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Description automatically generatedDecode and drift correction panel introduction

FilePath:

Assumed that there are two directories **LST** and **rootfiles** under same directory.

Like: Run01 under which there are LST and rootfiles

**LST**: store .lst files of tof and beta

This panel is used for decoding and then drift correction.

Decode:

1. Put tof.lst file in folder “LST” located in a folder, like Run1, which contains two folder: LST and rootfiles
2. Launch root -> .L MassAnaGUI4.cc+ 🡪 MassAnaGUI4();

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1. Put the file name in “File Name”. With or without “.lst” are both OK.
2. If want to combine .lst over degrader files, select “CombineLST”. If want to decode specific channel, select "CHselect” and choose the corresponding channel. **Combine Mode just combine tof.lst**, not include beta.lst; Please do not press ‘c’ for beta correlation hunting when the combined.lst is read in the main program (preview window). For degrader scan files, beta correlation hunting can be done only by loading correlate tof.lst file one by one in separated folder as independent file.
3. Click “Decoder” 🡪 terminal window will show information like: what files are is read, which channel is decoded for reference.
4. **Trick: In combine mode:** if want to decode J\_097Ag@690\_78.lst; [J\_097Ag@690\_78-S00.lst](mailto:J_097Ag@690_78-S00.lst); …; [J\_097Ag@690\_78-S15.lst](mailto:J_097Ag@690_78-S15.lst) , put “J\_097Ag@690\_78” as file name. If want to decode [J\_097Ag@690\_78-S00.lst](mailto:J_097Ag@690_78-S00.lst) to [J\_097Ag@690\_78-S15.lst](mailto:J_097Ag@690_78-S15.lst) only (excluding [J\_097Ag@690\_78.lst](mailto:J_097Ag@690_78.lst)), put J\_097Ag@690\_78-S as file name.

Drift correction

1. Path 🡪 same; File Name -> same in single lst mode. In combination mode, File Name -> the first file that decode.

For example: “J\_097Ag@690\_78” or “[J\_097Ag@690\_78-S00](mailto:J_097Ag@690_78-S00.lst)”

1. Parameter setting:

**Ref. center [ns**] : peak center of reference peak (If unknow, may open the spectrum in preview window to check first. For the use of preview window, please refer to “brief introduction.docx” )

**Nbins:** number of bins of sub-spectrum

**EveAkill:** number of sweeps to fill sub-spectrums

**Sigma:** sigma of reference peak

**Half\_histoWidth:** sub-spectrums are defined by [Ref. center - Half\_histoWidth ,

Ref. center + Half\_histoWidth

**Time\_veto [ns]:** ignore hits come in this time window after the former hit

**Tag , Channel:** select the tag and channel of the reference peak.

**T0:** a rough t0 value

**Fit Func.** : choose the fitting function

**Fix parameters of Func**. : for the first round, do not use it.

1. 🡪 click ok. If terminal window shows a reasonable fitting results of the reference peak at the first sub-spectrum, enter ‘y’ for continue, otherwise enter ‘n’ for stop. And then adjust parameter as needed.

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1. If enter ‘y’ , drift correction will go and finish. Terminal will show the ratio of successful fitting, help to know the drift correction is good or not preliminarily. Spectrum after drift correction will be also displayed in control panel.
2. At the lower pad, using cursor to define a region, ‘z’ for zooming, ‘x’ for unzooming upon moving cursor. ‘f’ for fitting by function specified in ‘Fit Func.’

Rm will show after press ‘f’ to fit in terminal.

1. Option. Fix the parameter of the fitting function and click OK to do the drift correction for second round.

Drift correction process can be interrupted by click **“Run off”** button. (Automatically reset to “Run on” when clicking “ok” )

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**Trick:**

Set showgraph=true; to show empty sub-spectrum only during drift correction process

Set showgraph=true ; showfitting=true; to show each fitting

Set showgraph=true; showbadfit= true; to show bad fitting spectrum

Set showgraph=false; to close the canvas of sub-spectrum