Software for simultaneous degaussing of magnets

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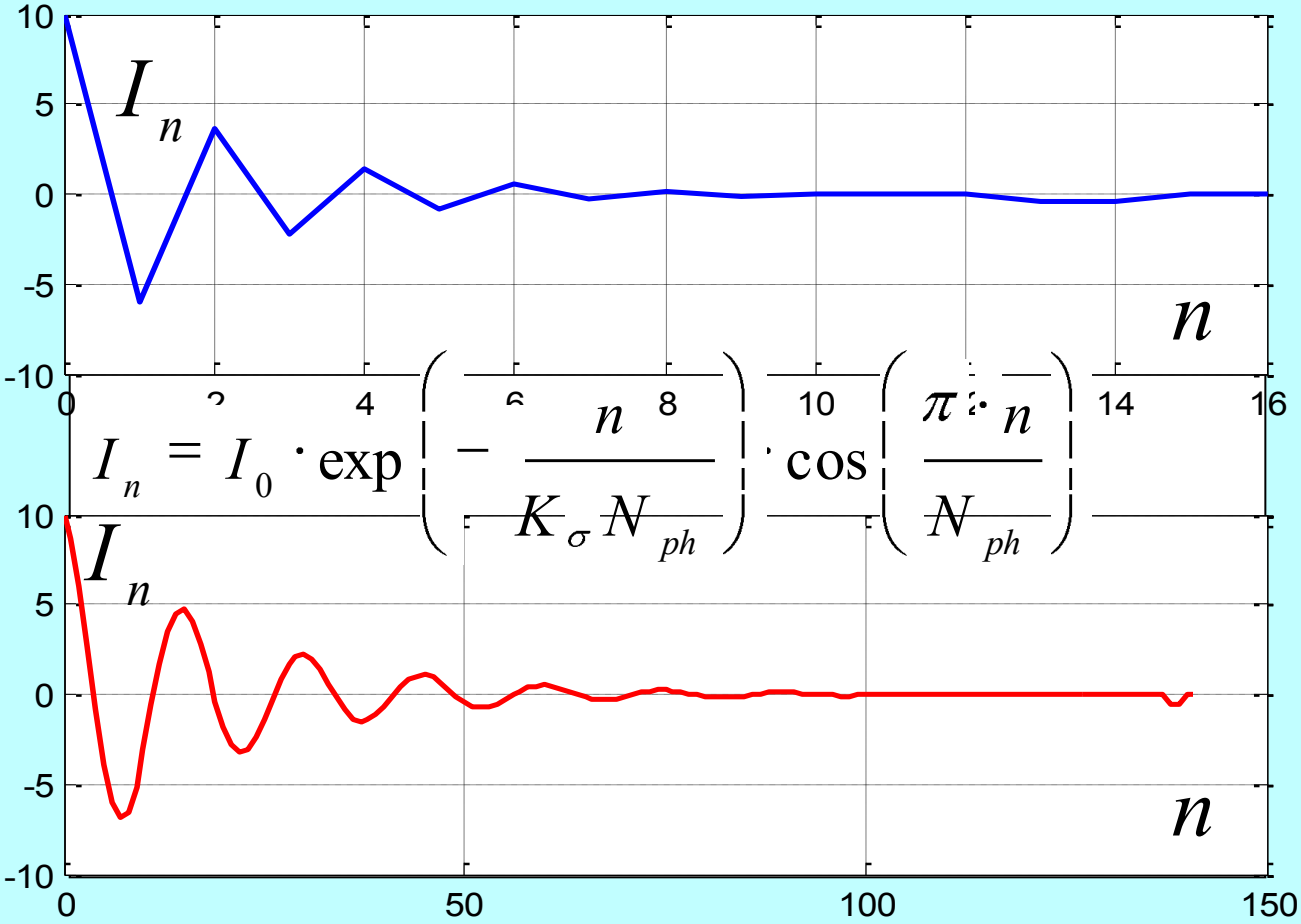
Introduction

- Instead of usage of many scripts for magnets degaussing a program created, which degausses many magnets simultaneously. And this makes possible to control the communications with servers. Due to this fact some old unlikely things disappeared.
- Easy to use. Instead of running all scripts (by pushing buttons or in other way) one can run this program using “ini” file, which includes all the magnets to be degaussed or just giving magnets to program us arguments.
  %./Degausser –i Ini1.ini
  %./Degausser HIGH1.Q1 -0.35 HIGH2.Q2 -0.43
- Difference in degaussing time for old and new procedures.

