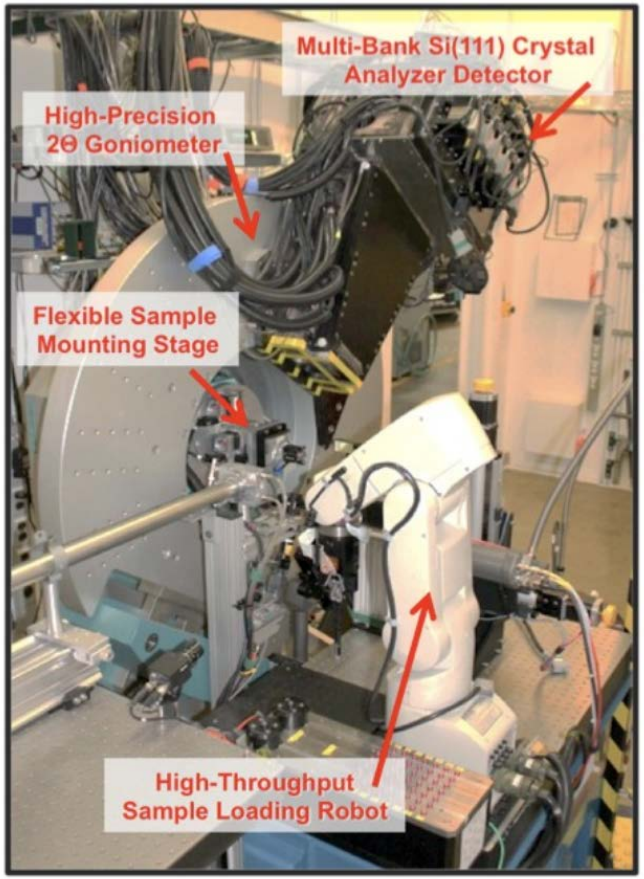
IMPROVING A WORLD-CLASS INSTRUMENT: UPGRADES AT 11-BM

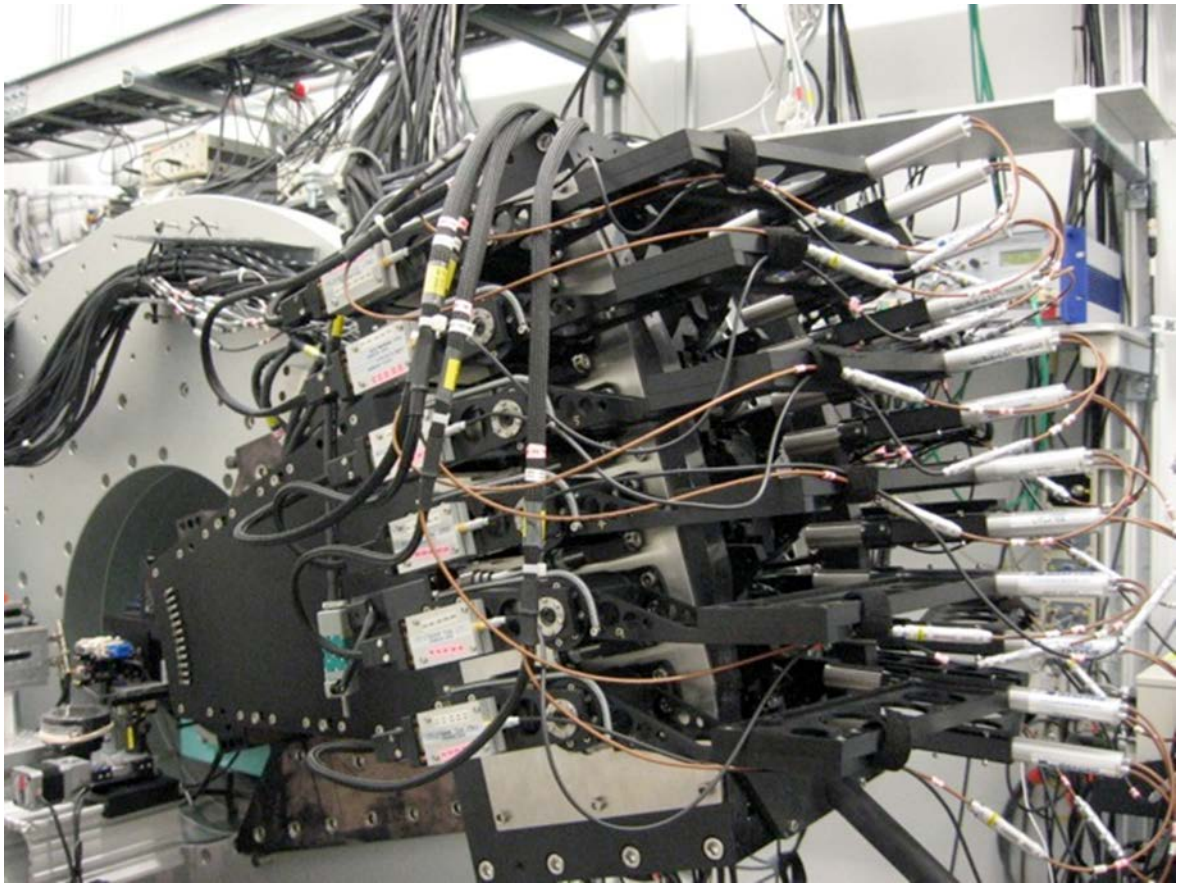
LYNN RIBAUD **SAUL LAPIDUS** **TIM MOONEY**

