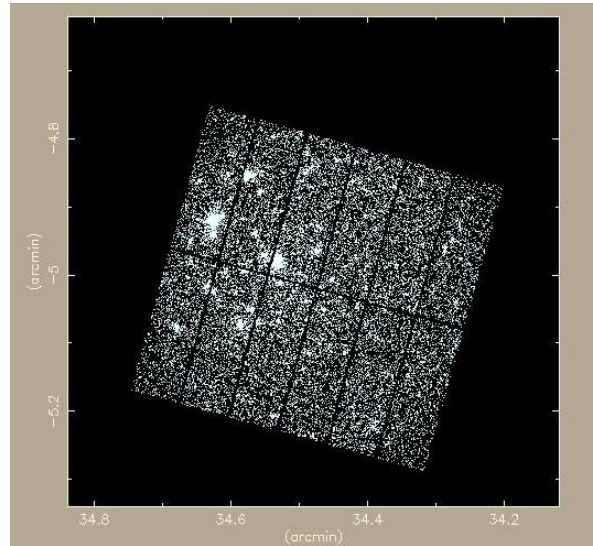
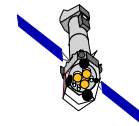


Vignetting from the PSF

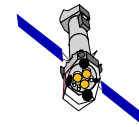
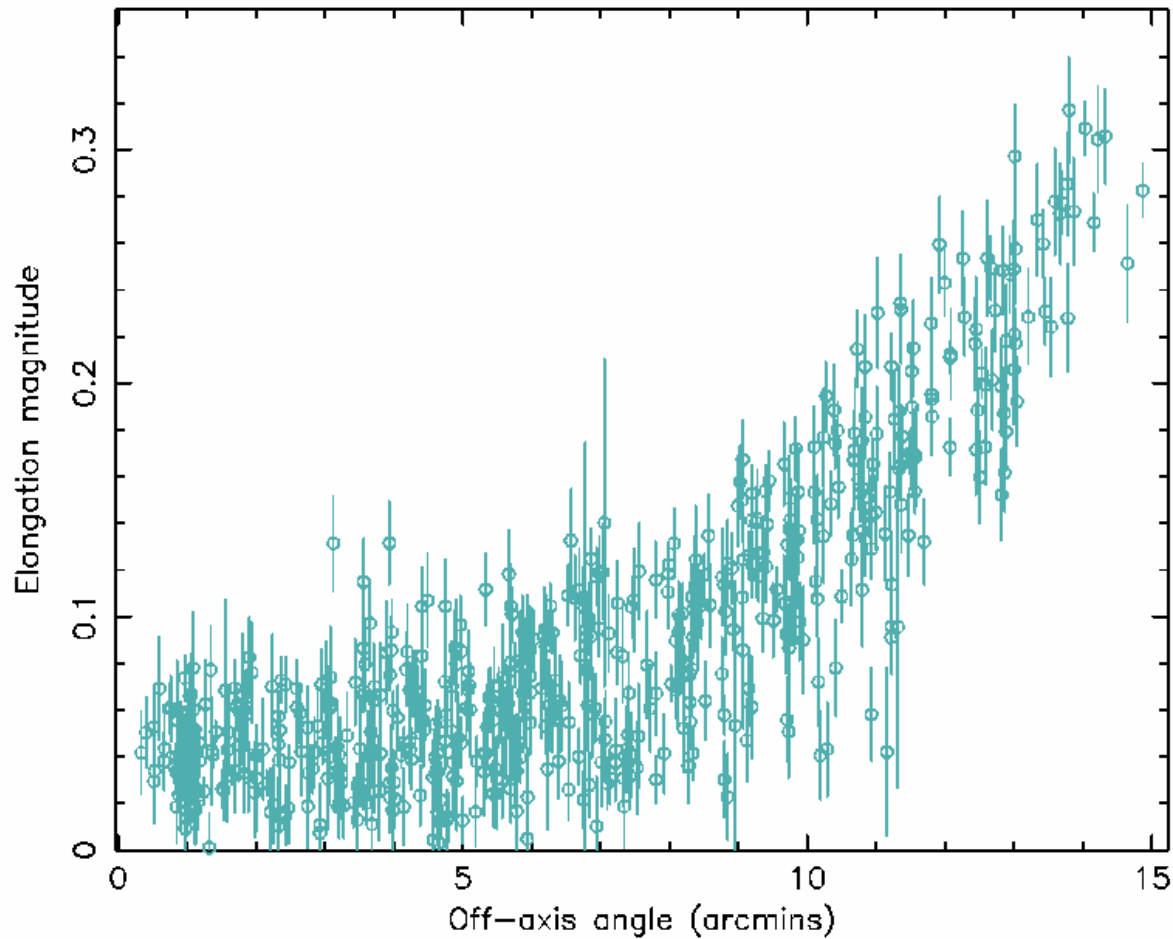


