

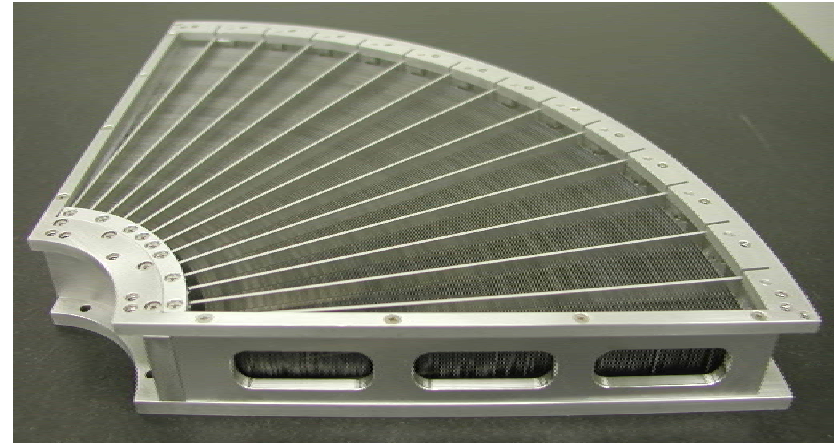
Introduction of XRT

Y. Maeda (ISAS)

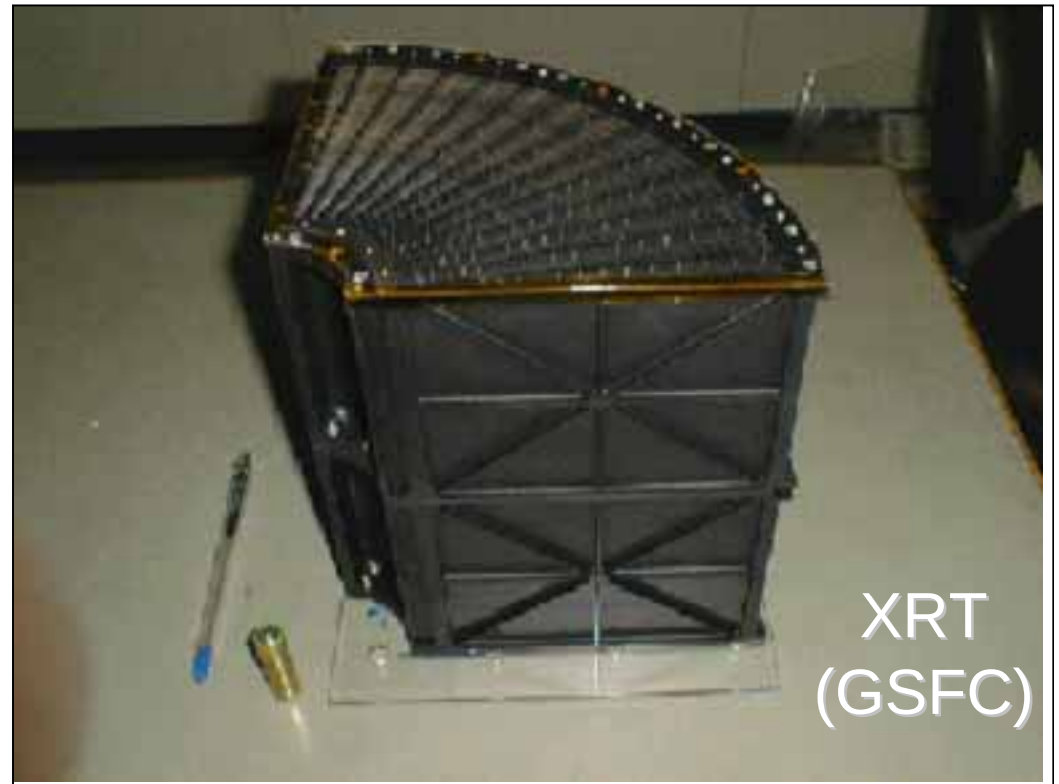
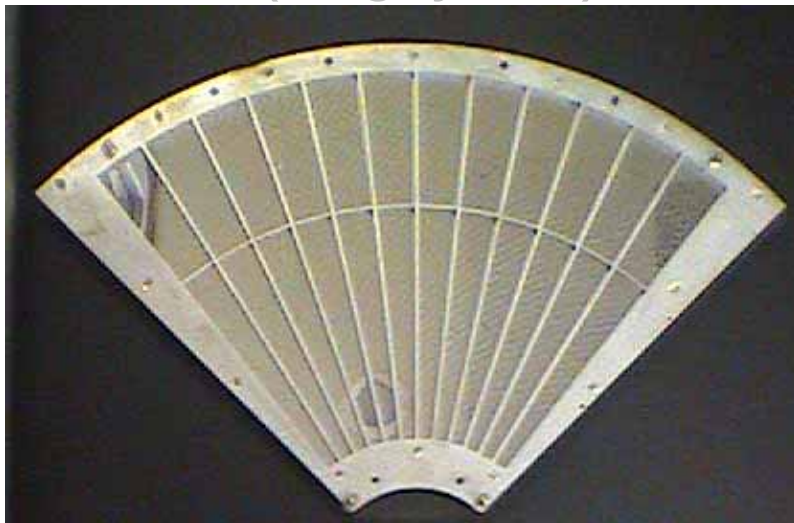
A. Furuzawa (Nagoya)

