Tutorial 1
X Ray Diffraction

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1 Objective

To get to know the diffractometer and X'Pert Data Collector

2 Results and Conclusions

Scan 4 is the best to use for 422 planes in Silicon; it uses a time per step of .5 seconds over a 1 degree range and .02 degrees step size. The large and small peaks of $CuK_\alpha 1$ and $CuK_\alpha 2$ do appear to be very close to a 2:1 ratio in intensity.

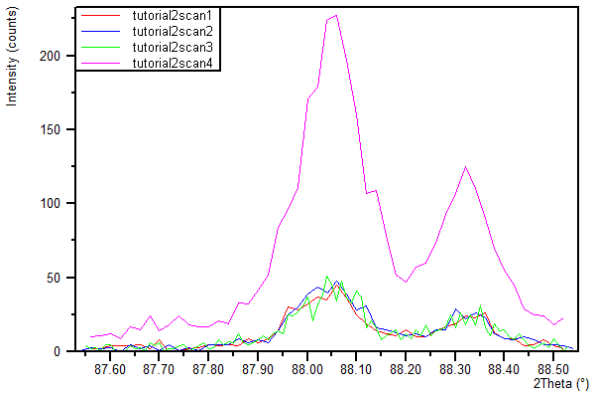

Figure 1: 422 plane in Si sample with Cu target: Kα_1 and Kα_2 peaks, variable step size, scan time, time per step

3 Discussion

Increasing the scan time lets in more signal, but also lets in more background. Increasing the step size makes the peaks less noisy. Using continuous scan mode instead of step mode makes the scan time shorter.

4 Answers to Multiple Choice Questions

(i) d

(ii) c

(iii) c

(iv) b