TWG meeting April 20, 2017

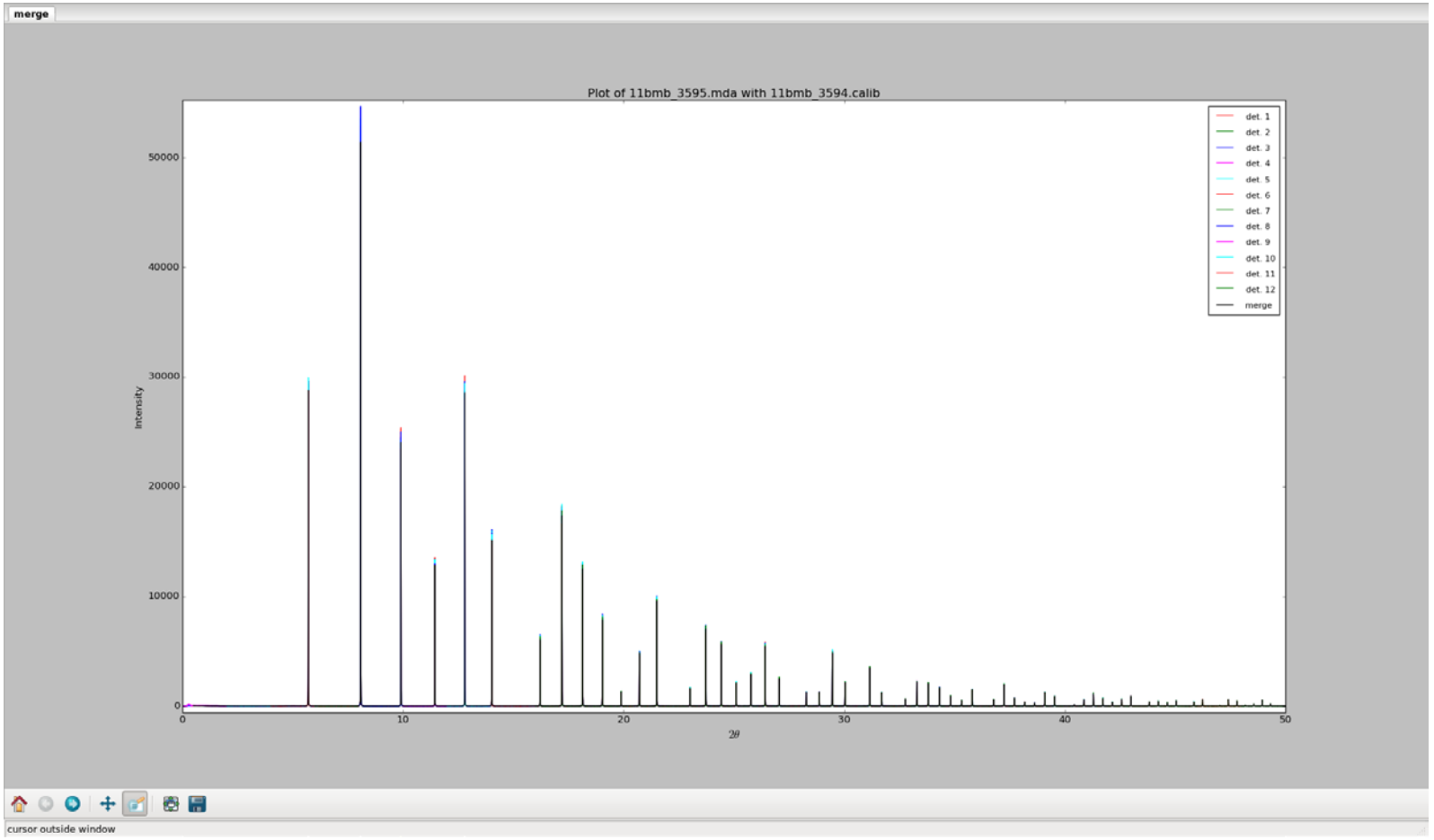
The business end of 11-BM



The detectors (12 of them!)

