

Degaussing procedure

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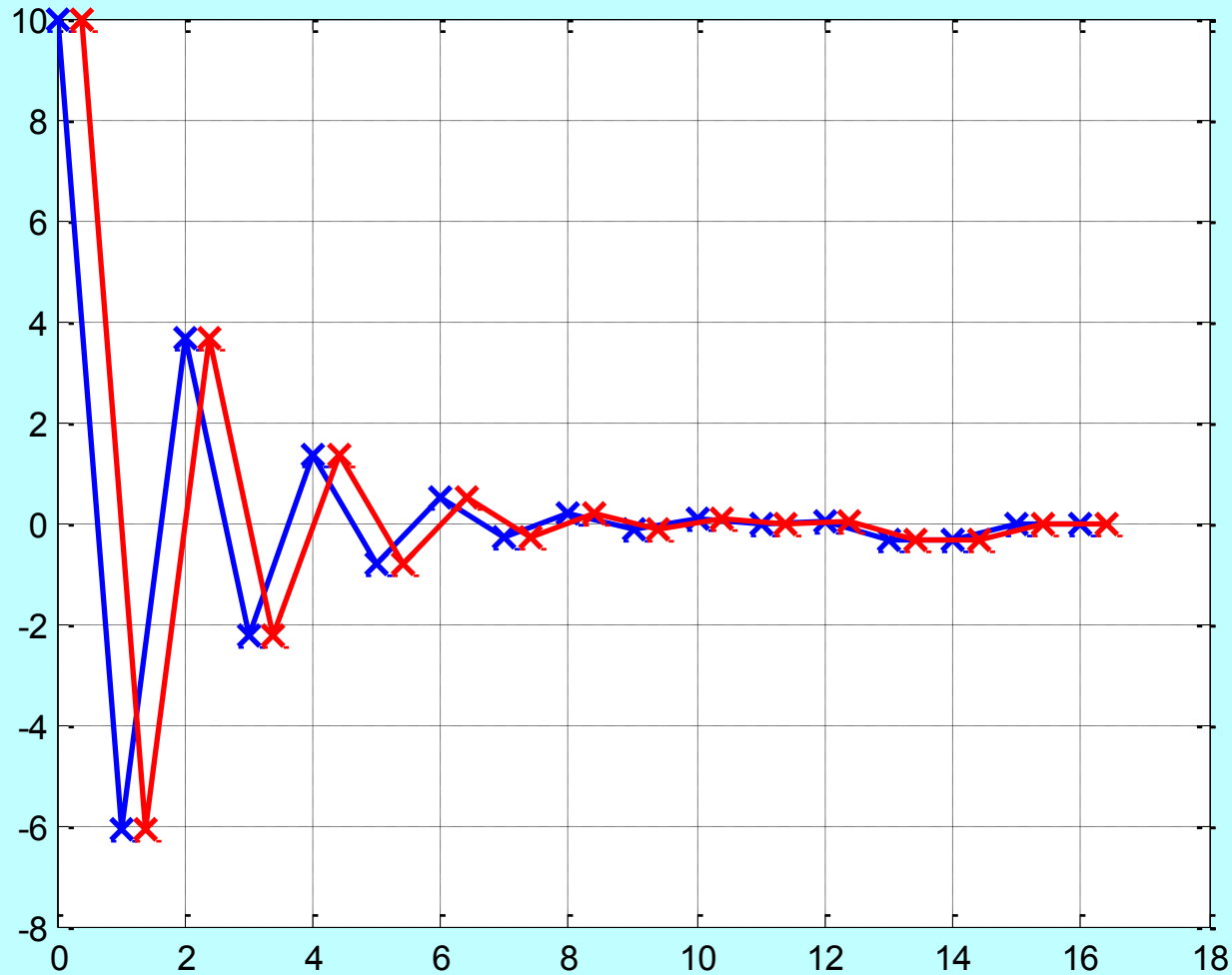
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Added features to degaussing procedures

1. Possibility to degauss the magnets simultaneously (doublets, triplets, ...).
2. Degaussing flag works (done by Levon), so it is impossible to degauss the same magnet from different applications.
3. New DOOCS virtual address created for laser shutter (by Bagrat), so procedure will know shutter address from the following virtual address
([PITZ.UTIL/DTBASE/CONSTANTS/STRING_0](#) - Set point)
([PITZ.UTIL/DTBASE/CONSTANTS/STRING_1](#) - Read back)
4. Some changes in GUI.