Richard Saxton, XMM SOC / SSC

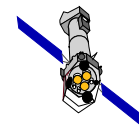
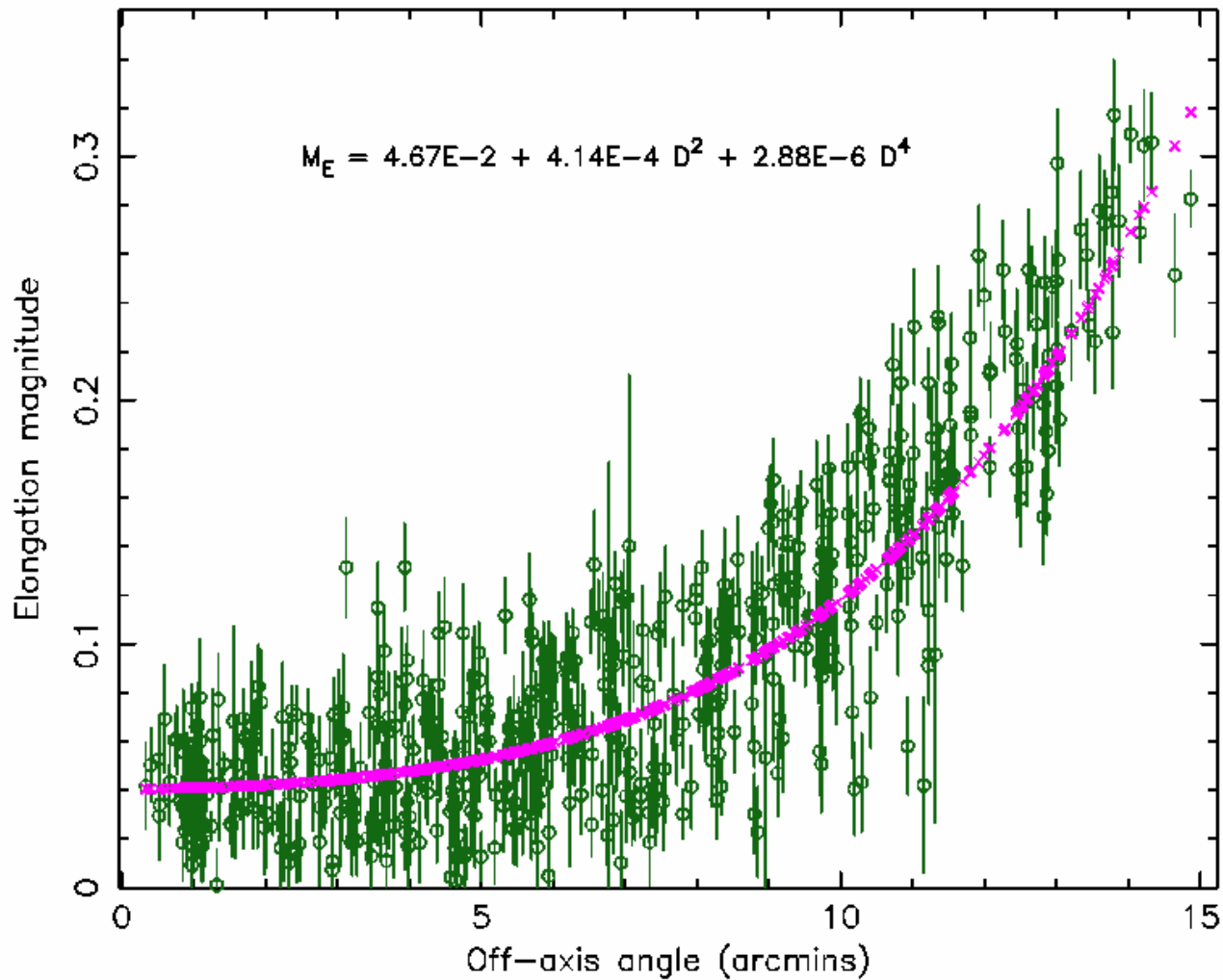
Ian Stewart, XMM SSC