List of the magnets to be degaussed

N	Magnet Name	Start Current [A]		Penul Current [A]		T[s] (Period)		Step Size[s]		inv dump		Min. Current [A]	
		Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow
1	HIGH1.Q1	10		-0.35	-0.5	2	15	0.1		2	20	0.01	
2	HIGH1.Q2	10		-0.43	-0.5	2	15	0.1		2	20	0.01	
3	HIGH1.Q3	10		-0.35	-0.5	2	15	0.1		2	20	0.01	
4	HIGH1.Q4	10		-0.43	-0.5	2	15	0.1		2	20	0.01	
5	DISP2.QUAD1	16		0		2		0.1		2		0.01	
6	HIGH1.Q5	10		-0.22	-0.5	2	15	0.1		2	20	0.01	
7	HIGH1.Q6	10		-0.22	-0.5	2	15	0.1		2	20	0.01	
8	LOW.DIPOLE	-3.5		???	-0.5	???	15	???	0.5	???	25	???	0.005
9	HIGH1.DIPOLE	-160		???	-5	???	2	???	0.5	???	2	???	0.01
10	HIGH2.DIPOLE	-3		???	-0.5	???	15	???	0.1	???	25	???	0.005
11	PST.QM1	10		-0.2		2		0.1		2		0.01	
12	PST.QM2	10		-0.2	-0.5	2	15	0.1		2	20	0.01	
13	PST.QM3	10		-0.2	-0.5	2	15	0.1		2	20	0.01	
14	PST.QT1	10		-0.3	-0.5	2	15	0.1		2	20	0.01	
15	PST.QT2	10		-0.3	-0.5	2	15	0.1		2	20	0.01	
16	PST.QT3	10		-0.3	-0.5	2	15	0.1		2	20	0.01	
17	PST.QT4	10		-0.3	-0.5	2	15	0.1		2	20	0.01	
18	PST.QT5	10		-0.2	-0.5	2	15	0.1		2	20	0.01	
19	PST.QT6	10		-0.3	-0.5	2	15	0.1		2	20	0.01	