During simultaneous degaussing, each iterations for all magnets in group is done at the same time

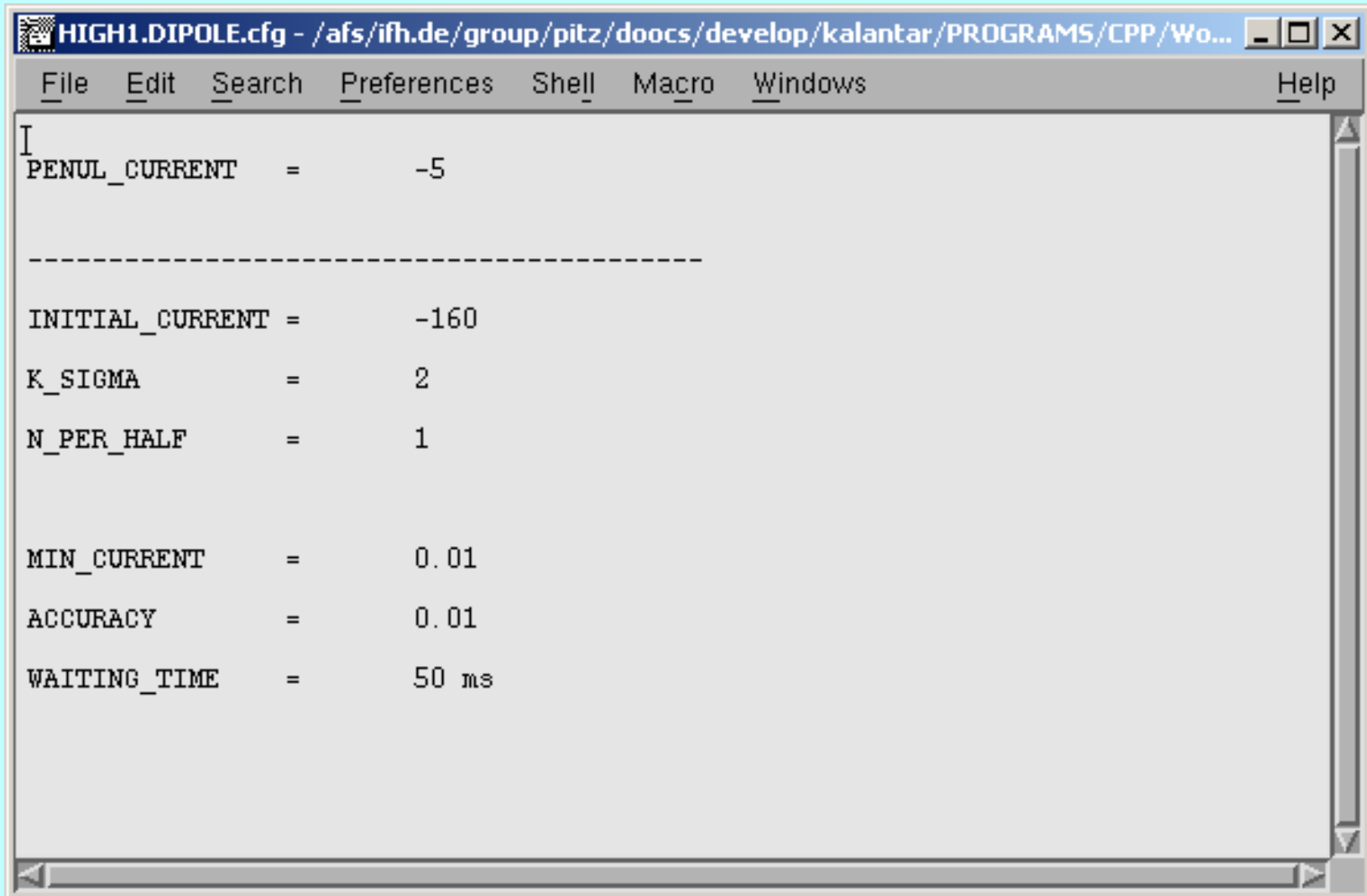


Main config file

```
Degausser.config - /afs/afh.de/group/pitz/doocs/develop/kalantar/PROGRAMS/CPP/Wor...
File Edit Search Preferences Shell Macro Windows Help

MAGNETS_SERVER_ADDR = "PITZ.CA/MAGNETS/"
SETPOINT_ADDR = "SETPOINT"
READ_BACK_ADDR = "RDBK"
MAX_CUR_ADDR = "LOG_HIGH"
MIN_CUR_ADDR = "LOG_LOW"
DEGAUSSER_FLAG_ADDRESS = "DEGAUSS"
CONFIGS_FOLDER = "."
TRYING_COUNT = 100
-----
LASER_SHUTTER_ADDRESS = "PITZ.I_LOCK/BIS/BIS2/REG_0"
MIN_CURRENT = 0.01 Ampere
ACCURACY = 0.02 Ampere
```