& the XRT team

Pre Collimator (ISAS/TMU)



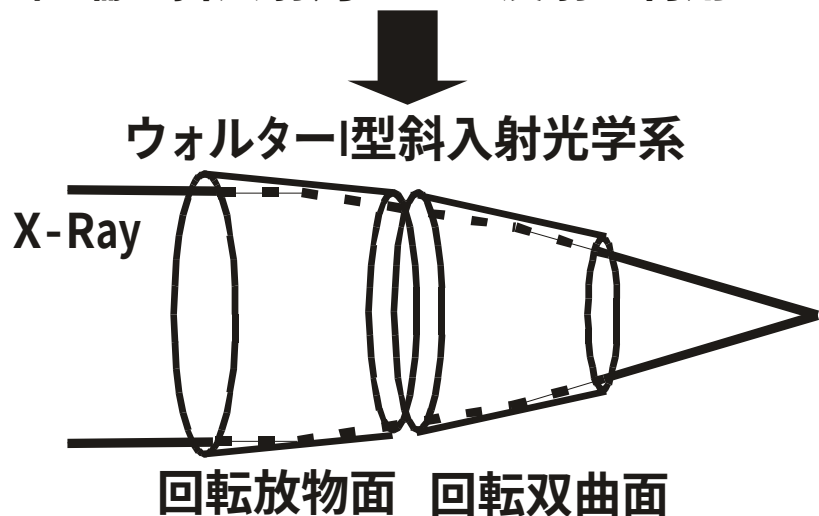
Thermal Shield
(Nagoya U.)