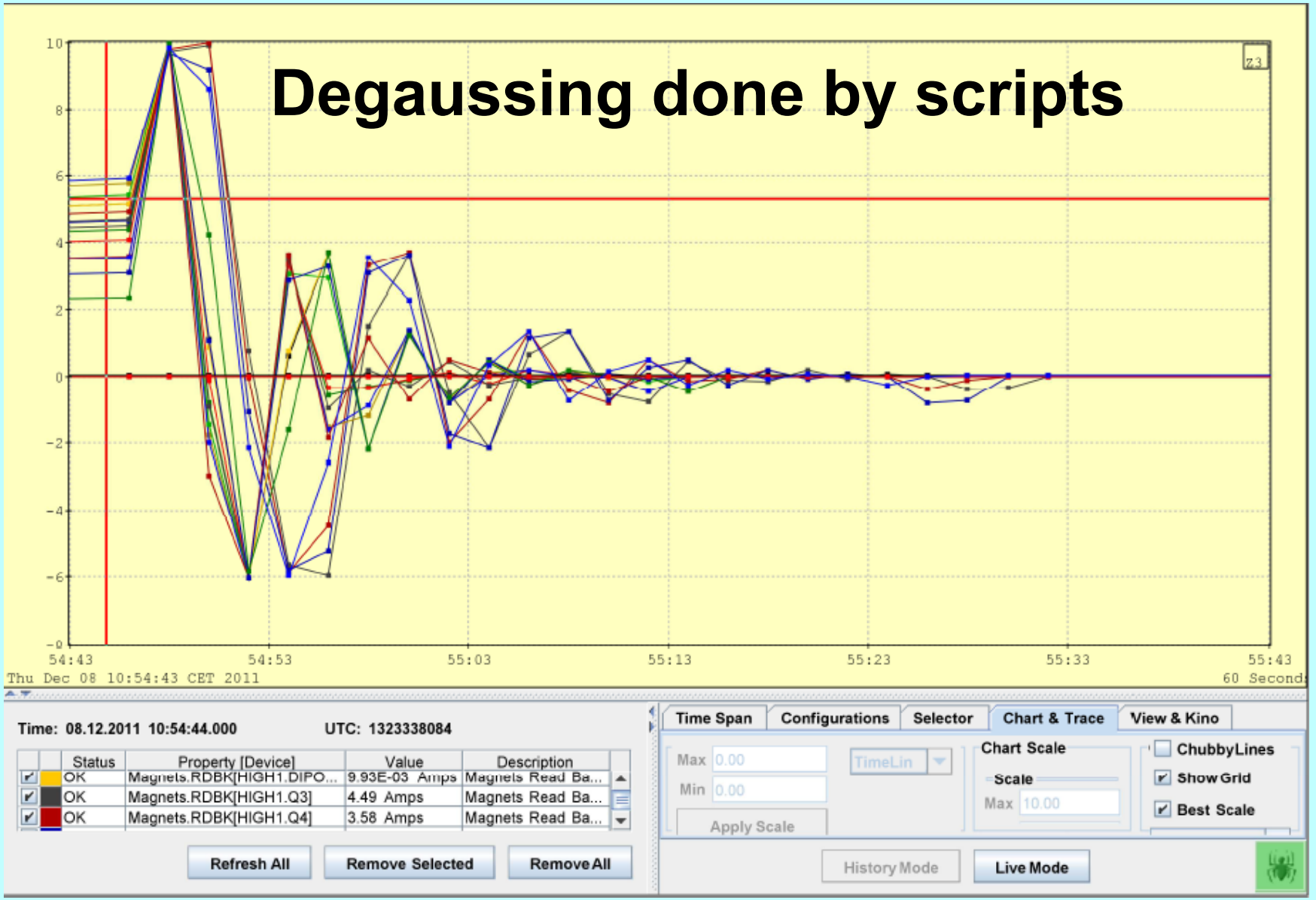
How the graphs for fast and slow degaussing should look like



