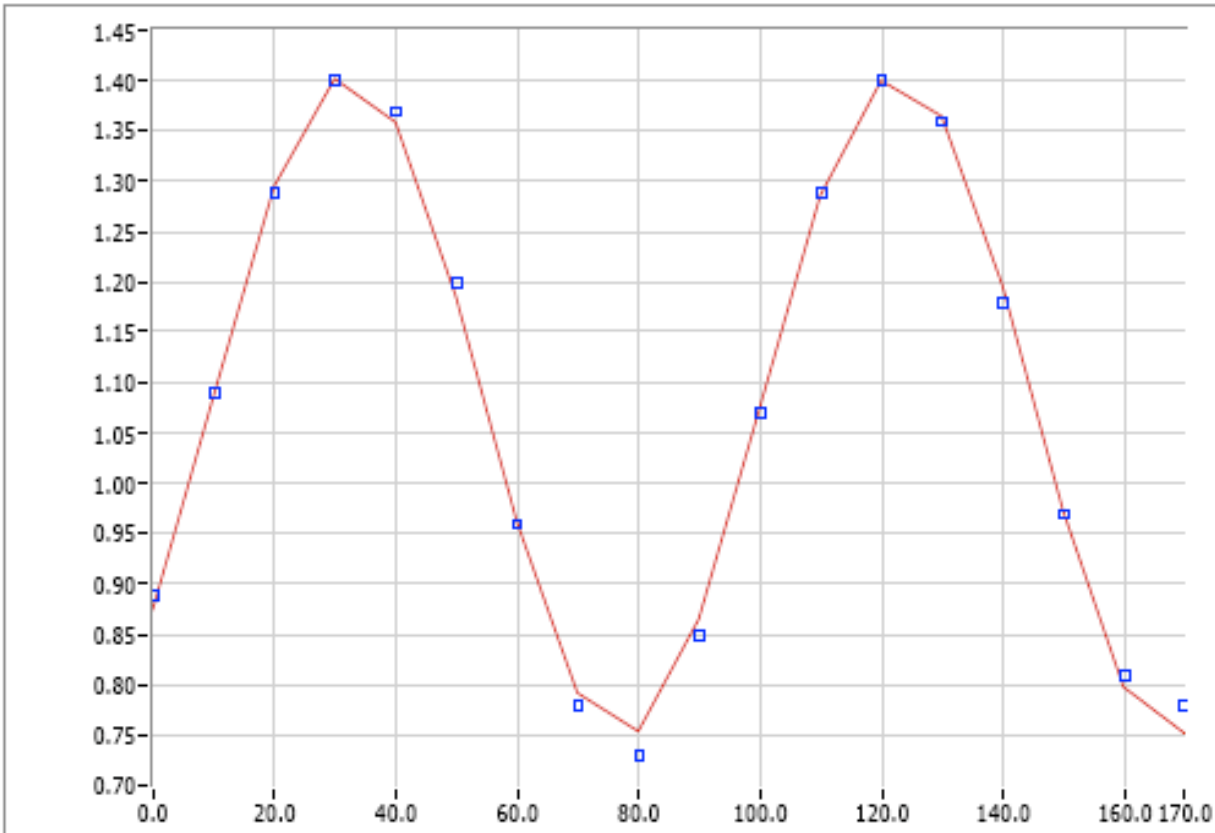
- Rotation Stage (Slide 3)
- Quarter-Waveplate (Slide 4-5)
- Characters of Polarizing Angle (Slide 6-7)
 - Spin-up
 - FS AFP Loss (waiting for data $\wedge_ \wedge$)
- Spin-Reversal Result (Slide 8-12)
- Conclusion and To do list (Slide 13)

Rotation Stage

- Max Speed is $50^\circ/\text{s}$
 - Better we set rotation time to 2s
- Temperature is $36^\circ\text{-}38^\circ$
- In Configuration Panel
 $1^\circ=6400\text{Tics}$

P-Wave

Polar/Depolar (mV vs T)



X-->IN

0	0.00
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	
120.00	
130.00	
140.00	
150.00	
160.00	
170.00	

Y-->IN

0	0.89
10.00	1.09
20.00	1.29
30.00	1.40
40.00	1.37
50.00	1.20
60.00	0.96
70.00	0.78
80.00	0.73
90.00	0.85
100.00	1.07
110.00	1.29
120.00	1.40
130.00	1.36
140.00	1.18
150.00	0.97
160.00	0.81
170.00	0.78

Graph controls: zoom in (+), zoom out (-), pan, and other standard plot tools.