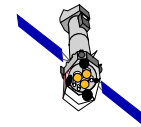
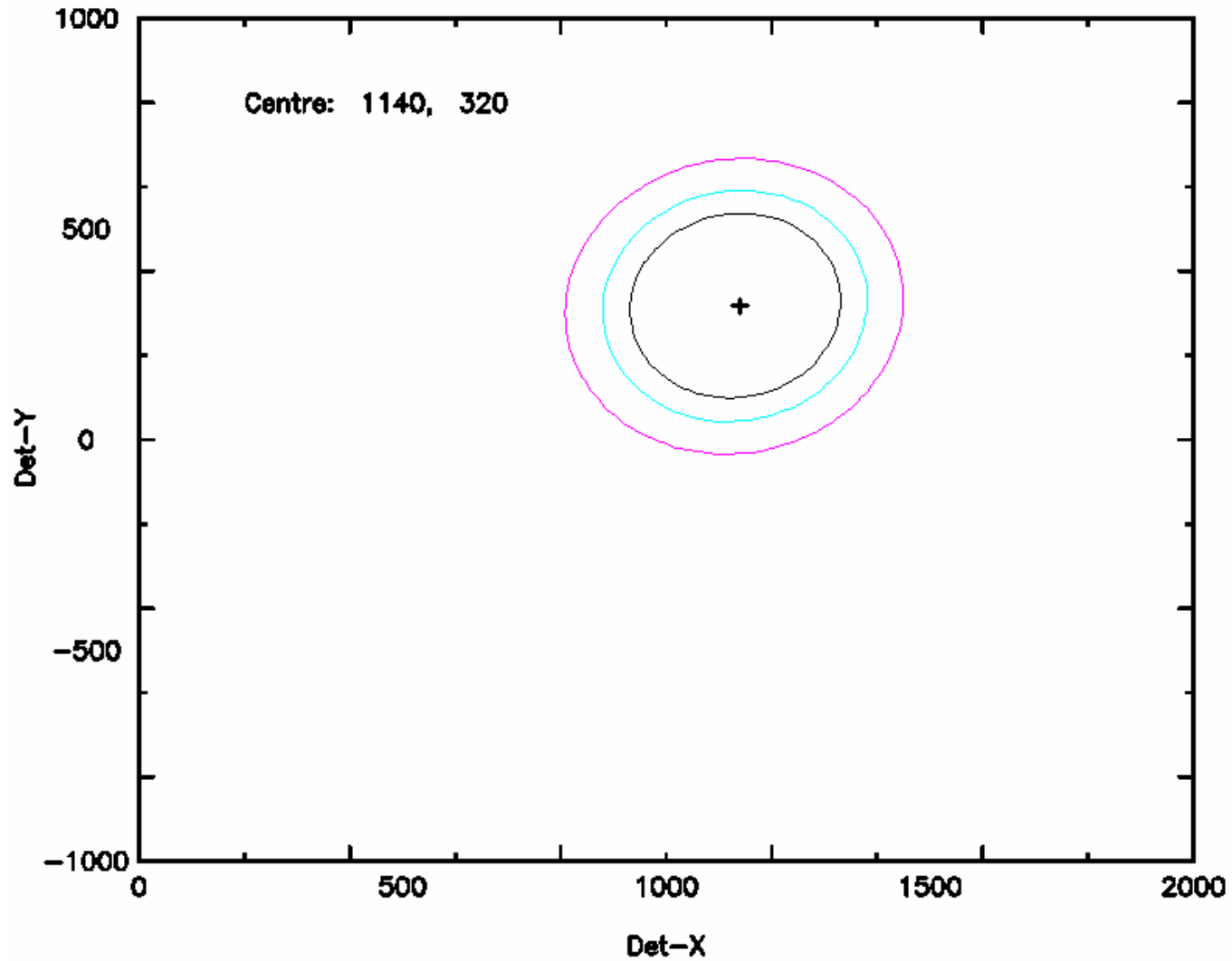
Source elongation v off-axis angle