Parameters of degaussing of new soft

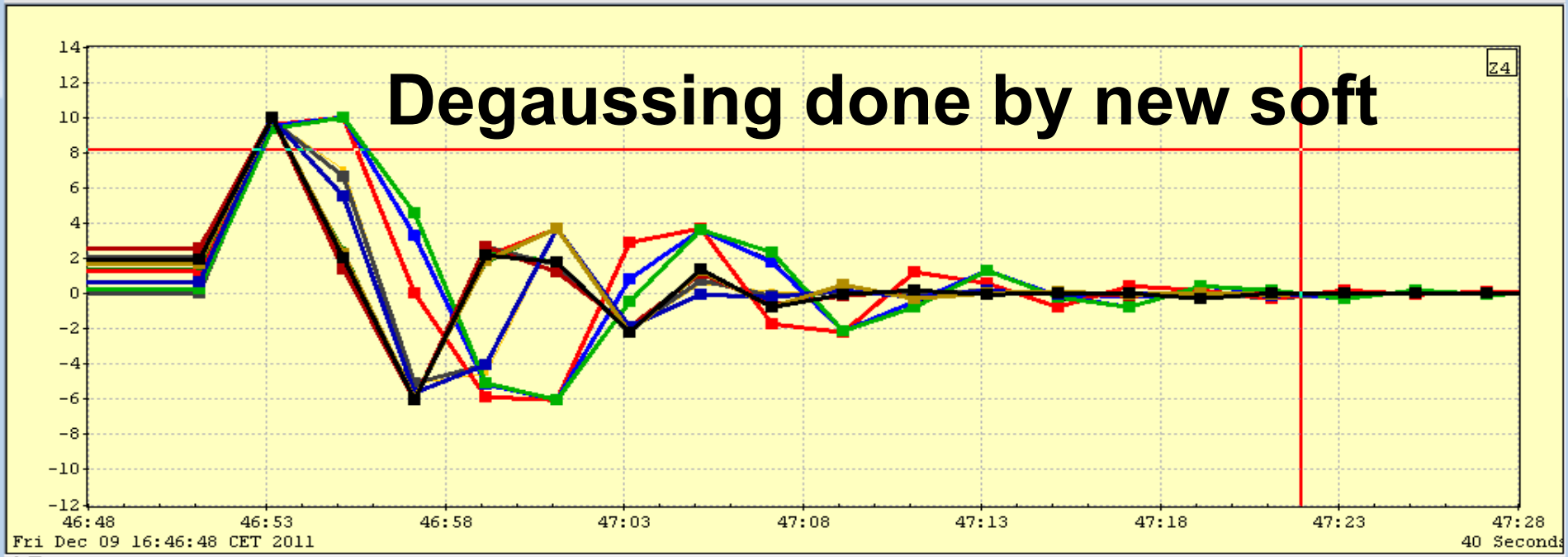
N	Magnet Name	Start Current [A]		Penul Current [A]		Nph		Step Size[s]		Kσ		Min. Current [A]	
		Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow	Fast	Slow
1	HIGH1.Q1	10		-0.35	-0.5	1	7.5	0.1		2	2.667	0.01	
2	HIGH1.Q2	10		-0.43	-0.5	1	7.5			2	2.667		
3	HIGH1.Q3	10		-0.35	-0.5	1	7.5			2	2.667		
4	HIGH1.Q4	10		-0.43	-0.5	1	7.5			2	2.667		
5	DISP2.QUAD1	16		0		1				2			
6	HIGH1.Q5	10		-0.22	-0.5	1	7.5			2	2.667		
7	HIGH1.Q6	10		-0.22	-0.5	1	7.5			2	2.667		
8	LOW.DIPOLE	-3.5		???	-0.5	???	7.5	???	0.5	???	3.333	???	0.005
9	HIGH1.DIPOLE	-160		???	-5	???	1	???	0.5	???	2	???	0.01
10	HIGH2.DIPOLE	-3		???	-0.5	???	7.5	???	0.1	???	3.333	???	0.005
11	PST.QM1	10		-0.2		1		0.1		2		0.01	
12	PST.QM2	10		-0.2	-0.5	1	7.5			2	2.667		
13	PST.QM3	10		-0.2	-0.5	1	7.5			2	2.667		
14	PST.QT1	10		-0.3	-0.5	1	7.5			2	2.667		
15	PST.QT2	10		-0.3	-0.5	1	7.5			2	2.667		
16	PST.QT3	10		-0.3	-0.5	1	7.5			2	2.667		
17	PST.QT4	10		-0.3	-0.5	1	7.5			2	2.667		
18	PST.QT5	10		-0.2	-0.5	1	7.5			2	2.667		
19	PST.QT6	10		-0.3	-0.5	1	7.5			2	2.667		

Degaussing done by scripts



Archive Viewer: PITZ Motto: Hold the Pickles, Hold the Lettuce...

File Navigate Options Help



Time: 09.12.2011 16:47:22.000 UTC: 1323445642

		Status	Property [Device]	Value	Description
☑		OK	Magnets.RDBK[HIGH1.Q1]	0.11 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[HIGH1.Q2]	-0.29 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[HIGH1.Q3]	0.08 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[HIGH1.Q4]	0.15 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[HIGH1.Q5]	-7.44E-04 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[HIGH1.Q6]	-3.73E-04 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QM1]	-0.13 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QM2]	-0.08 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QM3]	-0.07 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT1]	0.00 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT2]	-0.30 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT3]	7.45E-04 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT4]	0.00 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT5]	-0.03 Amps	Magnets Read Bac...
☑		OK	Magnets.RDBK[PST.QT6]	-0.30 Amps	Magnets Read Bac...

Refresh All Remove Selected Remove All

Time Span | Configurations | Selector | Chart & Trace | View & Kino

Subsystem: ALL

- Laser.NPulses
- Laser.Attenuator
- Magnets.RDBK
- Magnets.Main.Readback
- Magnets.Main.Setpoint
- Magnets.SetPoint
- Magnets.Steer.Readback
- Magnets.Steer.Setpoint
- Mirror.X
- Mirror.Y
- Mirror.X.Abs
- Mirror.Y.Abs

Magnets Read Back Value

Device Name: PST.QT6

Selected Bit: ALL

Add Selected

History Mode Live Mode

16:48:39: History data for selected channels loaded.