DATA FIT: A small icon showing the data points and the fitted curve.

$$y = a * \sin(b * x + c) + d$$

Initial coefficients

Best coefficients

0.03000
0.07000
0.00000
1.10000

0.32858
0.06941
-6.94752
1.07702

OUT-->Chisqr/v
2.3493E-4

FIT

BF90 Max
1.40557

BF90 Min
0.74861

AF90 Max
1.40554

AF90 Min
0.74844

BF90 Max Index
32

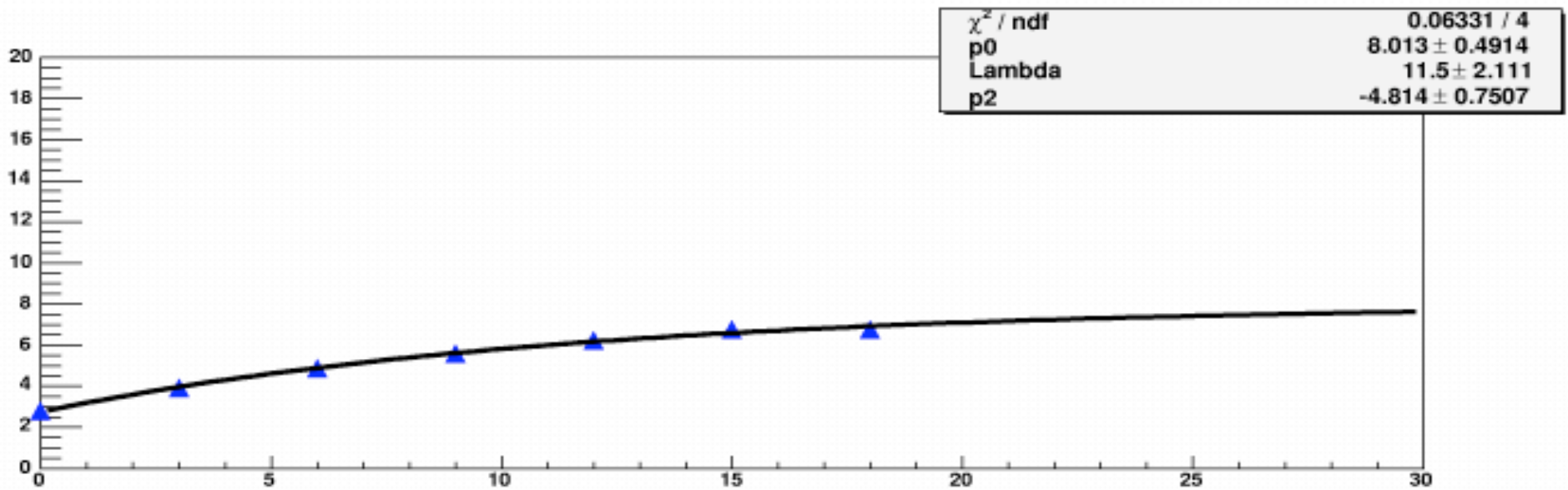
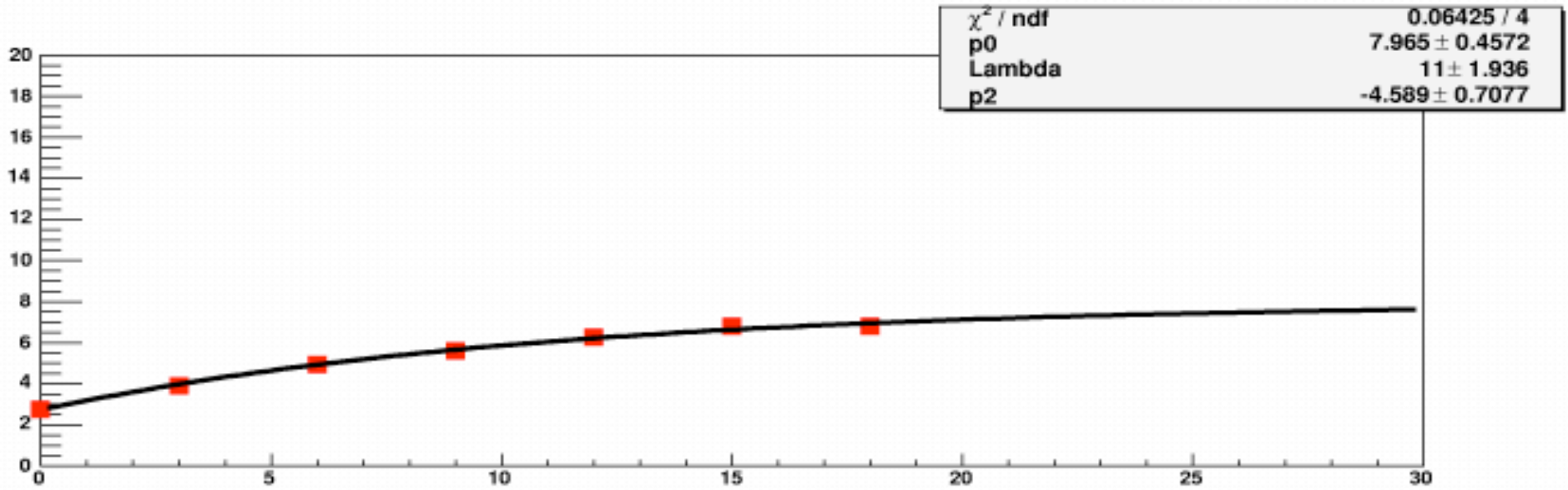
BF90 Min Index
77

