NAME

pyFAI-recalib − pyFAI-recalib

SYNOPSIS

pyFAI-recalib [*options*] *-p ponifile -w 1 -S calibrant.D imagefile.edf*

DESCRIPTION

Calibrate the diffraction setup geometry based on Debye−Sherrer rings images with a priori knowledge of your setup (an input PONI−file). You will need a "d−spacing" file containing the spacing of Miller plans in Angstrom (in decreasing order). If you are using a standart calibrant, look at https://github.com/kif/pyFAI/tree/master/calibration or search in the American Mineralogist database: http://rruff.geo.arizona.edu/AMS/amcsd.php

OPTIONS

−−version
show program's version number and exit

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

−o FILE, **−−out**=*FILE*
Filename where processed image is saved

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

−S FILE, **−−spacing**=*FILE*
file containing d−spacing of the 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 None (no correction), 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

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

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

−n NPT, **−−pt**=*NPT*
file with datapoints saved. Default: basename.npt

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

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

−−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

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

−−weighted
weight fit by intensity, by default not.

−−npt=*NPT_1D*
Number of point in 1D integrated pattern, Default: 1024

−−npt−azim=*NPT_2D_AZIM*
Number of azimuthal sectors in 2D integrated images. Default: 360

−−npt−rad=*NPT_2D_RAD*
Number of radial bins in 2D integrated images. Default: 400

−−unit=*UNIT*
Valid units for radial range: 2th_deg, 2th_rad, q_nmˆ−1, q_Aˆ−1, r_mm. Default: 2th_deg

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

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

−r MAX_RINGS, **−−ring**=*MAX_RINGS*
maximum number of rings to extract. Default: all accessible

−p FILE, **−−poni**=*FILE*
file containing the diffraction parameter (poni−file). MANDATORY

−k, **−−keep**
Keep existing control point and append new

The main difference with pyFAI−calib is the way control−point hence DebyeSherrer rings are extracted. While pyFAI−calib relies on the contiguity of a region of peaks called massif; pyFAI−recalib knows approximatly the geometry and is able to select the region where the ring should be. From this region it selects automatically the various peaks; making pyFAI−recalib able to run without graphical interface and without human intervention (**−−no−gui −−nointeractive** options).