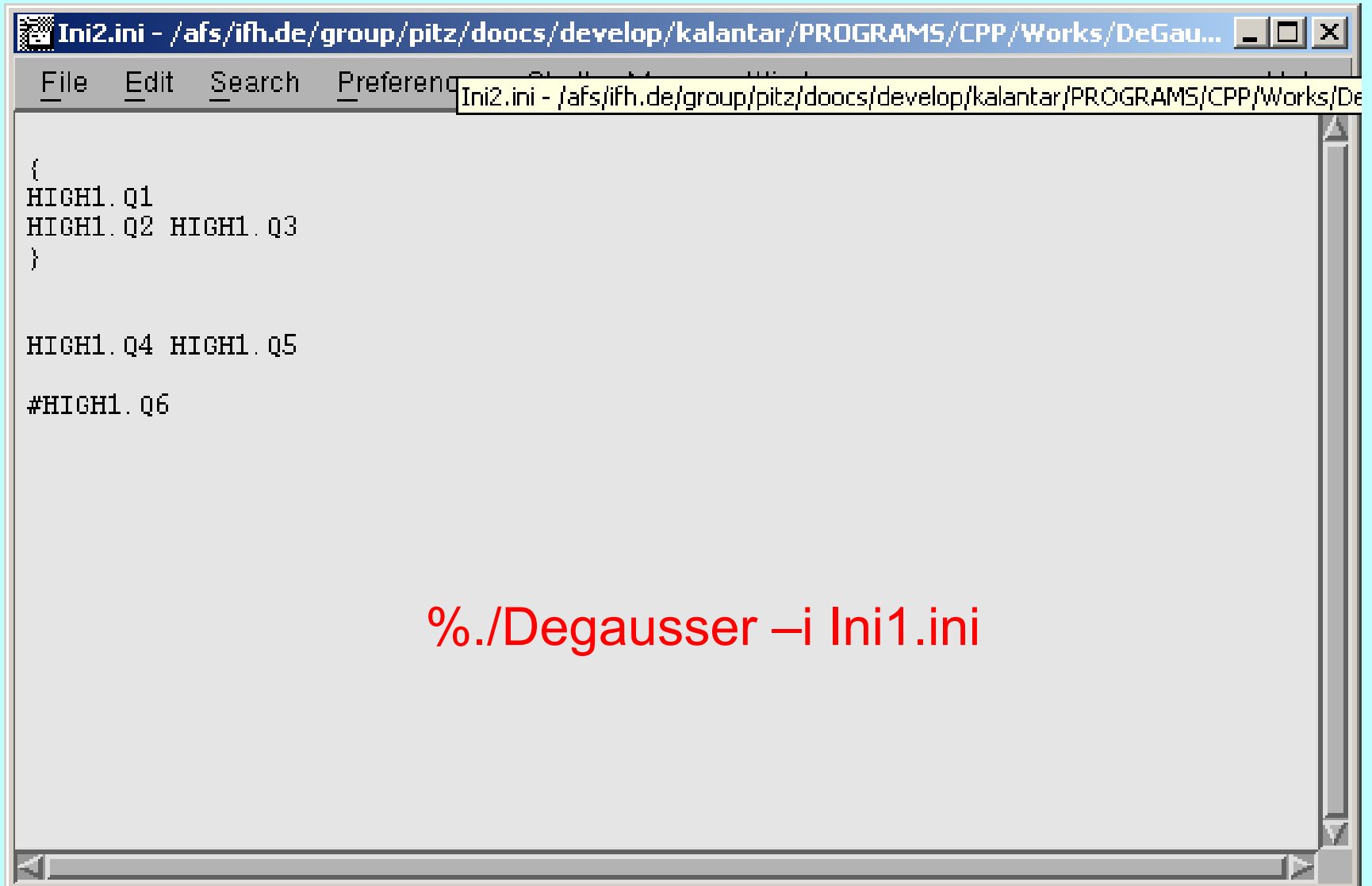
Example of magnet config file



The image shows a screenshot of a text editor window titled "HIGH1.DIPOLE.cfg - /afs/ihf.de/group/pitz/doocs/develop/kalantar/PROGRAMS/CPP/Wo...". The window has a menu bar with "File", "Edit", "Search", "Preferences", "Shell", "Macro", "Windows", and "Help". The main text area contains the following configuration parameters:

```
I  
PENUL_CURRENT = -5  
  
-----  
INITIAL_CURRENT = -160  
K_SIGMA = 2  
N_PER_HALF = 1  
  
MIN_CURRENT = 0.01  
ACCURACY = 0.01  
WAITING_TIME = 50 ms
```

