Alignment and Data Collection for GISAXS Users

1) [optional] Make the name of the spec datafile appropriate for your sample: Spec> newfile *filename*
2) Spec> go_apd
3) Change the sample(s), search and interlock the hutch
4) Open the photon shutter
5) Drop the sample out of the way: Spec> umvr samz -0.2
6) Check that the APD is centered on the direct beam. If you see some counts on the APD (>1000), run the macro: Spec> pind3zlup. If not, tweak tth until you see > 1000 counts on the APD, then run the macro : Spec> pind3zlup.
7) Adjust the sample height until the sample cuts the beam20-80%: Spec> umvr samz *[increment in mm]*
8) Spec> zcen
9) (Optional) if the last sample was on a different substrate: Spec> thcen_coarse
10) Spec> thcen
11) If scan looks ok, reset the zero value: Spec> set th 0
12) Repeat steps (7)-(10) as needed
13) Look at a reflection: Spec> an 0.4 0.2
14) (Optional) May want to decrease attenuation: Spec> att *[att value]*
15) Spec> lup th -0.05 0.05 20 0.2
16) Spec> umv th CEN
17) Spec> set th 0.2
18) Spec> an 0.2 0.1
19) Adjust the attenuation to get APD readout to 50-80K: Spec> att *[14]*
20) Run reflectivity macro. For example: Spec> refqc
21) Choose the incident angle you want for gisaxs, *thinc* : Spec> umv th *thinc*
22) Spec> go_ccd
23) Update the filename on the EPICS interface for the Pilatus, update the Next File to 1
24) Try a 1-second test image: Spec> pilexp 1
25) The detector saturates at 1 million (2^20). The maximum counts seen by any pixel is on the STATS interface, the max for ROI 2. Adjust the exposure time accordingly and record more images
26) Record more images at other incident angles, or azimuthal angles, if desired. To help keep track of images, you may want to try Spec> smartnames_on (this puts the incident angle, exposure time, and ccdz state into the filename). To disable this feature, Spec> smartnames_off.
27) If you want to patch in the gaps between modules, change the detector height (Spec> pildown)
28) Do it all again for the next sample!
29) Return the detector to the original height (Spec> pilup)

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