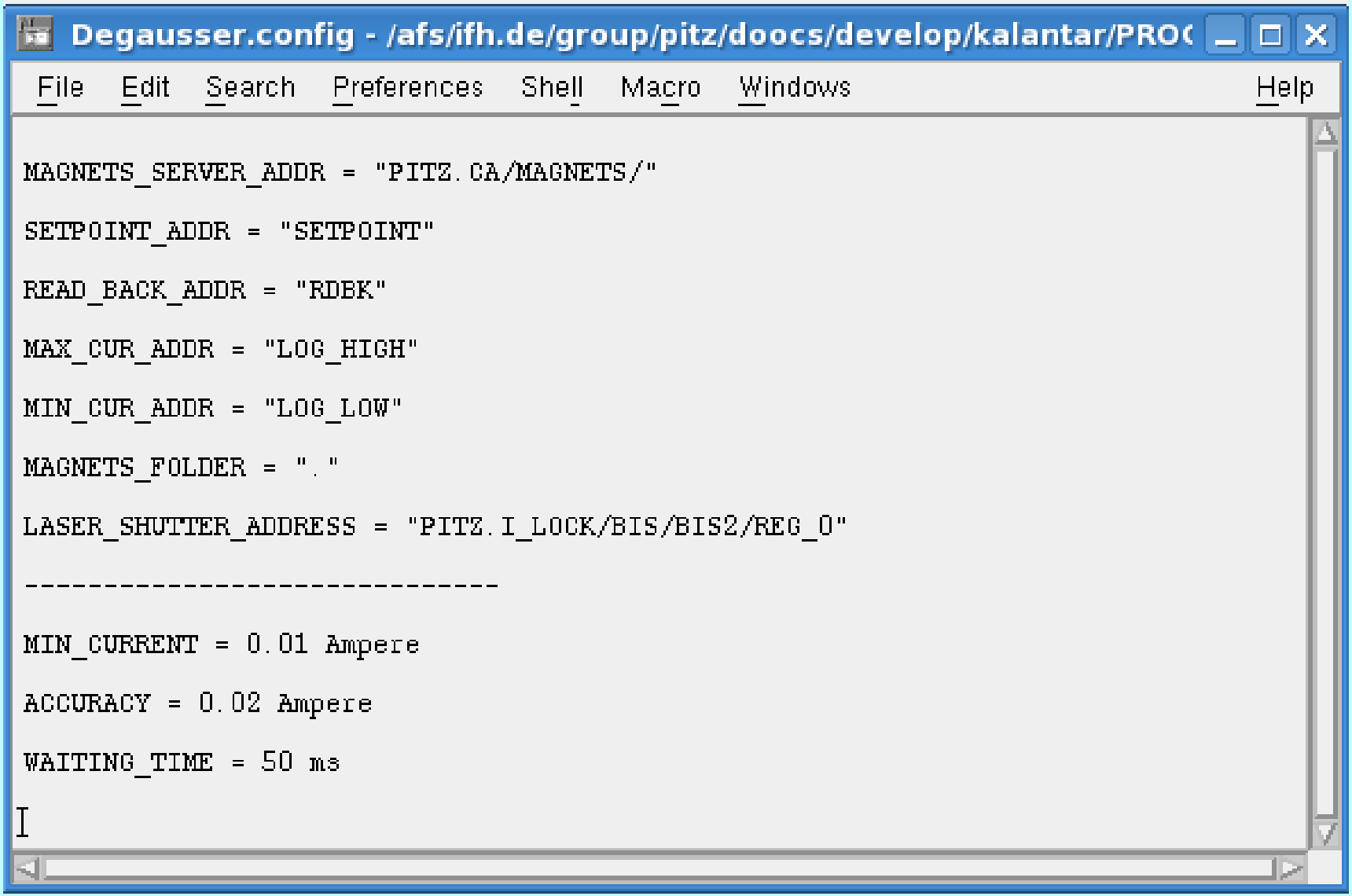
About config files

In the future for not changing anything in the source code, and this means for not being forced to recompile the code, some parameters those can be reconsidered (due to some reasons) are outsourced to config file. Config file that is necessary for running program is: "../Configs/Degausser.config". If due to some reasons file doesn't exist, then during running the program message will be received about not existing of config.