AF90 Max Index
123

AF90 Min Index
168

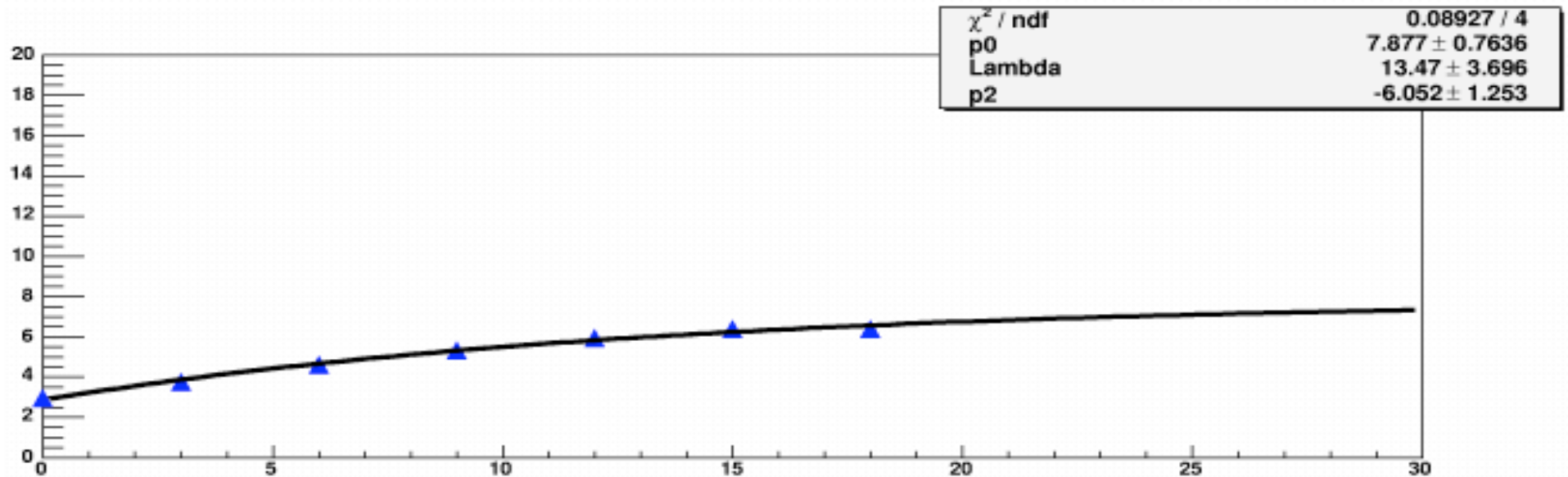
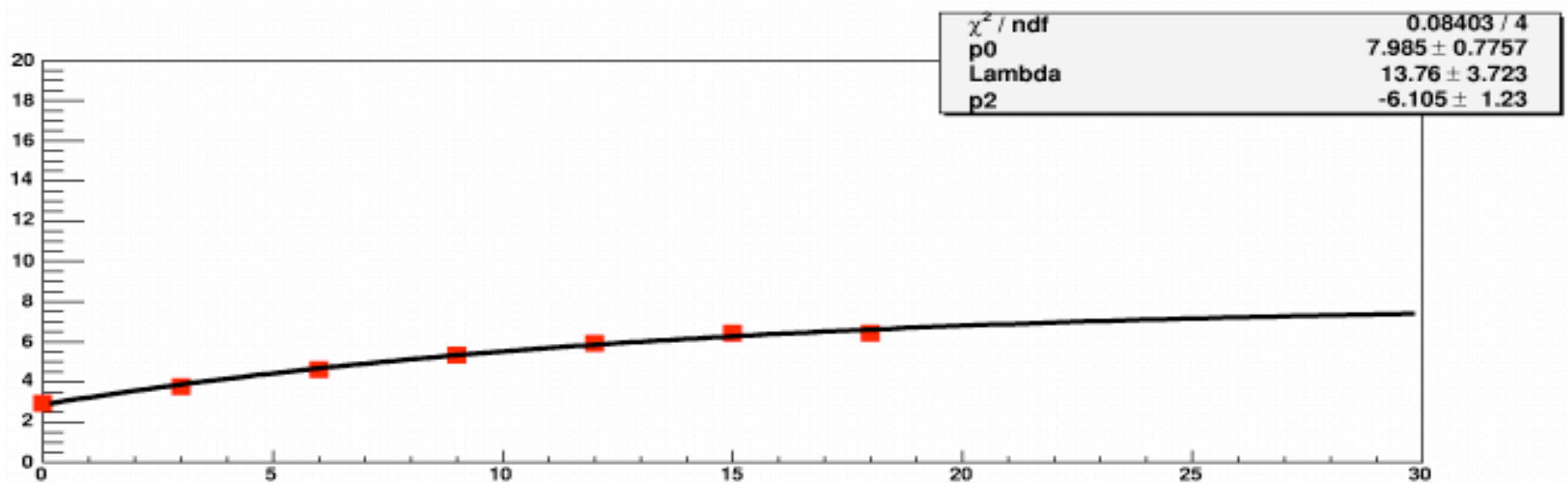
Angle 168 Spin-Up

