

# FROG RETRIEVAL MANUAL

## Step 1: MATLAB

- Create a folder with the frog image you want to retrieve
- Choose it as the work directory in matlab  
*Ex: C:\Mydocs\Myfrog*
- On line 2, put the name of the frog image
- Run the program (F5)
- Compare the middle and bottom figures to check the ‘symmetrisation’
- If it is wrong, look for the number of the central time line pixel on the first figure, and put it in the following line and run the program  
`Centraltimeline=round(504/Timedownsampling);`

## Step 2: File modification

- Matlab has created a file *FrogytraceFiber1.out* in your folder, open it and change the two first numbers to integers (slow with Notepad, faster with Notepad++)  
*Ex: 2.111000e+003 to 2111*

## Step 3: FROG PROGRAM

- Click on F and then tick the following parameters:
  - Grid size: 256
  - NLO: SHG
  - Data source: Experimental FROG trace
- Select the .out file in your folder, tick ‘use header information’ and choose ‘Delay’ then press OK
- The trace appears, I suggest the following image processing
  - Noise Subtraction >> Full spectrum
  - Select the data with the mouse and do Data >> Extract
  - Noise Subtraction >> Edge
  - Noise Subtraction >> Cleanup pixels
- Finally click on Grid Data
- Launch the program on Begin
- When you press stop, the best retrieved trace is saved in the folder and you get some information in the results window. A good error is lower than 0.01

## Step 4: Outputs in the folder



- *a.dat* and *arecon.dat* are the input and retrieved traces
- *Ek.dat* contains the electric field (Time, Intensity, Phase, Real part, Imaginary part)
- *Speck.dat* contains the spectrum (wavelength, Intensity, Phase, Real part, Imaginary part)
- *frog.dat* recalls the input parameters, the error evolution and the results