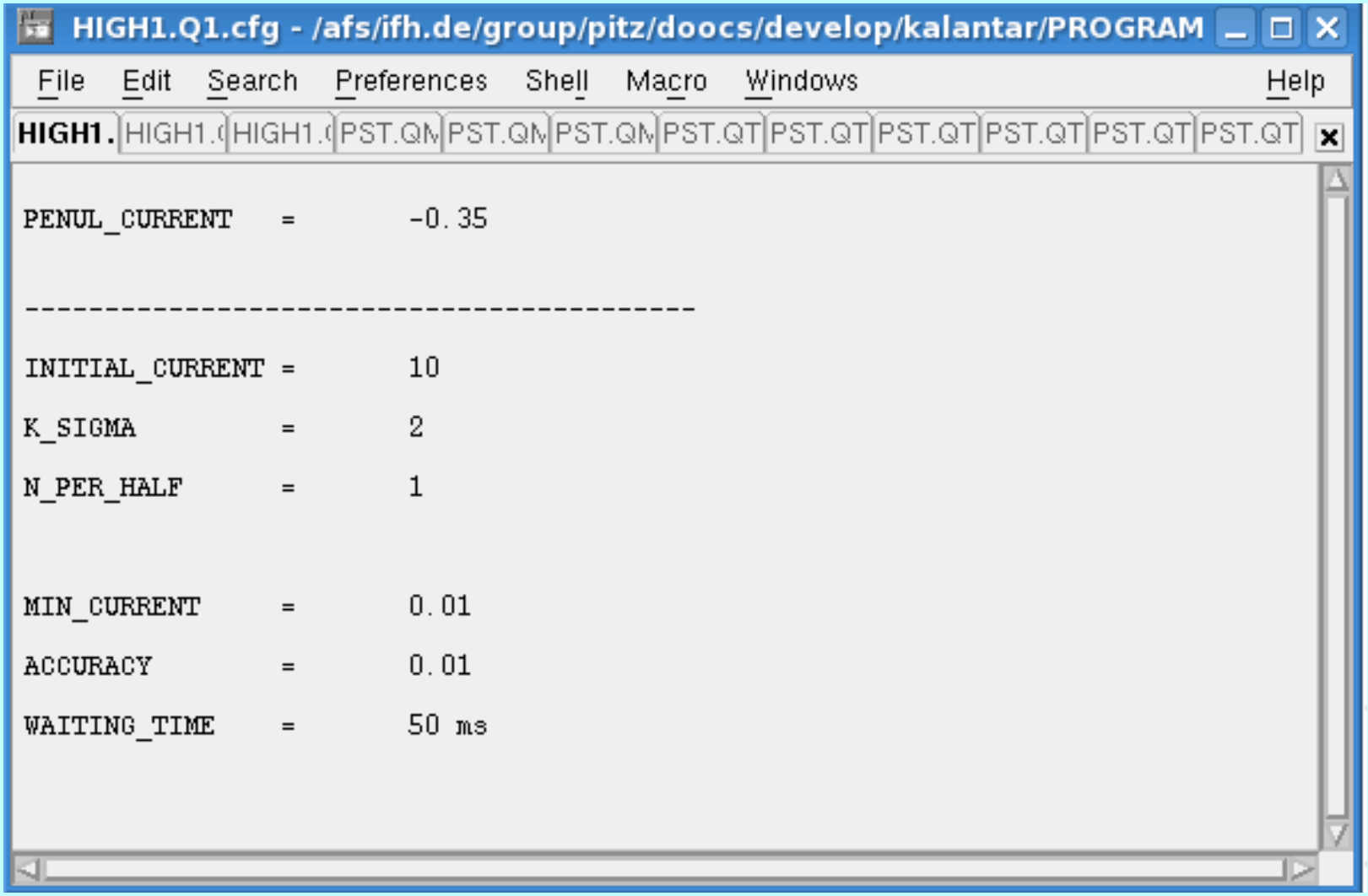
[blade83] …/DeGausserGUI % ./Degausser HIGH1.Q1 -0.35
../Configs/Degausser.config file doesn't exist
[blade83] …/DeGausserGUI %