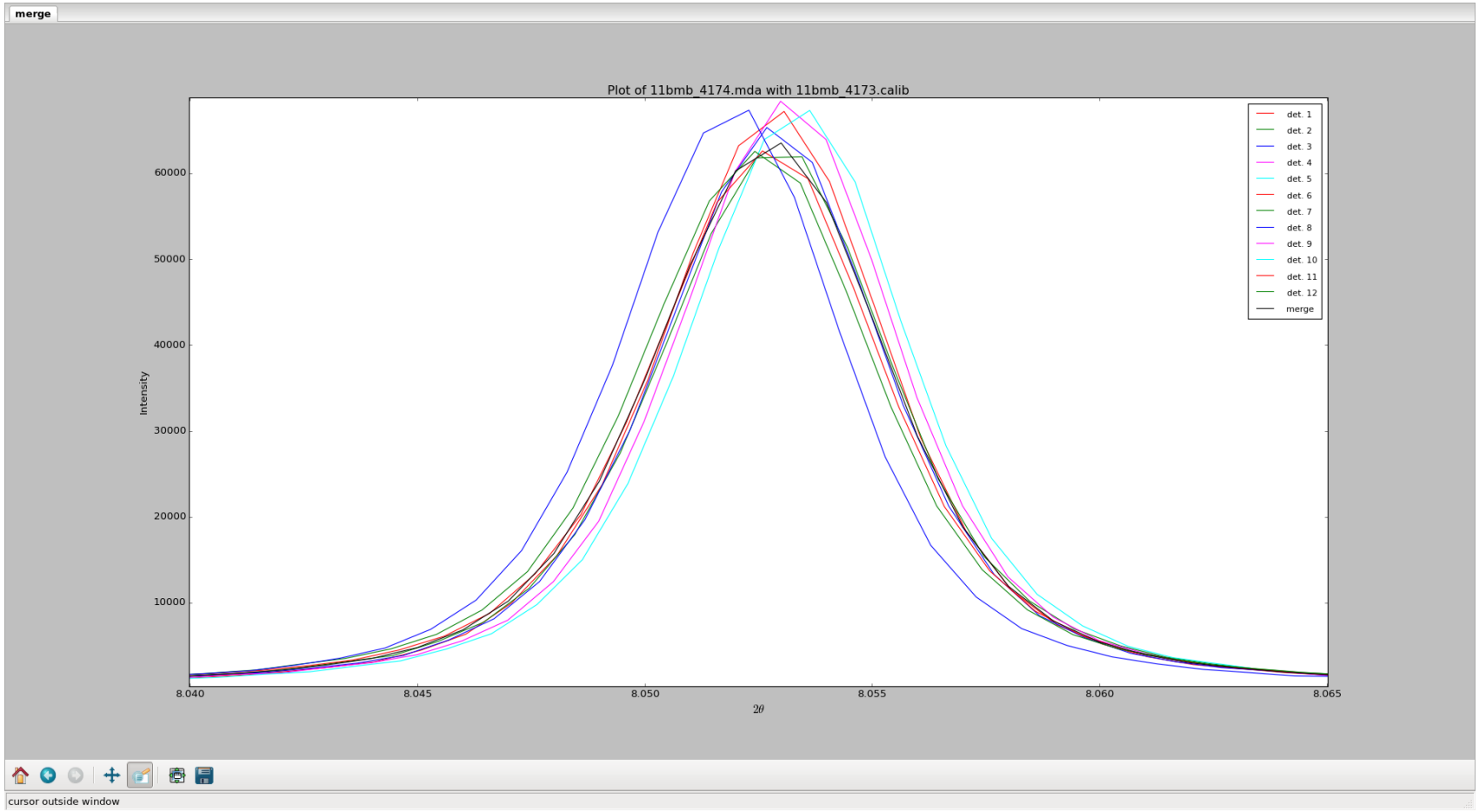


LaB_6 as a Quality Check

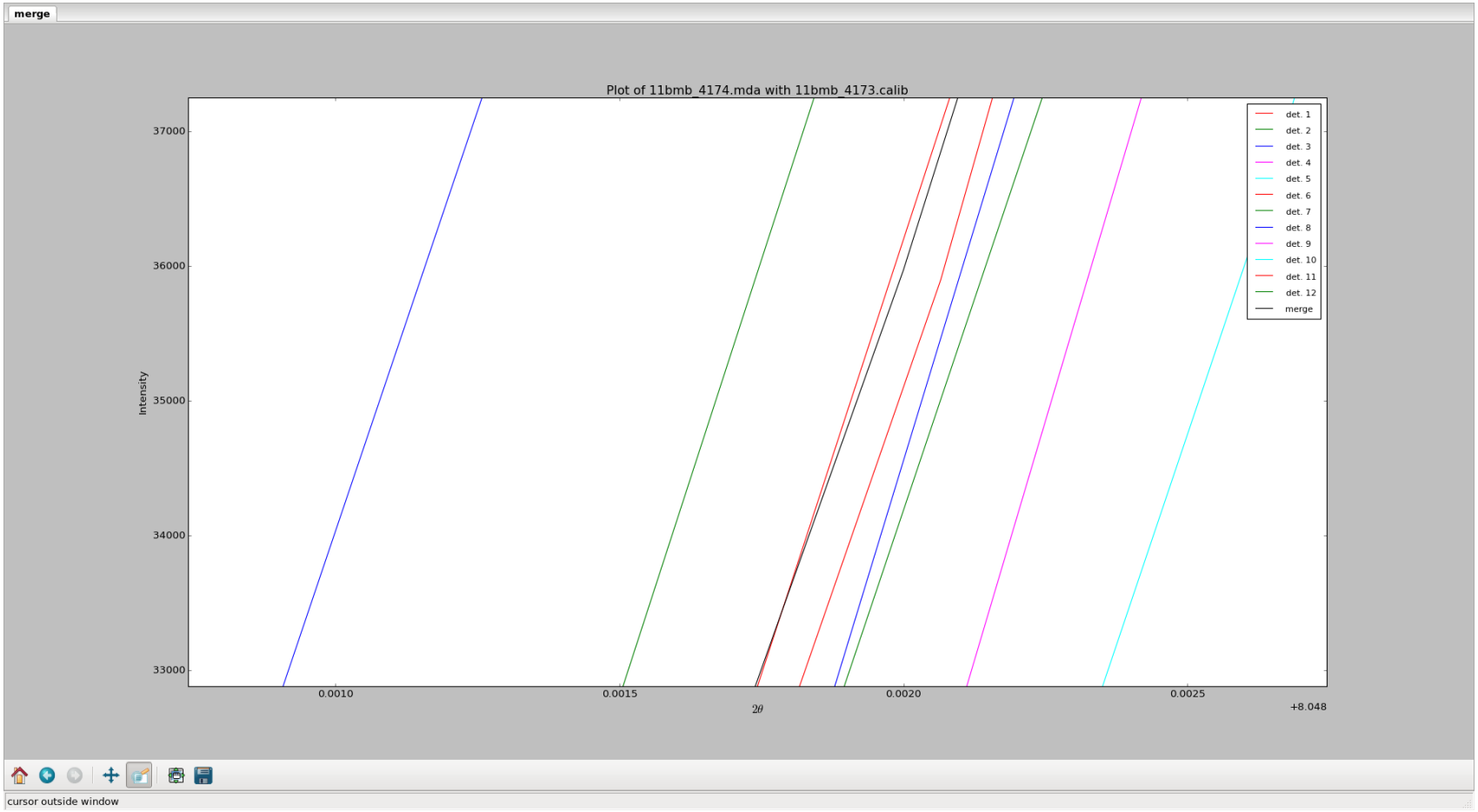


ONCE UPON A TIME:

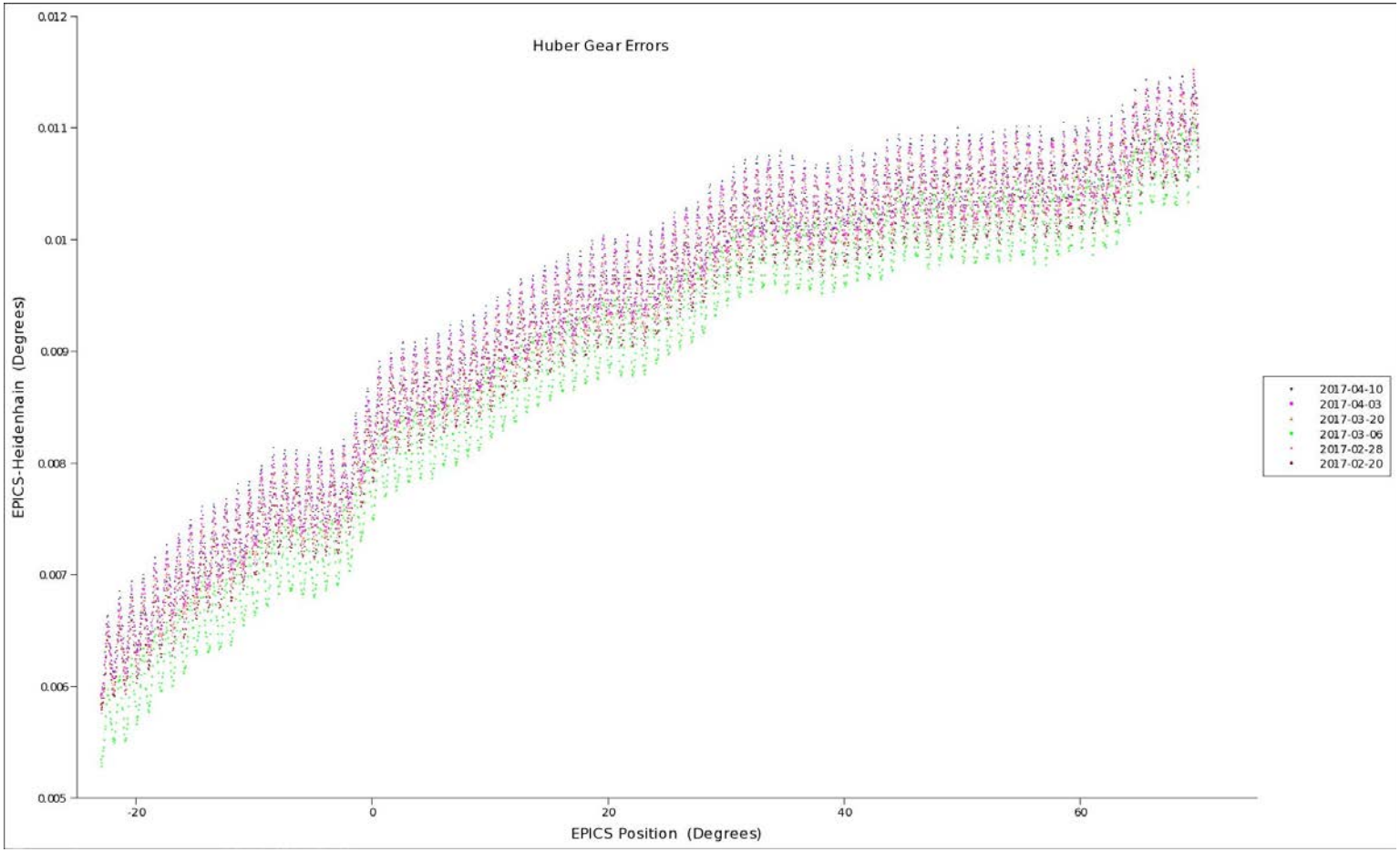
LaB_6, 2009



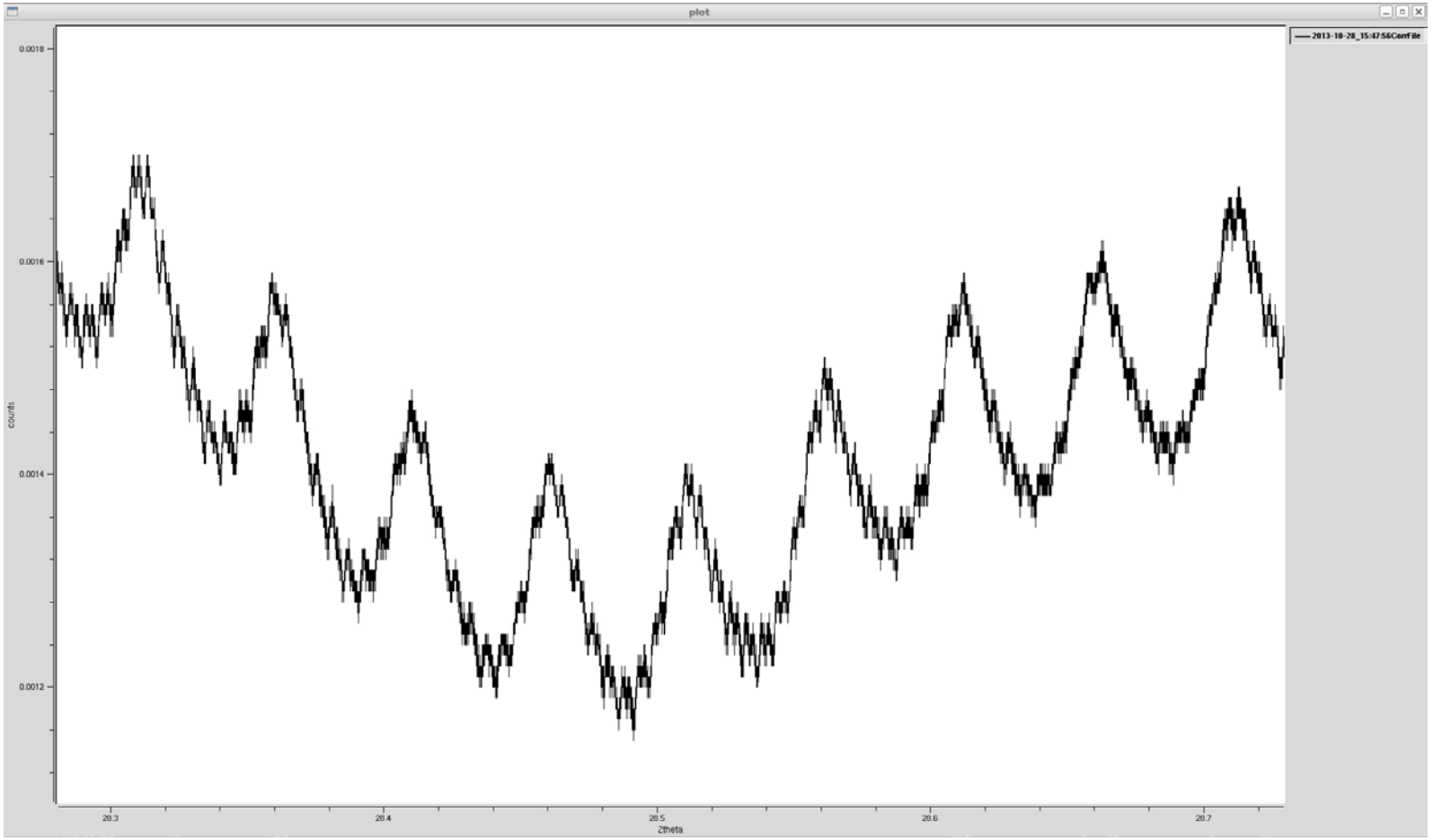
DETECTOR SPREAD



GEARS (EPICS) vs. Heidenhain encoder

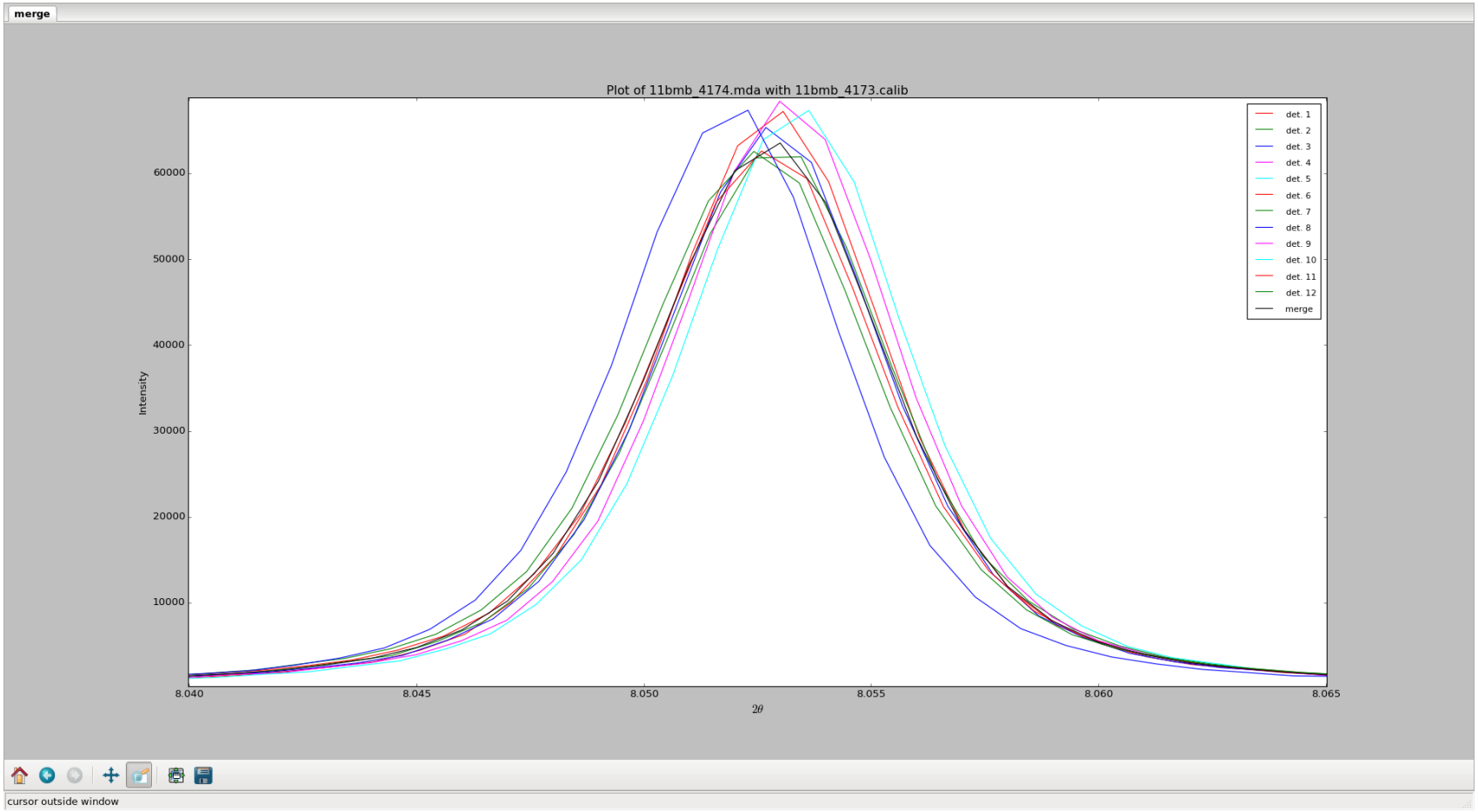


In detail:

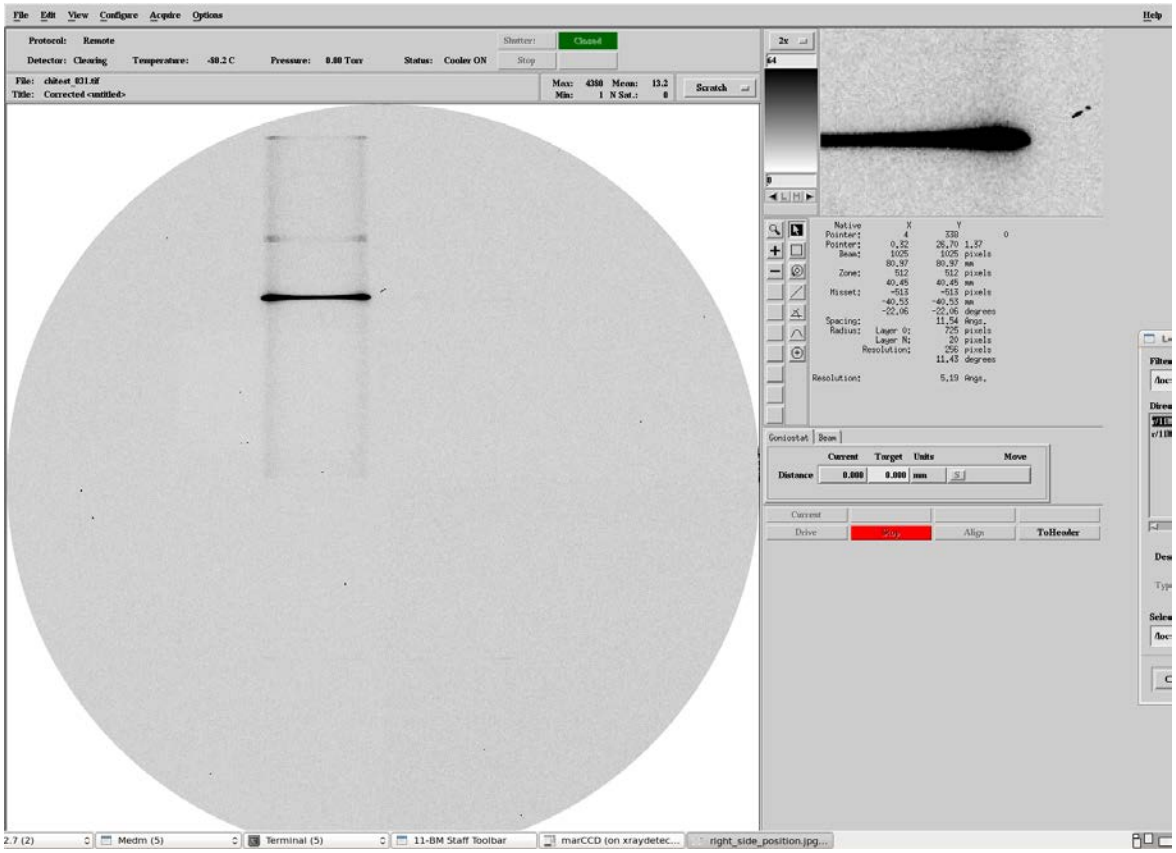

plot
2013-10-28_15:47:56CamFile
0.0018
0.0016
0.0014
0.0012
counts
28.3
28.4
28.5
28.6
28.7
2theta

Once again:

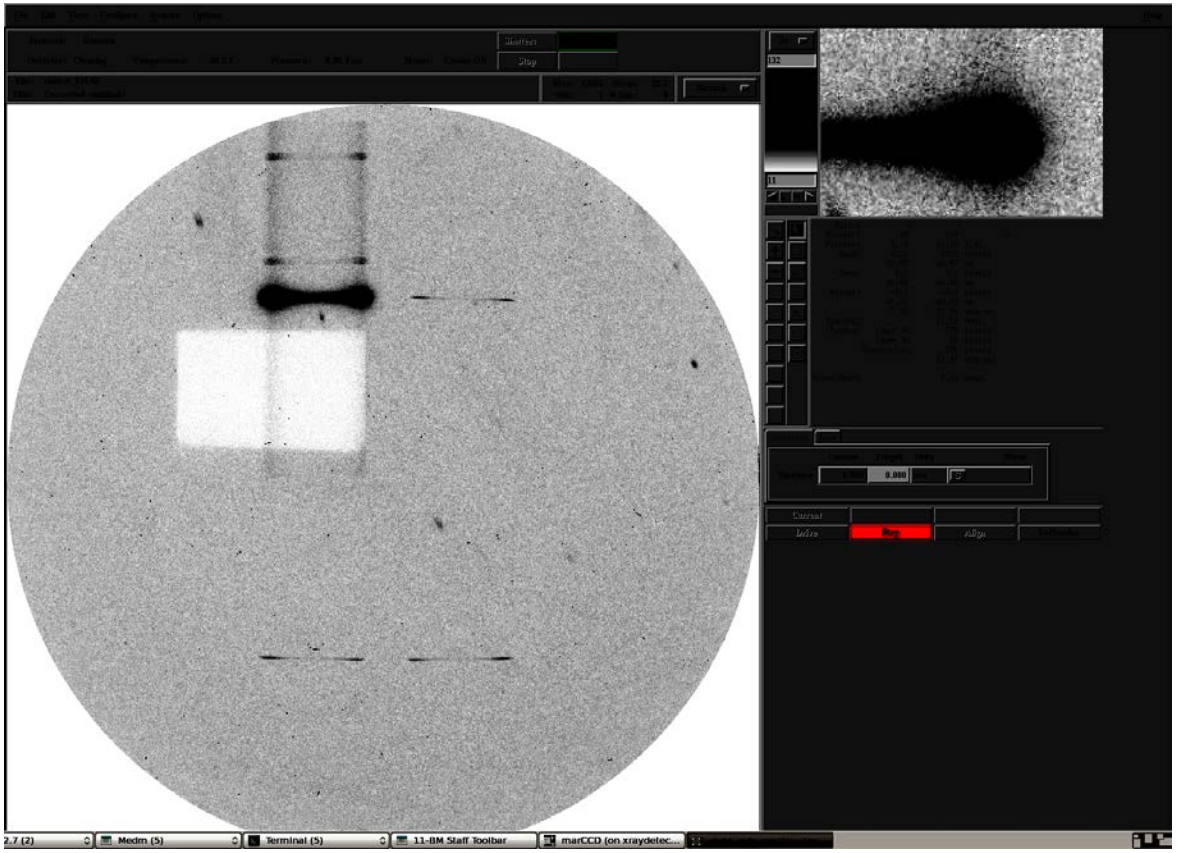
This time, height



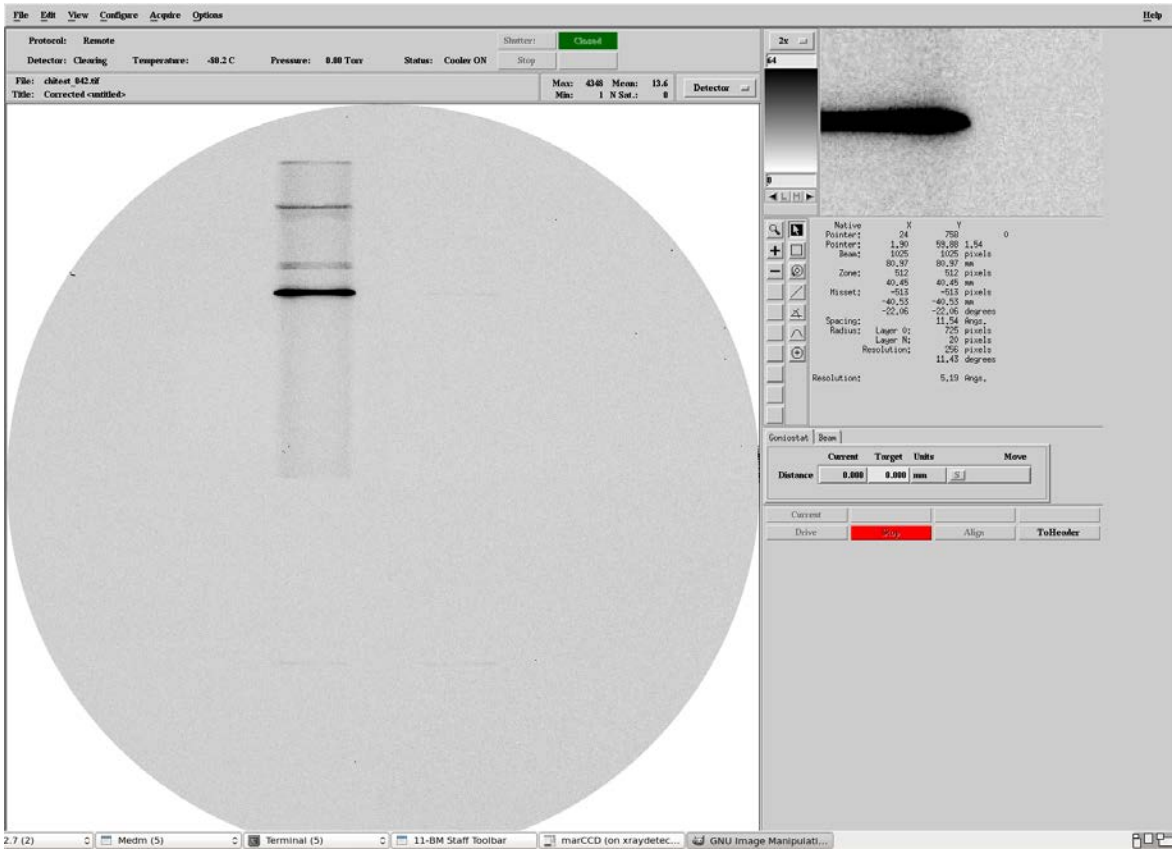
Just *look*



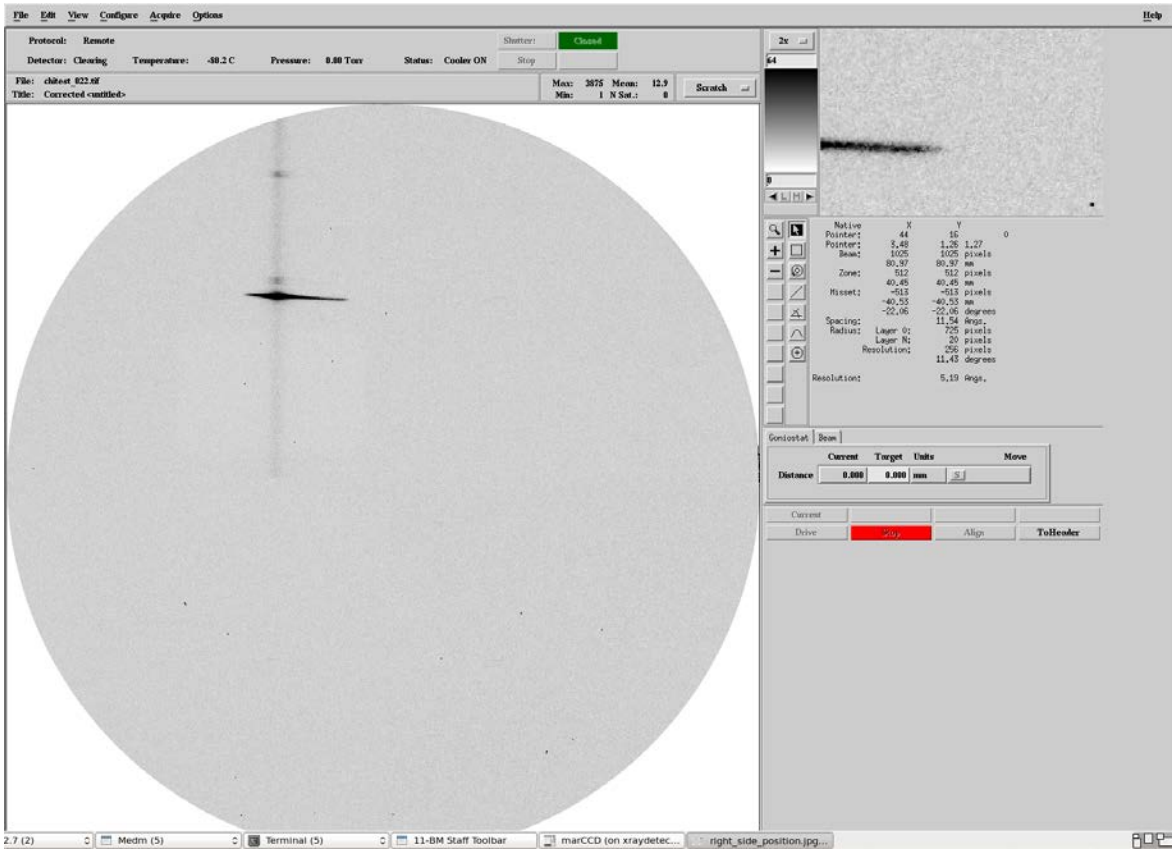
Simple calibration



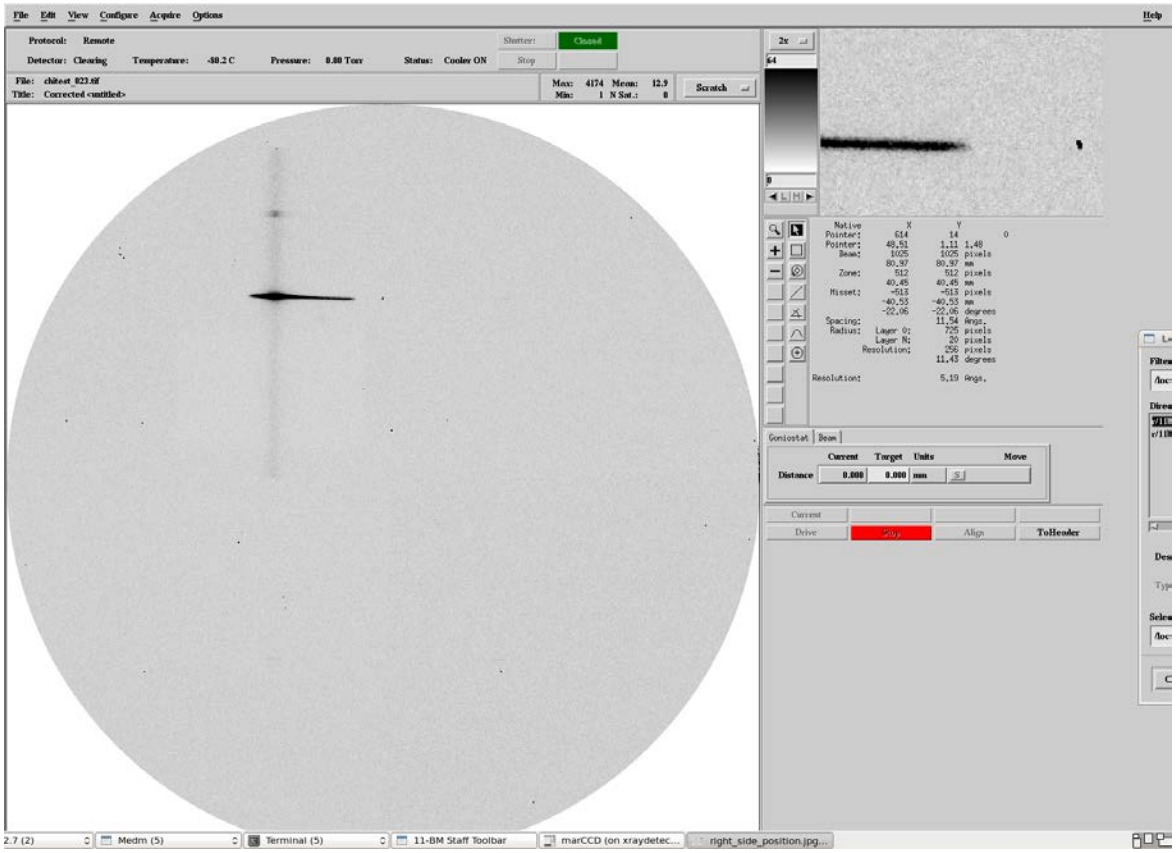