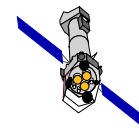
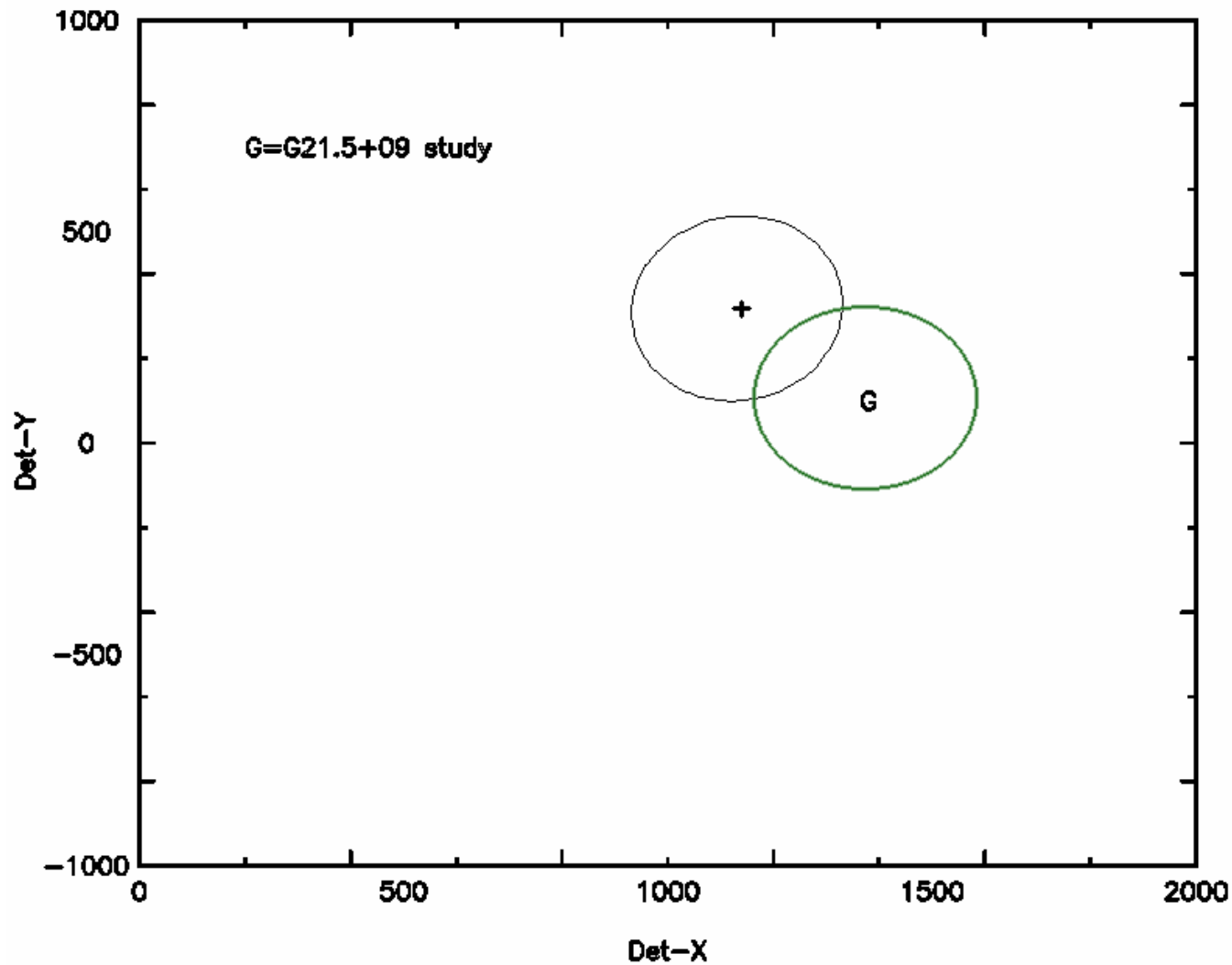
Source elongation v off-axis angle