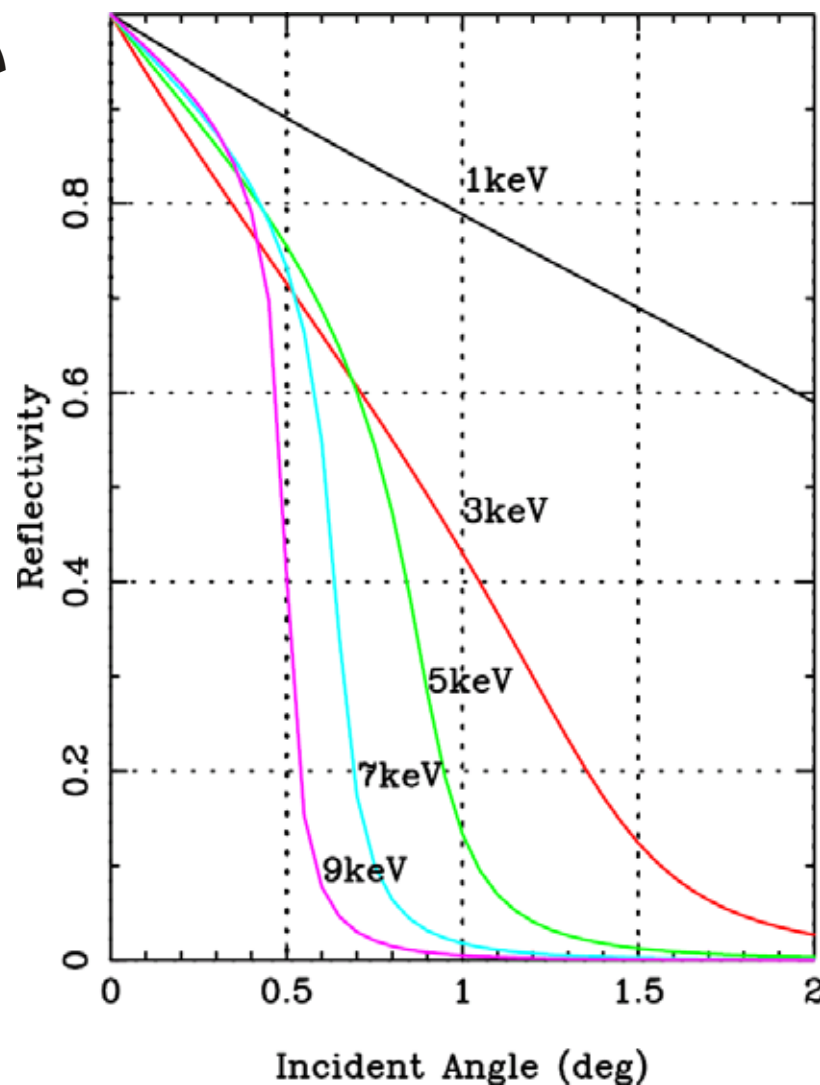
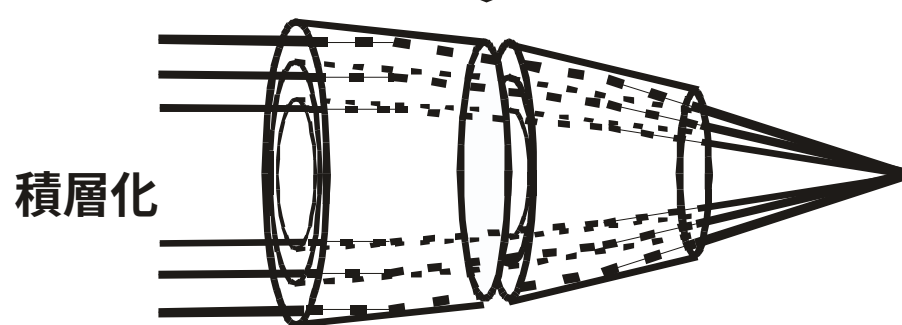
XRT
(GSFC)