Cursor gives positions



A bad case

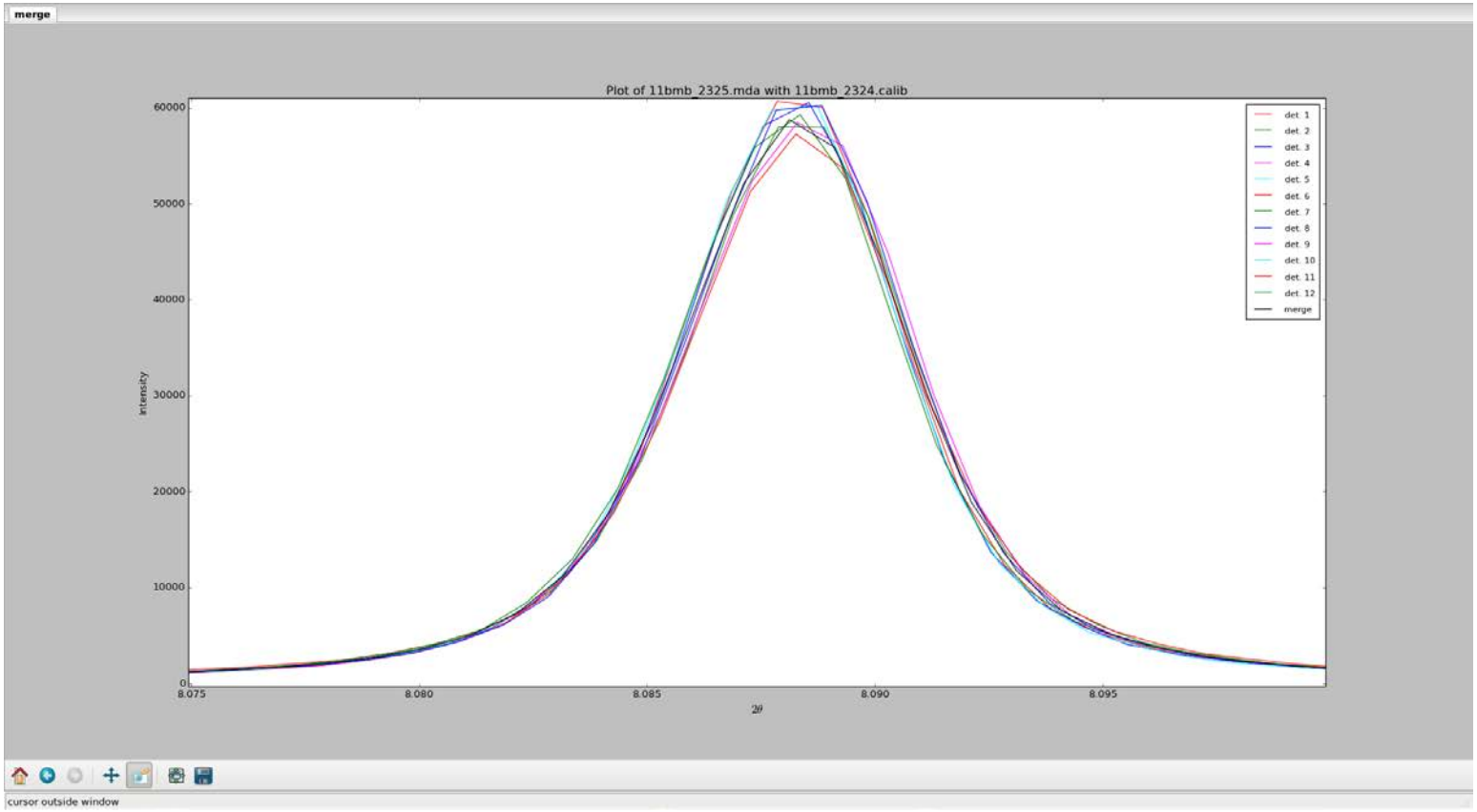


Improving

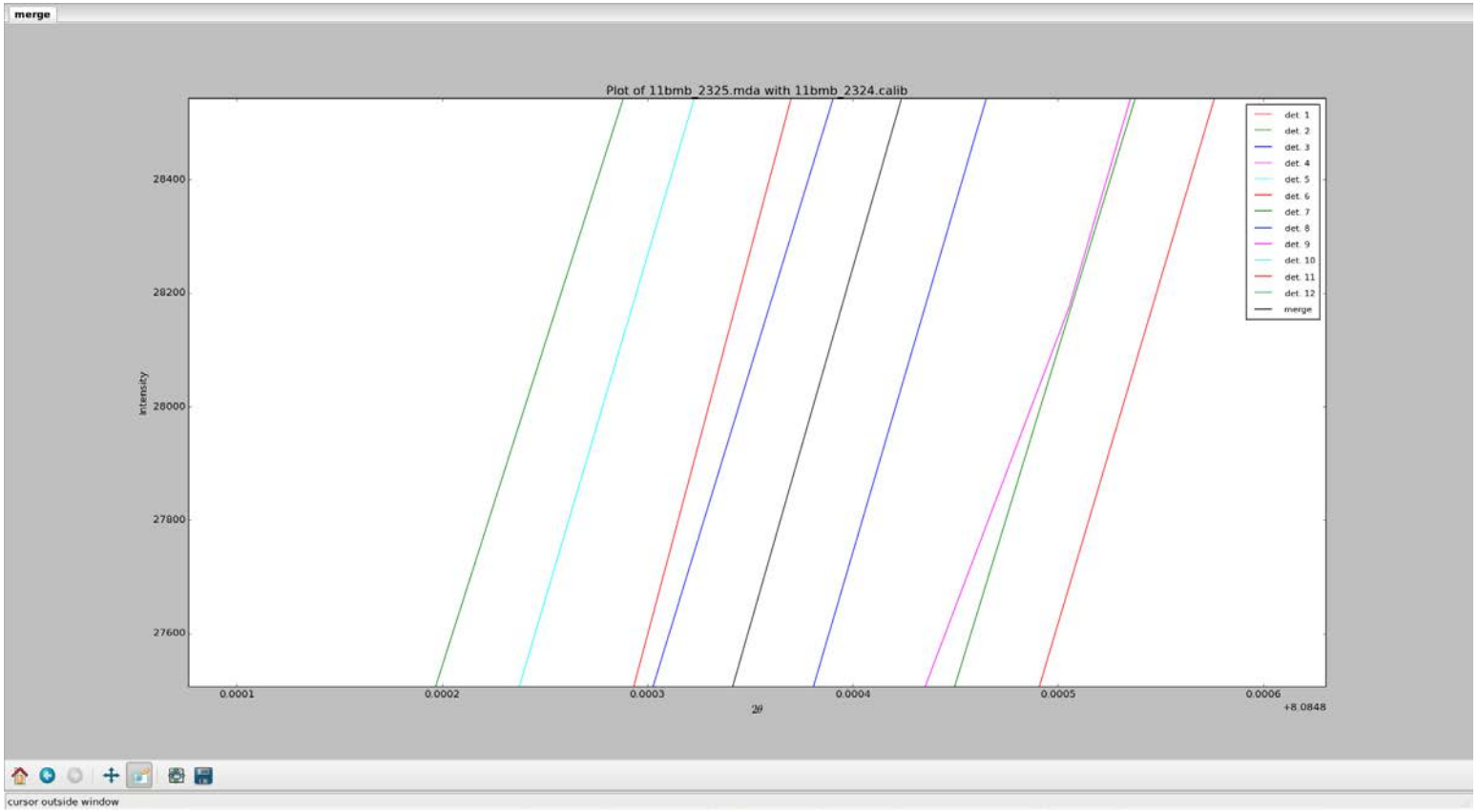


Now

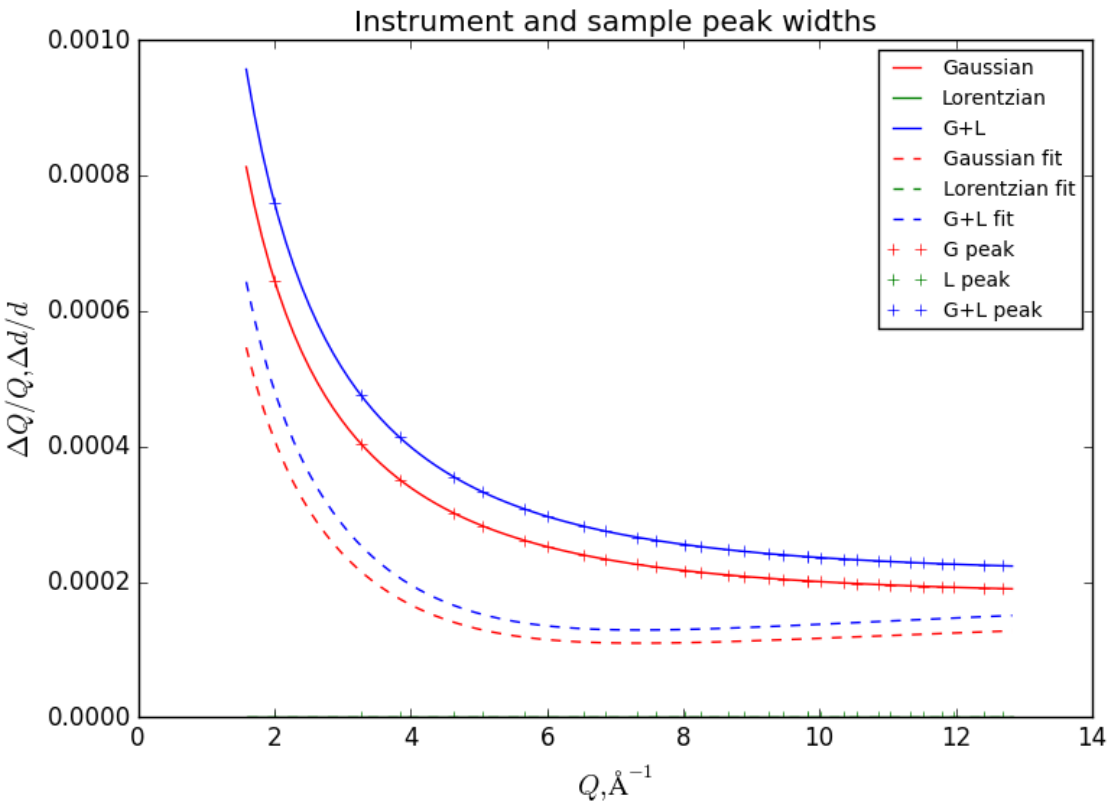
LaB_6, 2017 -- detectors much more similar