6



Angle 77 Spin-Up

7



Frequency Sweep

Start Time 5:39:49 PM **Stop Time** 5:40:04 PM **Frequency Sweep NMR**

NMR Signal (mV vs kHz) X CHANNEL Data File X C:\Physics Room\EEL_GEN\F5\x-1-27-5-40pm.dat

81.25

NMR Signal (mV vs kHz) Y CHANNEL Data File Y C:\Physics Room\EEL_GEN\F5\y-1-27-5-40pm.dat

STAGE

X UP/DOWN GO STOP

Time of Sweep 5:39:50 PM 1/27/2006

RF GPIB Address 19 **RF off**

NMR Sweep Inputs

Current Sweep Number 1

Number of Sweeps 1

Lock-in Sensitivity 100 mVrms

Reference Phase 0

Minutes between Sweeps 240.00

Frequency Sweep Inputs

RF Voltage (rms) 1.0000

Low Freq. (kHz) 77.00 High Freq. (kHz) 85.00

Sweep Up Time 2.00 Sit time (sec) 0.00

Sweep Period 4.00 **4kHz/s**

Measured Sensitivity 0.00 Measured Phase (deg) 0.00

number of points 640

Pn&Pe

The image shows a software interface for configuring simulation parameters. The parameters are organized into two columns. The left column contains input fields for T_f , T_u , δ , and N . The right column contains output fields for P_N/P_{max} and P_e/P_{max} . Each input field has a small circular icon to its left, and each output field has a corresponding label above it. The N input field is highlighted with a red rectangular border.

