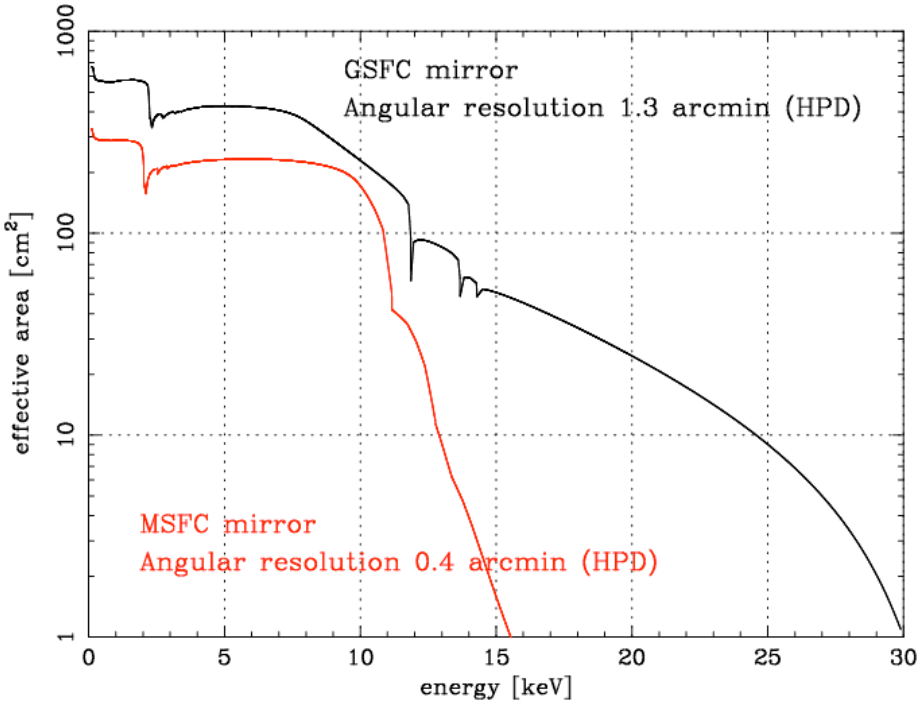
SWG Discussion

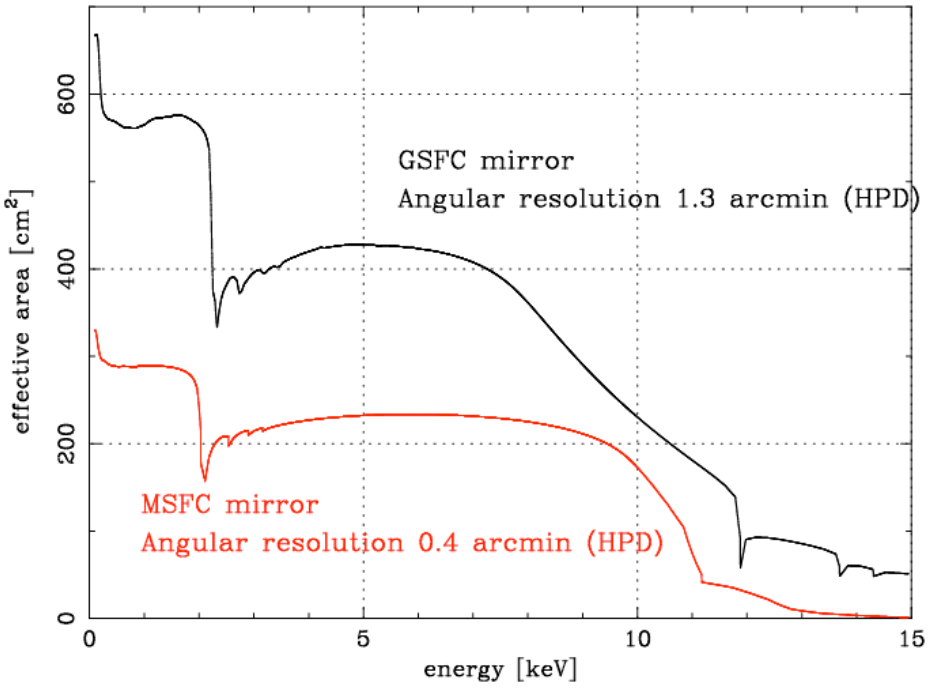
1. X-ray mirror for SXI and SXI science
2. Science with SGD (wide-band spectroscopy)
3. Filters for SXS

