Fast tomography experiments

Note: CoolSnap dark current is 94 for this data. Really fast images should be processed with this, rather than 100.

Beads\_CoolSnap\_A

Binned, 0.27 second exposure, 33.269 keV

Rotation axis was off a little, and too much absorption

Beads\_CoolSnap\_B

Binned, 0.27 second exposure, 33.069 keV, after moving rotation axis 33 microns

Beads\_CoolSnap\_C

Unbinned, 1.08 second exposure, 33.069 keV

Then try doing fast tomography with CoolSnap

Beads\_CoolSnap\_Fast\_A

Binned, 0.05 second exposure, 1.665 degrees/sec

108.1 seconds total, 0.150 second/frame

Beads\_CoolSnap\_Fast\_B

Binned, 0.02 second exposure, 2.082 degrees/sec

86.5 seconds total, 0.120 seconds/frame

Beads\_CoolSnap\_Fast\_B

Unbinned, 900 angles, 0.02 second exposure, 1.665 degrees/sec

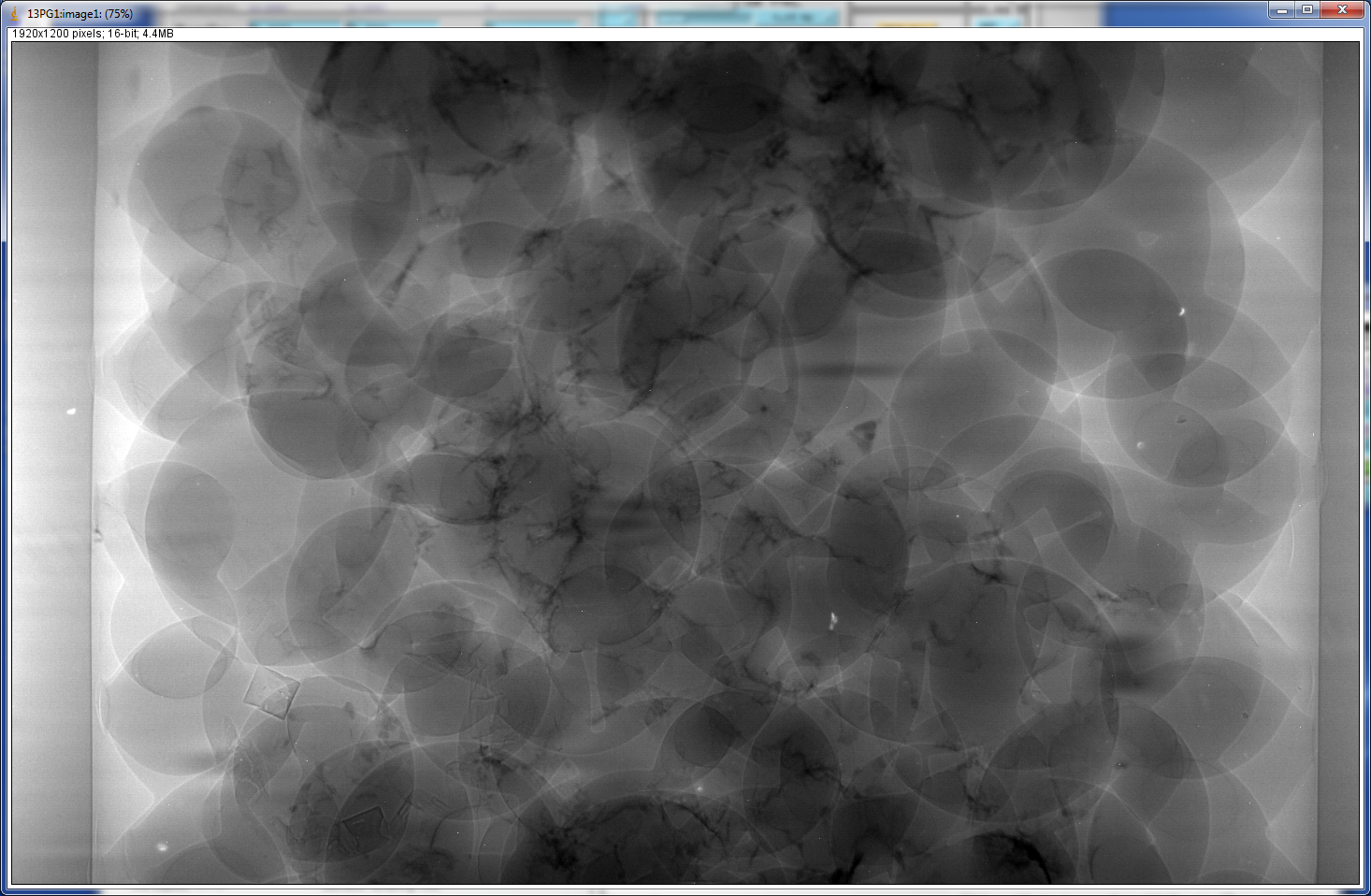
108.1 seconds total, 0.120 seconds/frame

Switch to Grasshopper 3.

Images look very good.

Discovered that I can run as slow as 1 frame/s by reducing the bandwith to 2%. Can to 0.95 sec exposure, which is fine.

Dorthe’s sample, 33.069 keV, 16-bits, gain=2



Got camera working in triggered mode. It would not trigger directly from SIS3820, needed to stretch the pulses with Tabor AWG.

Image of slits is tilted, need to adjust with pin.

Got within 1 pixel by rotating mirror.

Measure pixel size: 3.18 microns/pixel unbinned

Manually collect a tomography dataset.

Dorthe\_A

Unbinned, 1 second per frame, but only 0.4 seconds of acquisition (need to figure this out). 900 angles, reconstruction looks great.

Dorthe\_B.

Binned, 0.02 seconds acquire per frame, 5 degrees/sec, .2 deg/frame, 25 frames/sec, 36 seconds total.

Dorthe\_C

Binned, .23 seconds acquire, .25 sec/frame, .8 deg/s, .2 deg/frame. This was free-running, not triggered.

Dorthe\_D

Binned, 4 frames/sec, bulb trigger, 85% duty cycle. = .2125 sec exposure time

Dorthe\_E

Unbinned, 1 frame/sec, bulb trigger, 85% duty cycle = 0.85 sec exposure time, .2deg/s, 900 angles

Dorthe F

Binned, 80 frames/sec, ext. normal trigger, 6 ms exposure time, 8-bit, 11.25 seconds total

Dorthe\_G

Unbinned, 80 frames/sec, ext. normal trigger, 6 ms exposure time, 8-bit, 11.25 seconds total