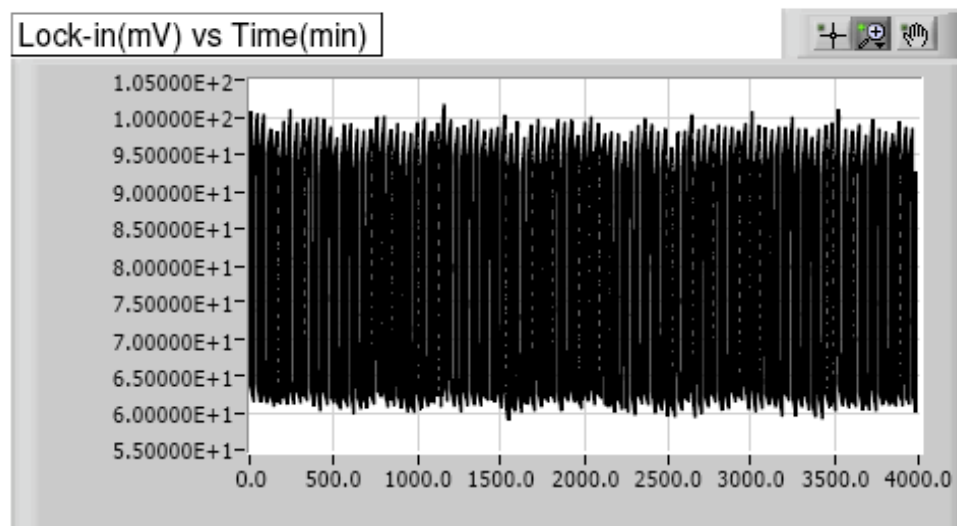
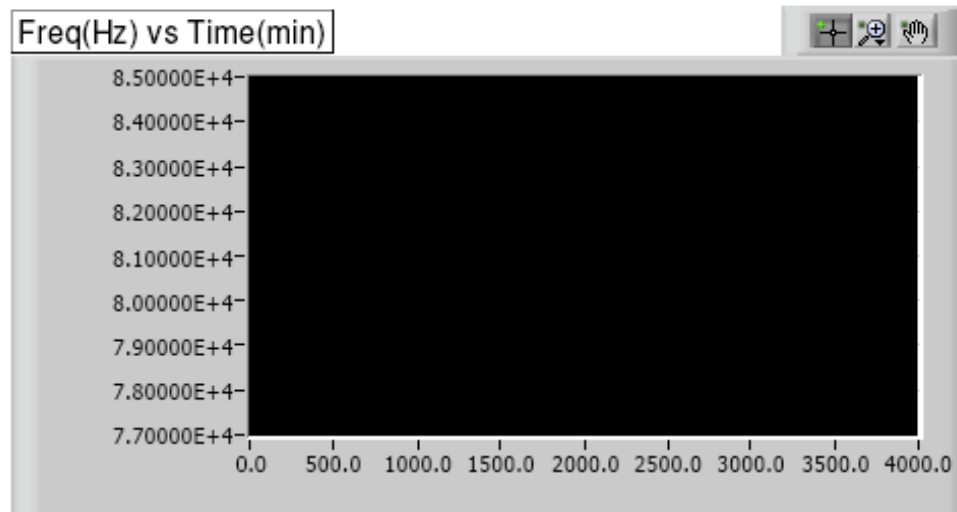
Parameter	Value
T_f	20
T_u	780
δ	0.005
N	200
P_N/P_{max}	0.838918
P_e/P_{max}	0.838567

Spin Reverse

Spin Reverse for NMR

TO

1/30/2006, 12:24:21 PM



SRNMR Data File

C:\Physics Room\hyao\Spin Reverse\SRNMR-2006-1-30-12-24-14.dat

Status

Waiting for Sweep

Current Cycle	Time	Sweep StartTime
1	0.00E+0	5:44 PM
SR844 Phase	Freq	Sweep EndTime
0	7.70E+4	12:31
Rotator Connection	Lock-in	Sweep ElapsedTime
Rotator ON	1.01E+2	4000.00 min
Current Angle	Sweep StartPnt	Sweep EndPoint
168	32.23 s	240432.23 s

Parameters

HP3324A	SR844 Lock-in		
Start Freq	# of cycle	Sensitivity	
77000.00 Hz	200	100 mVrms	
Stop Freq	Sweep Time	Time Constant	
85000.00 Hz	2.00 sec	10 ms	
RF Ampl	Wait Time		
3.20 Vrms	20.00 min		
Sweep Mode	HP3324A GPIB	SR844 GPIB	Rotation Angle
Auto	19	8	90.00
Manual			

Clear Graph

SWEEP

SET ROTATOR

EXIT

NMR Before Run SP

11

NMR Measurement

NMR Signal (mV vs G) X CHANNEL

6.49

NMR Signal (mV vs G) Y CHANNEL

Data File C:\Physics Room\EEL_Gen\NMR\AFP\y-1-30-12-25pm.dat

Bmin (G)
25.0

Speed (G/s)
1.2

Bmax (G)
32.0

GO

EXIT

12:25 PM

1/30/2006

Delay between sweeps (min)

180

Frequency (Hz)
91000

Number of sweeps

1

Current sweep

1

Lock-in
Phase (deg) 0.00

STAGE

sensitivity

COMPLETED

Number of points stored
950

UP
DOWN

Y

UP
DOWN

NMR After Run SP

12

NMR Measurement

NMR Signal (mV vs G) X CHANNEL

3.01

NMR Signal (mV vs G) Y CHANNEL

Data File C:\Physics Room\EEL_GEn\NMR\AFP\y-1-27-5-42pm.dat

Bmin (G) Speed (G/s)
Bmax (G)

GO **EXIT**

5:42 PM 1/27/2006

Delay between sweeps (min)

Frequency (Hz)

Number of sweeps

Current sweep

Lock-in Phase (deg)

STAGE sensitivity
COMPLETED

Number of points stored

X

Y

Conclusion and To do

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From these date, we got $\delta = 3\%$

It seems not to match our experiment result $\delta=0.3\%-1\%$

So it must have sth wrong during SP.

The main work is to find what depolarizes the target during spin flip.