Quick Start MPMS Analyzer

Measurement

- **Create new files for each $M(T)/M(H)$ measurement.** Keep the files as short as possible. The MPMS Analyzer supports files only if they have a $M(T)$ **or** a $M(H)$ measurement.
- If possible: Use the exact same sequence for measuring the background.

General program use

- Save the edited data right after editing. There may be crashes so do not hope for the best.
- All datapoints are divided in the Up- and the Down-Sweep. This means that all plotted data and all files will have twice the amount of datapoints than in the MPMS program.

Toolbar

Open/Plot/Format Open and plot a MPMS file. Select the `*.rw.dat` file. The `*.dat` file has be in the same directory and the same name to be registered automatically. If the file is not found you can select the `*.dat` file manually.
Note: Try to use both files always.

The Open, the Plot and the Format commands are more less the same.

Edit Define the fit frame. Set the range of the raw position for the voltages to fit.

Interpolate Interpolate the background for a given measurement. The background of the probe has to be measured seperately. The background has to contain as much values as possible. You can increase the temperature/field steps, the last and first point should be the same like in the probe. Also try to cover all measurement ranges. This means for a M(T) measurement with multiple fields record the background for **all** field values.

Subtract Subtract the background from the probe measurement. Make sure that the background file has the same length (so the same number of datapoints) like the probe measurement. If it does not have the same size use the *Interpolate* button.
Note: Try to subtract files as short as possible. The more lines in the file the longer it takes. Also the MPMS adds empty lines which may cause errors. If the files are shorter there are less empty lines.

Export Export the data to a file. This supports `*.csv` files and the MPMS `*.rw.dat` and the `*.dat` files. `*.csv` files are recommended.

Inspect and corect data

- Use double click on a datapoint of a measurement to open the fits. There you can see the recorded data and the fit. The subtracted background data will also be displayed there if you used some.
- Use the `...` button for getting more information about each datapoint.
- Change the fit constants in the `constants.py` if the fit was not successfully.
- Remember to use the Edit Tool for specifying the fit frame. *Hint:* If background has been subtracted, there is the `probe (index)` and the `probe (position)`. They should be always congruent.

Exporting

- Use the `*.csv` format for exporting if possible.
- Images of the plots can be created by left click and *Save* in the graph or in the graph window toolbar.

Known Bugs

- The *Plot* tool opens even if the file has been opened with another tool.
  Solution: Simply close the plot tool.
- If the files are very large or the wrong running variable has been choosen, the *Format* tool crashes.
  Solution: Decrease the filesize or use the correct running variable.
- Sometimes the background will be used as the probe right after opening the background file.
  Solution: Check if the probe and the background files are the correct files. If not select them again.