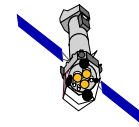
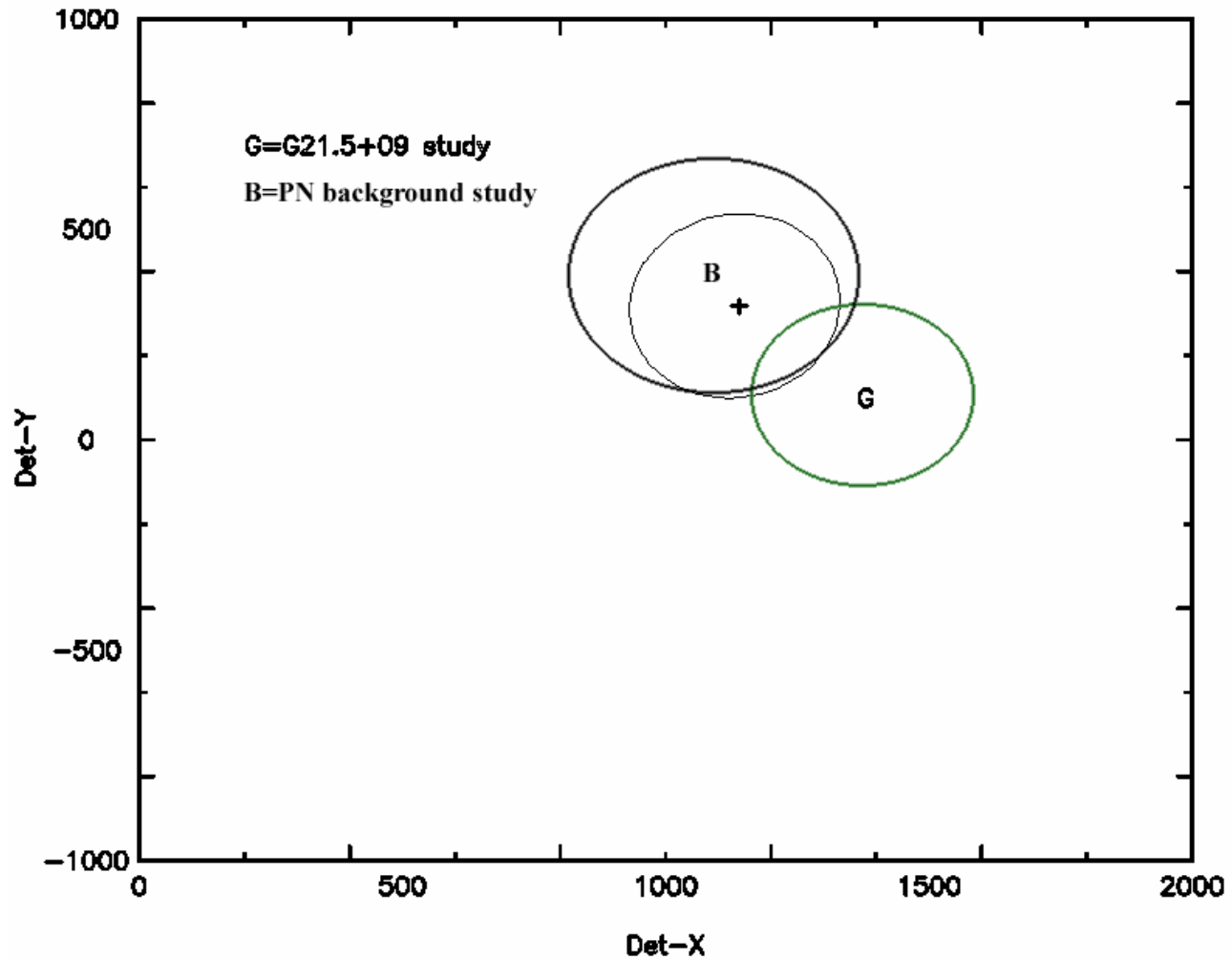
PN – optical axis from elongation magnitude



PN – optical axis from elongation magnitude



PN – optical axis from elongation magnitude



Effect of PN optical-axis shift

Mean: DET-X = 1200 ± 200 (60 ± 10 arcsecs)

DET-Y = 250 ± 200 (12 ± 10 arcsecs)

Flux difference for source on boresight:

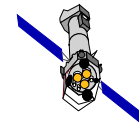
1.5 keV: $1.5 \pm 0.5\%$

10 keV: $3.3 \pm 1.0\%$

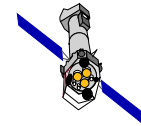
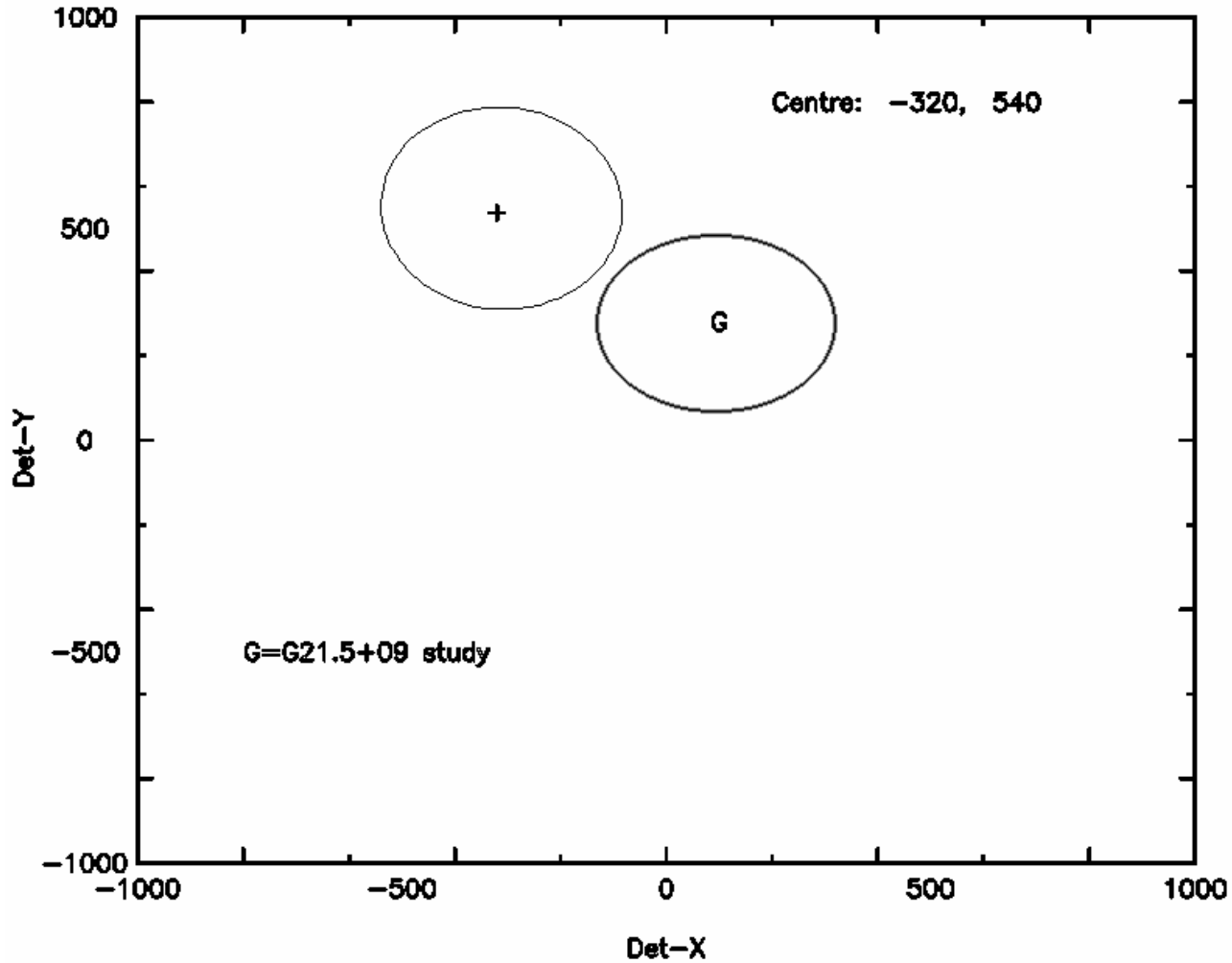
Flux difference for source at 10' off-axis:

1.5 keV: $9 \pm 2\%$

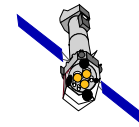
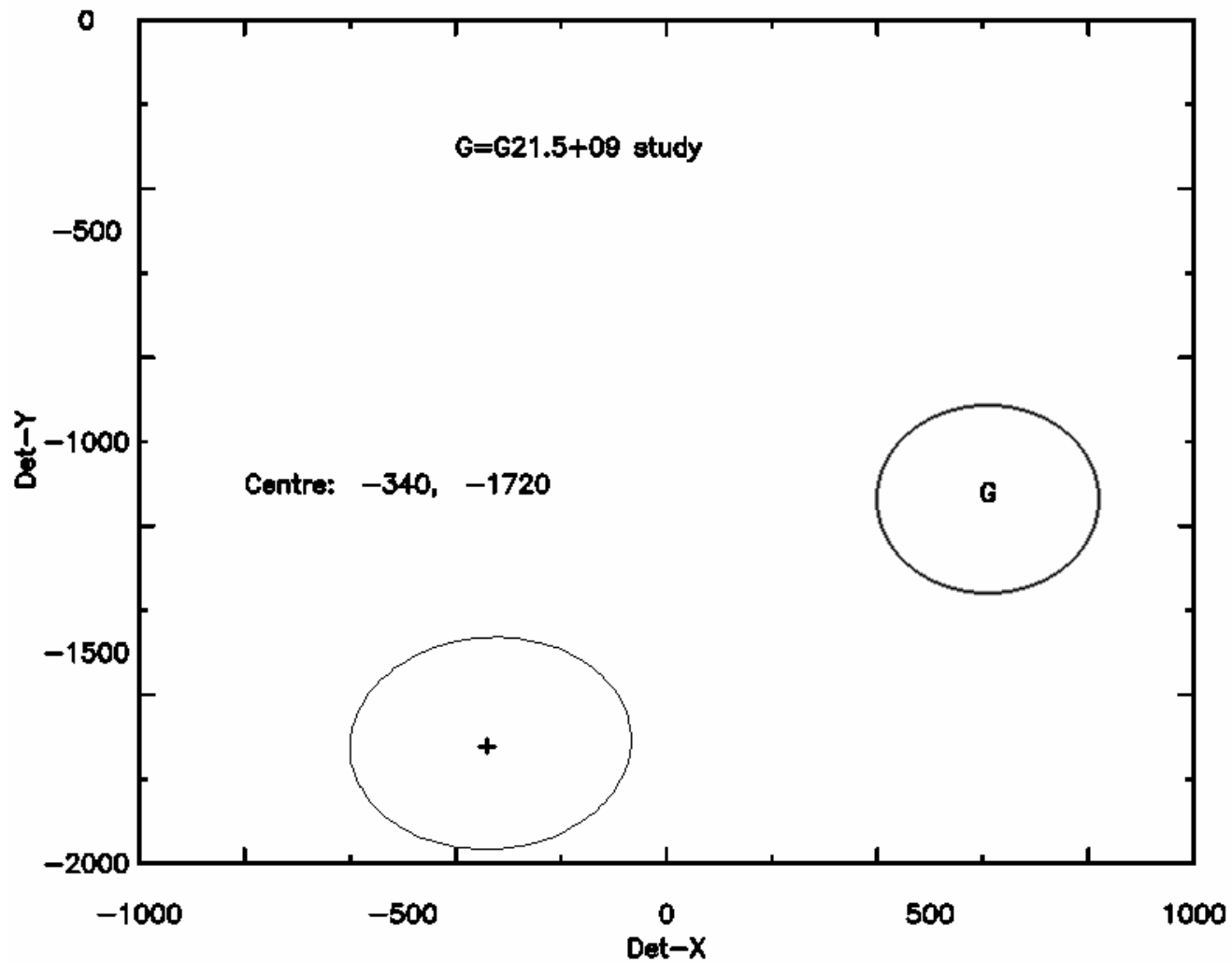
10 keV: $14 \pm 3\%$



Mos-1 – optical axis from elongation magnitude



Mos-2 – optical axis from elongation magnitude



Summary

- Measurements of pn optical-axis agree within ~ 10 arcseconds.
- The optical-axis positions of the MOS cameras derived from the PSF elongations are disparate by a few sigma from the G21.5 vignetting study.
- An error of 10 arcsecs in the optical axis gives a 3% error in the flux of off-axis sources.

