# GIXSGUI FAQ: My data looks tilted. What do I do?

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Joe Strzalka

#### Q: My data looks tilted. What do I do?

- 2D data appear slightly tilted (white axes are drawn using powerpoint to guide the eye. GIXSGUI cannot draw these axes).
- At the beamline, a negative increment in the sample roll (chi) will rotate the data counterclockwise.
- What can we do if the beamtime is over? What is the correct way to treat the data?



#### Using the parameters from the beamline



## Updating the parameters to account for tilt

GIXSGUI - 1.7.2 (Developed at 8ID/APS/ANL)	– 🗆 X	× @ 721 5804
Import & Export	Image Space	
\\s8iddata\8-id-g\2018-3\marks201810p\\Mgiwaxs2\S255	Setup Parameters: Recalculate Map H V	
Load Params Set As Default Export Params	Select camera Pilatus V Pixel size 0.172 0.172	
Load Path Sort files by time V	Energy (KeV) 10.92 Image dimension 981 1043	
	SDD (mm) 228.165 Beam0 720.696 958.037	
 TMgiwaxs2_s255_000_001.tif	Geometry Reflection V Specular 721.58 827.796	750
TMgiwaxs2_s255_000_002.tif TMgiwaxs2_s255_001_001.tif	Phi mode (-180,180] V Incident angle (deg) 0.14	
TMgiwaxs2_s255_001_002.tif	Setup Calibration: Get Beam0 Get SDD Get Specular	
	Image Corrections: Formula Density Length (mm)	y @ 827.7957
	Efficiency X-ray path N78021Ar 0.0011839 0	
	Camera sensor Si 2.33 0.32	850 - /
	Polarization Horizontal V Horizontal polarization fraction 1	
	Lorentz Factor Configuration 1: No Lorentz correction ~	
	Flat Field Remove FF Default FF Load FF File	
	Custom Correction Remove CC Default CC Load CC File	
	Plot Settings:	827.3 827.4 827.5 827.6 827.7 827.8 827.9 828 828.1 828.2 828.3
	Data to display Masked w/ FF 🗸 Color limits set mode Manual 🗸	600 650 700 750 800 850 y pixel
	Image scale log CLim min << < 1 > >>	x pixel
	Axis label pixel V CLim max << < 2000 > >>	Change axis label to "pixel".
· · · · · · · · · · · · · · · · · · ·	Reset Axis Colormap Editor	
Refresh Add	Manual tick label Horizontal axis V Label Ticks	Zoom in on data near origin.
TMgiwaxs2_s255_000_001	Mask Tools: Include Exclude Load Mask File	
	Show Mask Clear Mask Default Export Mask	Click "Get Specular". Left click one point on image on one side of specular ridge
	Image Orientation: Mirror Rotation (deg)	where there is good intensity. Right click on one point on the other side of the
	None V 0 V Apply	specular ridge.
	Image Information and Data Processing/Analysis Tools:	
	Data Processing Copy to WS Image Header Find COM	<ul> <li>GIXSGUI determines center of specular and updates the Specular (H,V) parameters.</li> </ul>
	Calibrate Angles Export Image Image Stats Find Circle Center	
~	Misc Tools	<ul> <li>Click "Set as Default" to keep these values for other datasets, and "Export</li> </ul>
Up Down Remove Remove All	Gap Fill Batch FF Sum Images SDD Calibration	Parameters" to a file for future use.
	ROI Scan Line Fit	
Quit Close All Help		

## Effects on q-maps



Original parameters show widening gap between Yoneda band and the qz=0 contour line.



Updated parameters show qz=0 contour line parallel to Yoneda band.



Contours drawn using the Contour tab on the Image Data Processing window.

Hide

## Effect on linecuts



2D data are not rotated, but GIXSGUI uses correct qmapping when computing linecuts. In example here, linecut with old parameters (brown) misses the Yoneda band at large q, but linecut with updated parameters (green) captures the Yoneda band at large q.



Constrained Image button draws outline of region of integration for linecut.

Contour	Linecut Re	shape	Peak	Finder	Diffr	action					
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	Constraint #4		$\sim$	NaN	<=	none	~	<=	NaN		
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Export o	Export current linecut to:			Workspace			File				
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