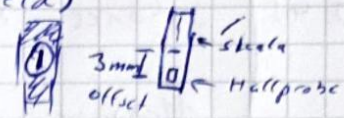
Kernspin

59/5 228 =

10.9.2019

Time	Description
10:29	Building Hallsonde (test of homogene field) Putting probe in the middle. 
10:33	First measurement siehe page 1 Hallsonde 1
10:49	Measurement till depth of 25mm finished starting from 8mm homogen field.
10:53	starting with Glycol at 2cm depth H auf 42,58 $\frac{MHz}{T}$. ~~25~~.425mT = 18,0965 MHz
11:07	Watching HF at the Oszi Not working didn't find the ressonanz First tuning with magnetic field then frequenzchange
11:07 - 12:40	Tutor helping talking about uncertainties siehe anderes Blatt. 2
12:42	Untergrund without Probe ~~Frequenz~~ (outsample) Untergrund mit Probe (H) aber zu tief (in sample)
12:45	Messung der änderung bzgl Frequenz zu veränderung der Absorbtionslinien (position) $\frac{dx}{dt}$ 1-6 genaueres siehe Blatt 3
12:56	Best Guess ~~E=0~~ 42_guess & Bild der einstellung
13:19	Magnetfeld Messung 401 mT ~~Kalibrierung~~ änderung mit 19,5194 ~~guess~~ 2 Messungen unterschiedlicher Frequenzen Magnetfelder siehe Blatt 3
14:00	andere Messungen alle auf Blatt drei
15:00	Hallsonde neue :P
16:20	Flow neue gemessen mit neuer Hallsonde

Day 2 11.09.19

Date	Description
8:50	Aufbau erste Tests rumspielen mit den Aufbau.
10:45	schönes Bild Messung siehe Blatt 4
10:54	Cursor to see the ground level 1 Measure
11:24	Problem with the new Hall Probe - Sägezahn moving current warming it up - temperature in the Magnet heating if causing the drop ⇒ New measurements possible bad data for Lockin_2
11:43	
12:25	Längere Magnetfeld Messung Sawthooth problematic ↓ increases and drops the magnetic field
12:35	Measurement without sawthooth and sine 2. times 2 time faster drop due to already warmer.

Drift of warming magnets in our Region ganz frequenz magnetic field gets lower

Problem 5s Osci slow refreshing dauert lange

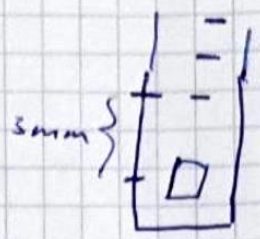
Errors: NMR Osci last digit ±5 ½ error

New Probe: DC ± (5%. rdg + 20 digit)

Hallsonde 1

Page 1

Striche	Höhe/Tiefe	B-Feld ⊥
	[3mm	-418 mT] nicht mittig
(1 St)	3 mm	-414 mT
(2 St)	4 mm	-421 mT
(3 St)	5 mm	-423 mT
(4 St)	6 mm	-424 mT
5 St	7 mm	-424
6 St	8 mm	-425
7 St	9 mm	-425
8 St	10 mm	-425
9 St	11 mm	-425
10 St	12 mm	-425
11 St	13 mm	-425
12 St	14 mm	-425
13 St	15 mm	-425
	20 mm	-425
	25 mm	-425 mT



Blatt 3

- Frequenz zu Absorbtionslinien position

Freq in MHz	Datei	Notiz
~~18,9886~~ MHz	~~dx_1~~	Last digit jumping
~~18,9420~~ MHz	dx_2	
~~18,8936~~ MHz	dx_3	
~~18,8963~~ MHz		
18,9886	dx_1	[sehr] breit
18,9420	dx_2	
18,8936	dx_3	
18,8458	dx_4	
18,8082	dx_5	[(sehr) breit]

H_2

Magnetfeld	Frequenz MHz	Datei
414 mT	19,5592	guess_2
418 mT	19,6744	guess_3
404 mT	19,0018	guess_4
380 mT	18,1480	guess_5
371 mT	17,5159	guess_6 — (clear CH 1, 200 mV – 500 mV)
397 mT	18,6406	guess_7

Glycol

	MHz	
395 mT	18,5743	~~gly~~ guess_glycol
383 mT	18,0769	~~glyc~~ guess_glycol2
371 mT	17,5178	guess_glycol3
405 mT	19,0363	guess_glycol4
414 mT	19,4891	guess_gly5

^{19}F B	f MHz	Liste	Neue Hallprobe
~~440 mT~~	~~19,5388~~	~~guess_f1~~	
~~484 mT~~	~~19,0828~~	~~guess_f2~~	
461 mT	19,0968	guess_f1	
503 mT	19,4987	guess_f2	
474 mT	18,5235	guess_f3	
(436 mT	17,9994	guess_f4) mag. Feld zu klein	
447	17,5470	guess_f5	
466	18,0218	guess_f6	

↑ wie Gauß

Coclein_1:

BGH 4

U [V]	I [A]	Hall probe Magnetfeld [mT]	Datei name	Frequence [MHz]	Parameter
08,7	3,42	467 [mT]	Coclein_2 (png / csv)	19,2625	Time const: 1
08,7	3,42	464 [mT]	Coclein_3 (png / csv)	19.2629	Quadrature
-11-	-11-	449 [mT]	Coclein_4 (png / csv)	19.0935	
		466 [mT]	Coclein_5 (csv / png)	19.0041	
-11-	3,42	465 [mT]	Coclein_6 (csv / png)	19.1063	
	3.41	463 [mT]	Coclein_7 (csv / png)	19.2091	
	3.41	462 [mT]	Coclein_8 (csv / png)	19,2518	
-11-	-11-	464 [mT]	Coclein_9 (csv / png)	19,1344	

-11-

tief
CA = 3,41 ; I 8,7
τ = 3 s

Hallprobe Testmessung

time	mT		
0	422	2:50	28
20	32	3:00	25
30	428	3:10	422
45	428	3:20	427
50	426	3:40	424
60	424	3:50	422
70	429	4:00	426
80	426		
90	423		
100	422		
120	424		
1:20	427		
2:30	24		
2:40	422		

1.

time (s)	Magnet. [mT]
0	434
76	432
20	430
30	428
40	427
50	427
60	426,2
70	426,1
80	425,8
90	425,6
100	425,3
110	425,3
120	425,0

2. more precise

time (s)	[mT]
0	433
5	432,6
10	431,7
15	430,7
20	429,8
25	428,9
30	428,3
35	427,8
40	427,3
45	426,8
50	426,5
55	426,2
60	426,1
65	425,7
70	425,6
75	425,3
80	425,3
85	425,1
90	425,0
95	425,0
100	424,9
105	424,9
10:10	424,9
2:00	424,9
2:30	424,7

3:00	424,7
3:30	424,5
4:00	424,5
4:30	424,5