Ini file example

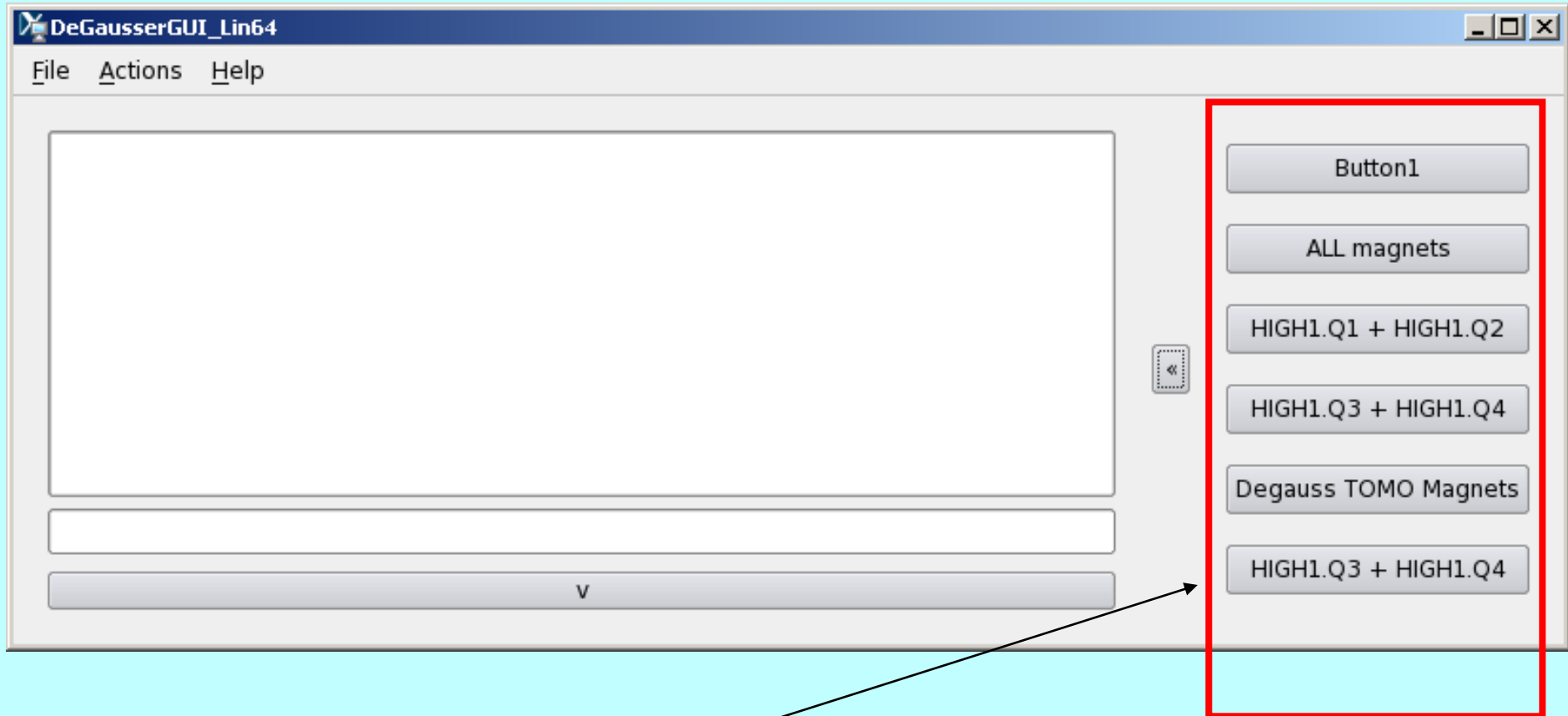


The image shows a screenshot of a text editor window titled "Ini2.ini - /afs/afh.de/group/pitz/doocs/develop/kalantar/PROGRAMS/CPP/Works/DeGau...". The window contains the following text:

```
{  
HIGH1.Q1  
HIGH1.Q2 HIGH1.Q3  
}  
  
HIGH1.Q4 HIGH1.Q5  
  
#HIGH1.Q6
```

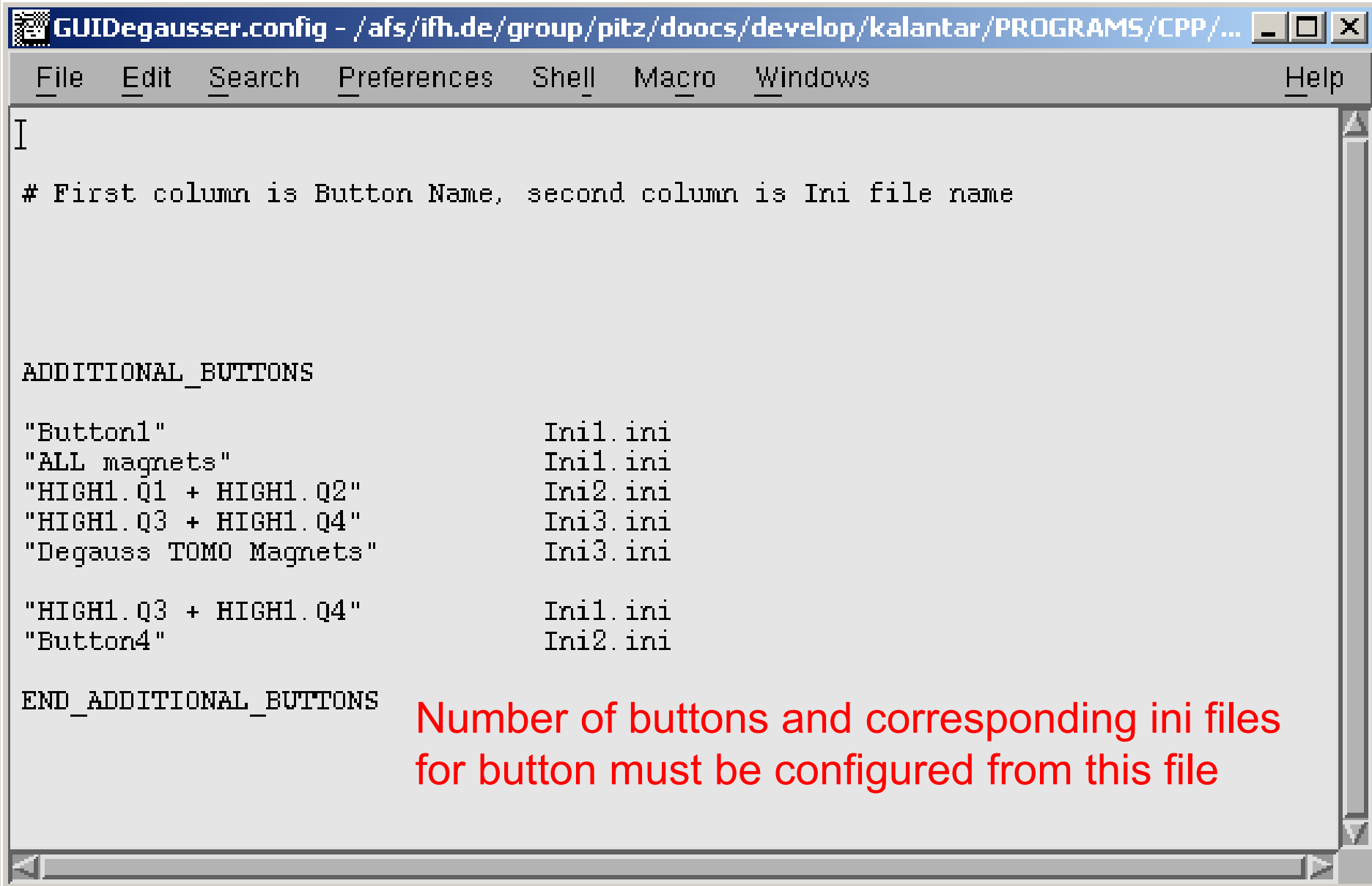
Below the text editor window, the command `%./Degausser -i Ini1.ini` is displayed in red text.