X-ray mirror for SXI

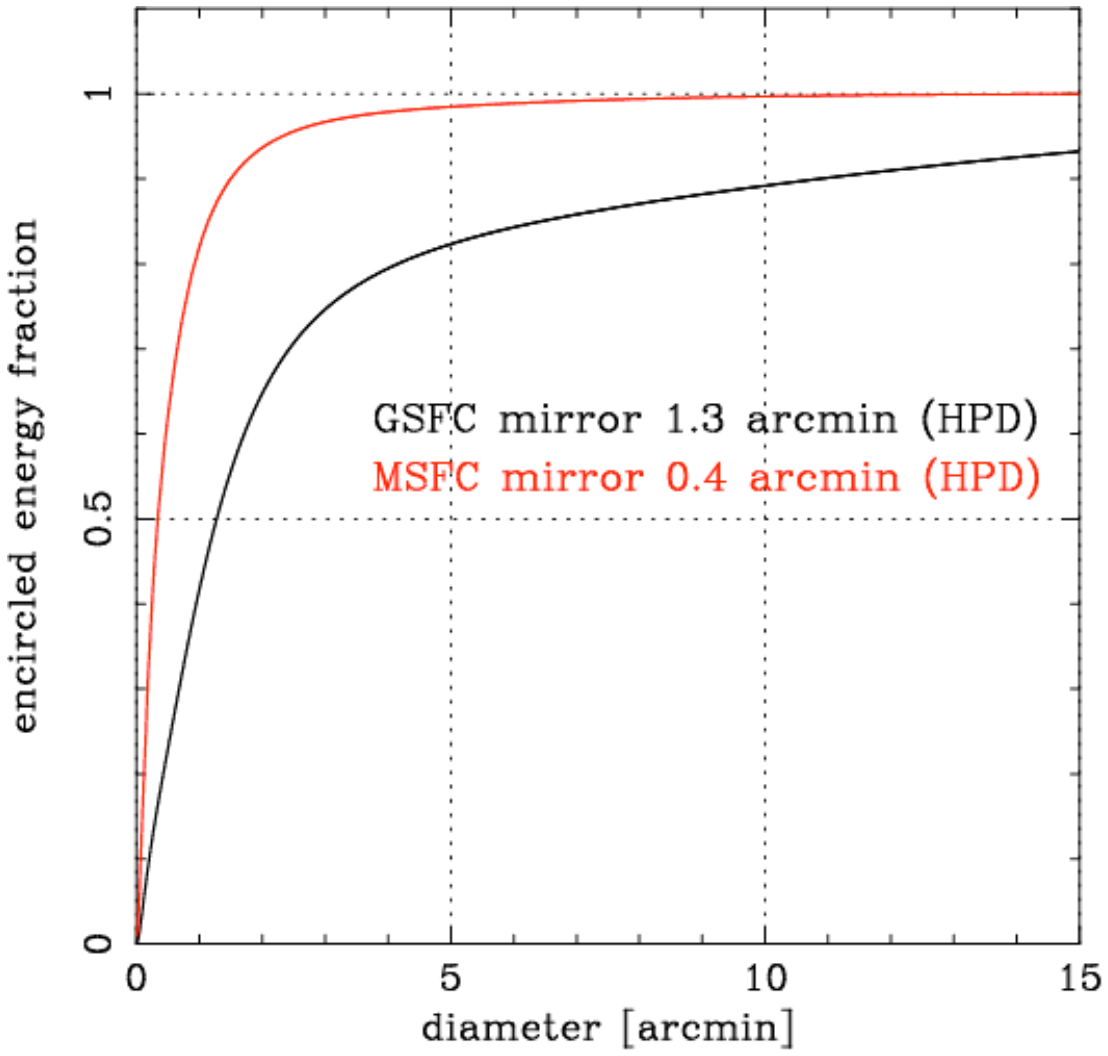
- Two options: GSFC vs MSFC mirror
- Angular resolution: 1.3 vs. 0.4 arcmin
- Effective area at 6 keV: 420 vs 230 cm^2
- Enhancing the science of SXS
  - Galactic plane, starforming regions
  - Starburst outflows, clusters of galaxies
- Own science of SXI (low background)
  - Science driver for the SXI instrument

Mirror area


GSFC mirror
Angular resolution 1.3 arcmin (HPD)
MSFC mirror
Angular resolution 0.4 arcmin (HPD)
effective area [cm²]
energy [keV]
1000
100
10
1
0
5
10
15
20
25
30


GSFC mirror
Angular resolution 1.3 arcmin (HPD)
MSFC mirror
Angular resolution 0.4 arcmin (HPD)
effective area [cm²]
energy [keV]
600
400
200
0
0
5
10
15

Angular resolution



Science with SGD

- Small effective area: ~40 cm^2 at 100 keV in Compton mode
- Polarization for bright objects
- Science of continuous wide-band spectra over 0.5—600 keV
  - AGN (absorption, Fe line, reflection, spectral cutoff)
  - Non-thermal emission from SNRs
  - Clusters (thermal and non-thermal emission)

Filters for SXS

- Necessity of filter wheel:
  Flux suppression, calibration source,
  optical blocking filter
- Open, Open+cal, 100μm Be, 300μm Be, 0.25 Gray, 0.1 Gray → 6 positions
- Are they all necessary?
  - Suzaku had open, 300μm Be, and 0.1 Gray (each with cal source) filters, but only Be filter was scheduled in SWG time.
- Dichroic filter?
  - More filter positions, 1Msec exposure
  - Only 10 eV width is polarization sensitive