Smaller spread



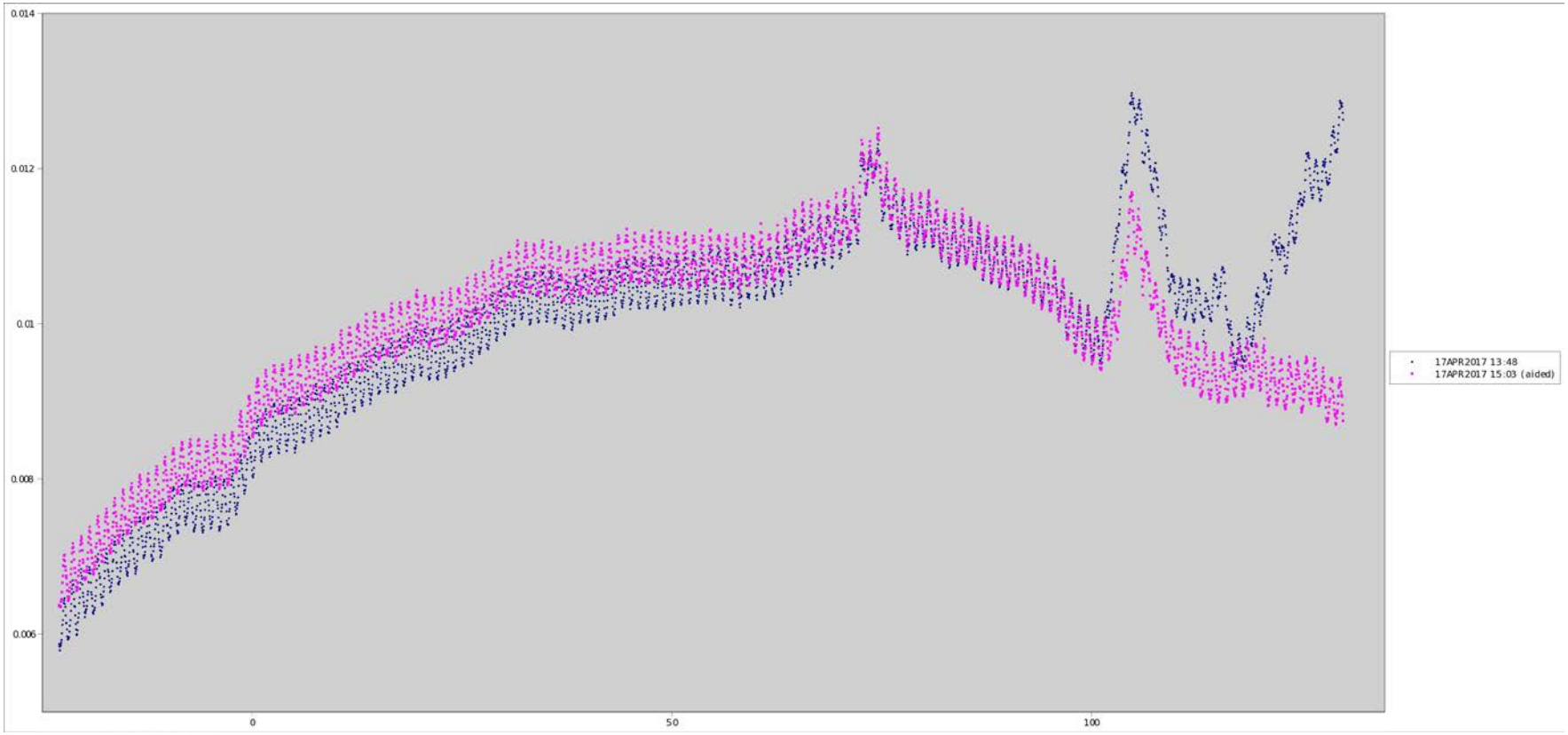
The results show in the numbers, too



WE FIX THE ERRORS
AS WE LEARN ABOUT THEM

Errors are Not Linear

But they *are* load-sensitive



Argonne NATIONAL LABORATORY