About GUI config file



Number of buttons and content of buttons are configurable

Config file for GUI



```
GUIDegausser.config - /afs/afh.de/group/pitz/doocs/develop/kalantar/PROGRAMS/CPP/...
File Edit Search Preferences Shell Macro Windows Help

I
# First column is Button Name, second column is Ini file name

ADDITIONAL_BUTTONS

"Button1"                Ini1.ini
"ALL magnets"            Ini1.ini
"HIGH1.Q1 + HIGH1.Q2"    Ini2.ini
"HIGH1.Q3 + HIGH1.Q4"    Ini3.ini
"Degauss TOMO Magnets"  Ini3.ini

"HIGH1.Q3 + HIGH1.Q4"    Ini1.ini
"Button4"                Ini2.ini

END_ADDITIONAL_BUTTONS
```

Number of buttons and corresponding ini files for button must be configured from this file

Library functions

Library functions for all degaussing procedures are created. So it is possible to do degaussing using any program that normally can load libraries (MATLAB, LabVIEW, ...). List of library functions is following

1. `bool LoadDeGausserConfig();`
2. `bool LoadFromIni(const char* a_IniFileName);`
3. `void RunWatcherThread();`
4. `void StopWatcherThread();`
5. `float GetMagnetValue(int Magnet, int Property);`
6. `void SetAllFunctions(void (*ErrorFunc)(const char*), bool (*WarningFunc)(const char*), void (*ReportFunc)(const char*), void (*TotalNumb)(int, int), void (*Status)(int, int));`
7. `bool RunDeGaussing();`
8. `int LIBmain(int argc, char* argv[], void (*ErrorFunc)(const char*), bool (*WarningFunc)(const char*), void (*Report)(const char*), void (*TotalNumb)(int, int), void (*Status)(int, int));`

Libraries are following

`libDeGausser_Lin64.so,`
`libDeGausser_Win32.dll, libDeGausser_Win64.dll`

Summary and outlook

Degaussing function works normal, and function to degauss magnets in group is added.

Adjusting magnets config files needed.

Creating corresponding ini files.

Some work on GUI is still needed.

Thank you for your attention !