NAME
MX-calibrate − MX-calibrate

DESCRIPTION
usage: MX−Calibrate −**w** 1.54 −**c** CeO2 file1.cbf file2.cbf ...

Calibrate automatically a set of frames taken at various sample−detector distance. Return the linear regression of the fit in funtion of the samplesetector distance.

positional arguments:
FILE　　List of files to calibrate

optional arguments:

−**h**, −−**help**
> show this help message and exit

−**V**, −−**version**
> show program's version number and exit

−**v**, −−**verbose**
> switch to debug/verbose mode

−**c** FILE, −−**calibrant** FILE
> file containing d−spacing of the calibrant reference sample (MANDATORY)

−**w** WAVELENGTH, −−**wavelength** WAVELENGTH
> wavelength of the X−Ray beam in Angstrom

−**e** ENERGY, −−**energy** ENERGY
> energy of the X−Ray beam in keV (hc=12.398419292keV.A)

−**P** POLARIZATION_FACTOR, −−**polarization** POLARIZATION_FACTOR
> polarization factor, from −**1** (vertical) to +1 (horizontal), default is 0, synchrotrons are around 0.95

−**b** BACKGROUND, −−**background** BACKGROUND
> Automatic background subtraction if no value are provided

−**d** DARK, −−**dark** DARK
> list of dark images to average and subtract

−**f** FLAT, −−**flat** FLAT
> list of flat images to average and divide

−**s** SPLINE, −−**spline** SPLINE
> spline file describing the detector distortion

−**p** PIXEL, −−**pixel** PIXEL
> size of the pixel in micron

−**D** DETECTOR_NAME, −−**detector** DETECTOR_NAME
> Detector name (instead of pixel size+spline)

−**m** MASK, −−**mask** MASK
> file containing the mask (for image reconstruction)

−−**filter** FILTER
> select the filter, either mean(default), max or median

−−**saturation** SATURATION
> consider all pixel>max*(1−saturation) as saturated and reconstruct them

−**r** MAX_RINGS, −−**ring** MAX_RINGS
> maximum number of rings to extract

−−**weighted**
> weight fit by intensity

−l DISTANCE, **−−distance** DISTANCE
>   sample−detector distance in millimeter

−−tilt   Allow initially detector tilt to be refined (rot1, rot2, rot3). Default: Activated

−−no−tilt
>   Deactivated tilt refinement and set all rotation to 0

−−dist DIST
>   sample−detector distance in meter

−−poni1 PONI1
>   poni1 coordinate in meter

−−poni2 PONI2
>   poni2 coordinate in meter

−−rot1 ROT1
>   rot1 in radians

−−rot2 ROT2
>   rot2 in radians

−−rot3 ROT3
>   rot3 in radians

−−fix−dist
>   fix the distance parameter

−−free−dist
>   free the distance parameter

−−fix−poni1
>   fix the poni1 parameter

−−free−poni1
>   free the poni1 parameter

−−fix−poni2
>   fix the poni2 parameter

−−free−poni2
>   free the poni2 parameter

−−fix−rot1
>   fix the rot1 parameter

−−free−rot1
>   free the rot1 parameter

−−fix−rot2
>   fix the rot2 parameter

−−free−rot2
>   free the rot2 parameter

−−fix−rot3
>   fix the rot3 parameter

−−free−rot3
>   free the rot3 parameter

−−fix−wavelength
>   fix the wavelength parameter

−−free−wavelength
>   free the wavelength parameter

−−no−gui
> force the program to run without a Graphical interface

−−gui   force the program to run with a Graphical interface

−−no−interactive
> force the program to run and exit without prompting for refinements

−−interactive
> force the program to prompt for refinements

−−peak−picker PEAKPICKER
> Uses the 'massif', 'blob' or 'watershed' peak−picker algorithm (default: blob)

This tool has been developed for ESRF MX−beamlines where an acceptable calibration is usually present is the header of the image. PyFAI reads it and does a "recalib" on each of them before exporting a linear regression of all parameters versus this distance.