# Lambda Rebinning

## Introduction

Users may wish to rebin their spectra from the tif files measured by the lambda. Users may wish to exclude certain lambda pixels or to use a different range of channels perpendicular to the direction of energy dispersion, etc. The three python files here are to help with this: LambdaRebinning, ExampleWithBinningFunction and BinningFunction. Please save all files in the same directory.

## LambdaRebinning

If python is installed on the computer it should just be possible to double click on this. Frankly, if a user has some familiarity with python I think they will find this a bit cumbersome. However, it is certainly good for a first try. It will ask a series of questions and write the rebinned spectra to a text file.

## ExampleWithBinningFunction

This is a small example script to help users get started using the python rebinning function. This has all the paths, etc, defined at the top. The function loops through a few different lower horizontal output channels and writes each summation to a separate file.

## BinningFunction

This is the function that rebins the tif files. Users are welcome to wade through it, but here's the short story. The spectra is returned. The arguments are:
binning(magic_channel,ylow,yhigh,spm3path,tifpath,fileroot,scannum,omitfile)

| | |
|---|---|
| magic_channel | Pixel on which the elastic line appears on the lambda |
| ylow | Lowest lambda channel to include in the direction perpendicular to the energy dispersion direction |
| yhigh | Higest lambda channel to include in the direction perpendicular to the energy dispersion direction |
| spm3path | Path giving the location of the spm3 file. This file is accessed to know a few parameters (including the analyzer backscattering energy) that are needed for binning |
| tifpath | Path giving location of tif files |
| fileroot | File name – makes it possible for the program to find the spm3 file and the correct tif files |
| scannum | Number of scan to be rebinned |
| omitfile | Optional argument. Path and name of a file giving the coordinates of lambda pixels to be omitted from rebinning. |