Message

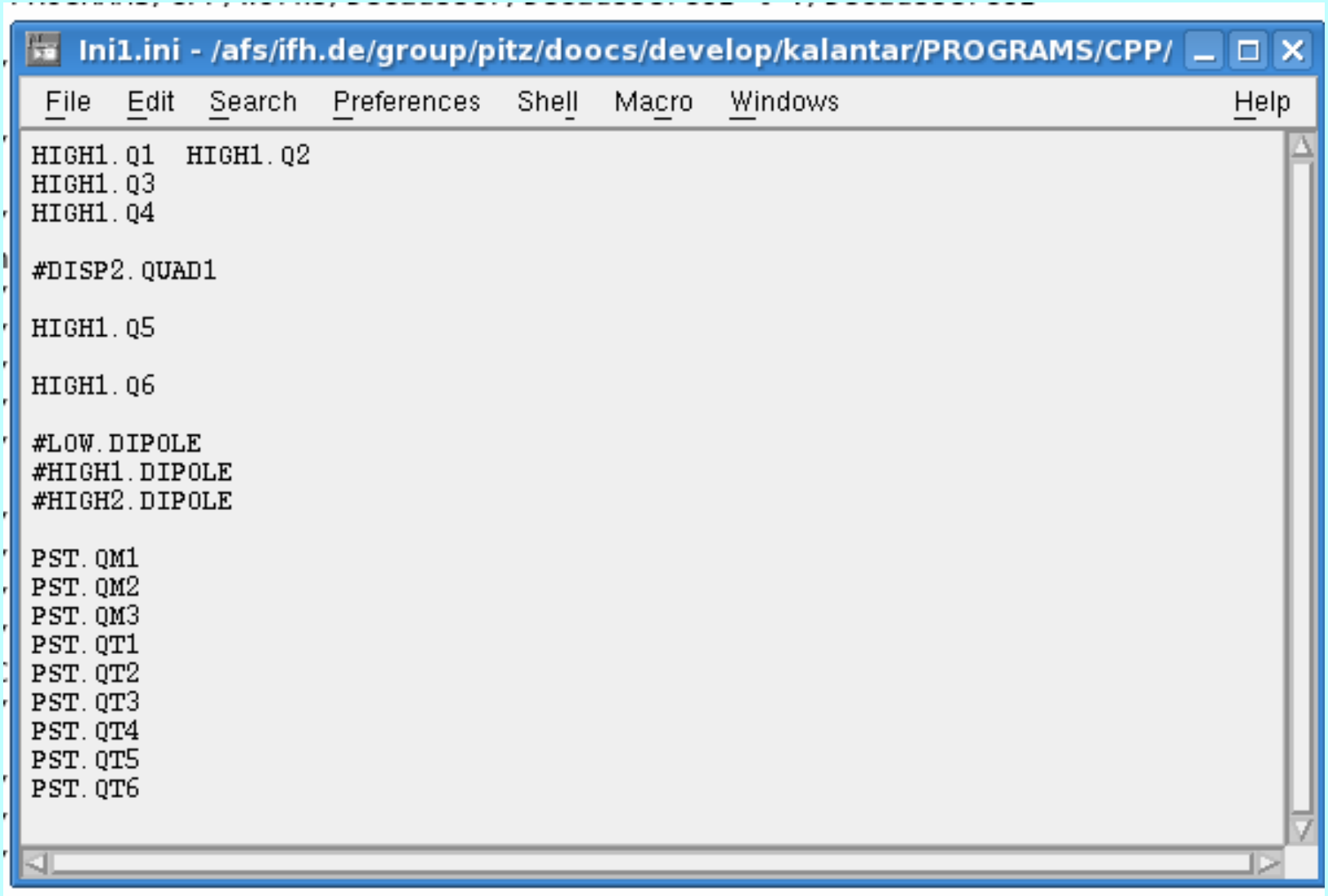
Main config file



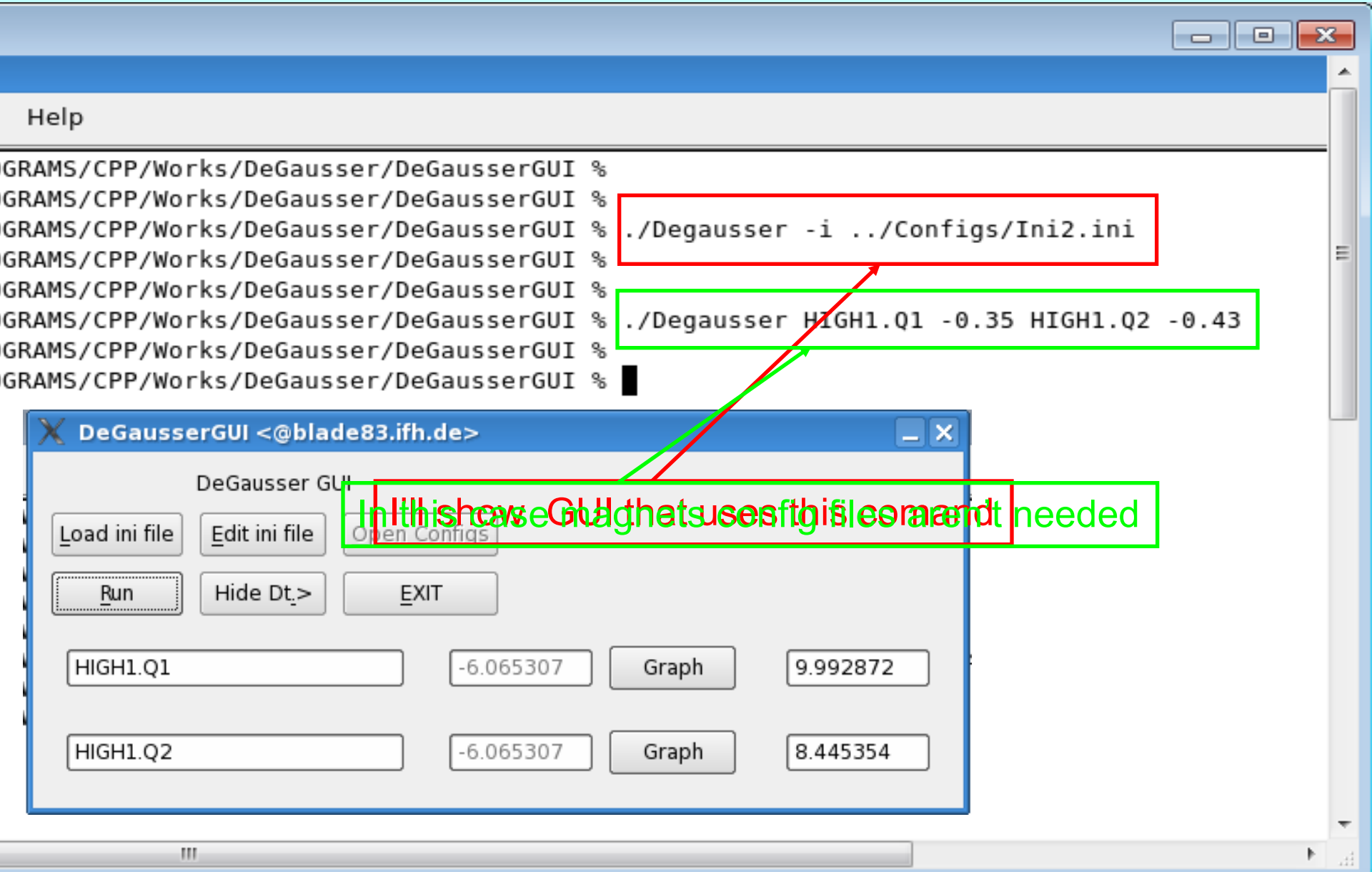
Example of magnet config file



Example of ini file



Examples of running program



Thanks to Levon for helping to run scripts and to debug program

Thanks to Bagrat for good advices

Thanks to Dmitriy for helpful discussion connected to degaussing

Thank you for your attention !