X線望遠鏡の原理と構造

X線に対する屈折率 ≤ 1 屈折が利用できない
極端な斜入射角での全反射を利用

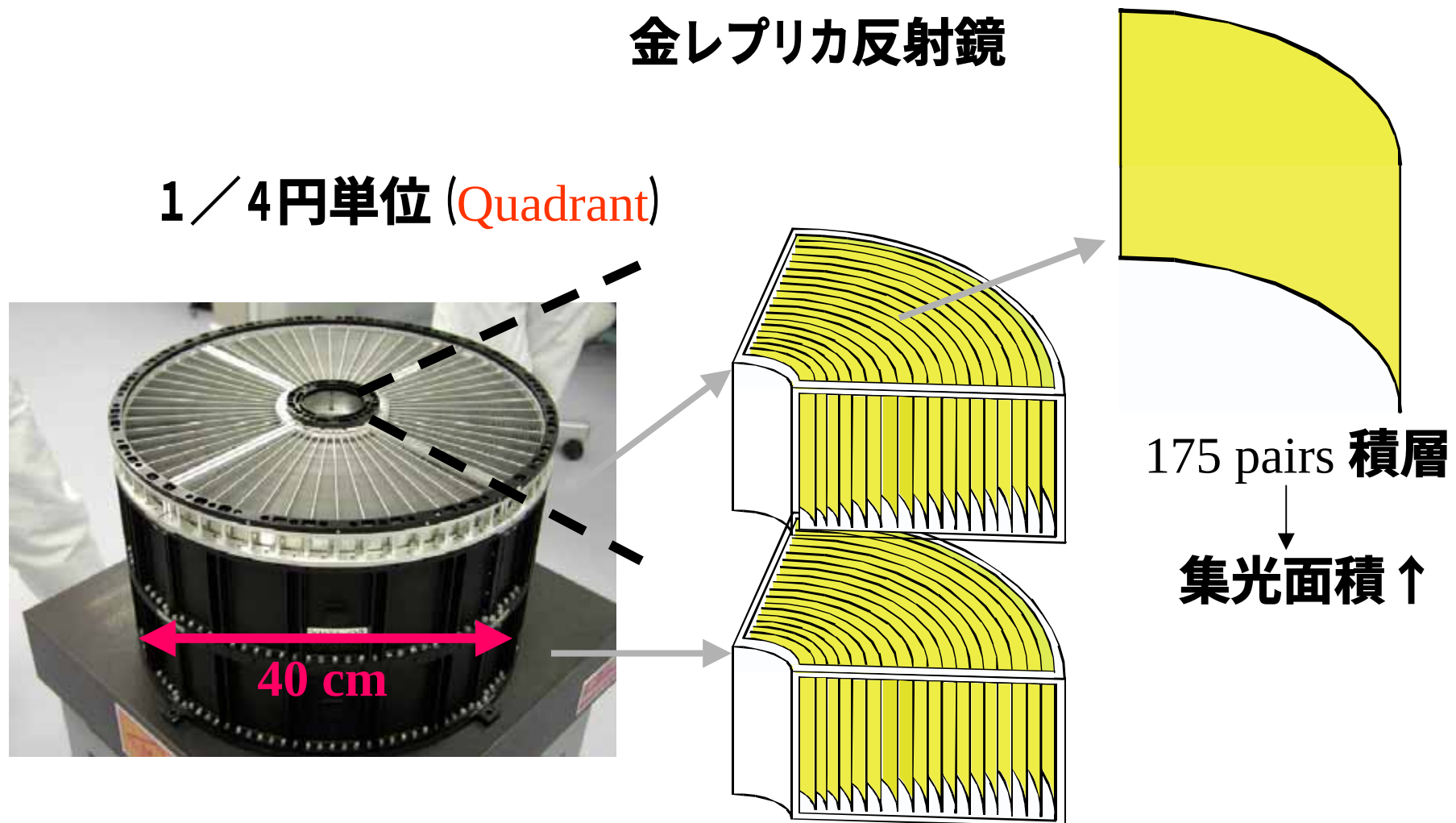


大面積化

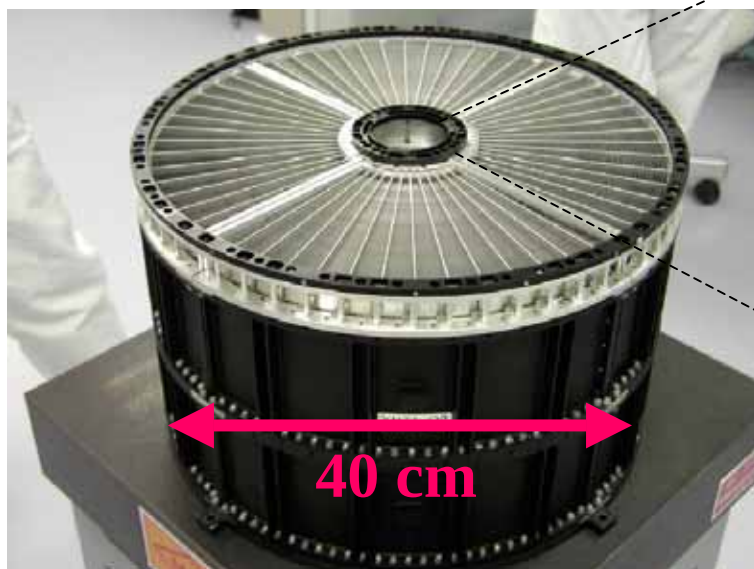


反射率のグラフ

ASTRO-E2搭載X線望遠鏡の構造



X線望遠鏡(XRT)



Quadrant

175枚のフォイルを
同心円状に積層

回転放物面

回転双曲面

X 軸

光軸

焦点距離

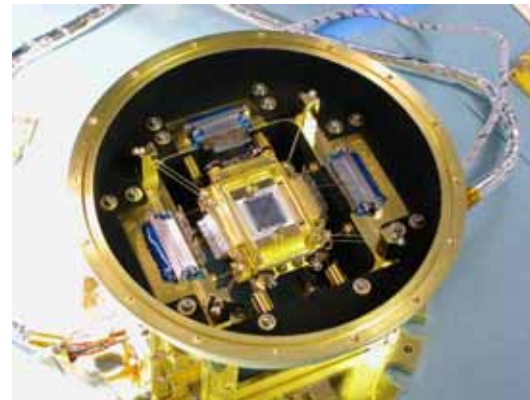
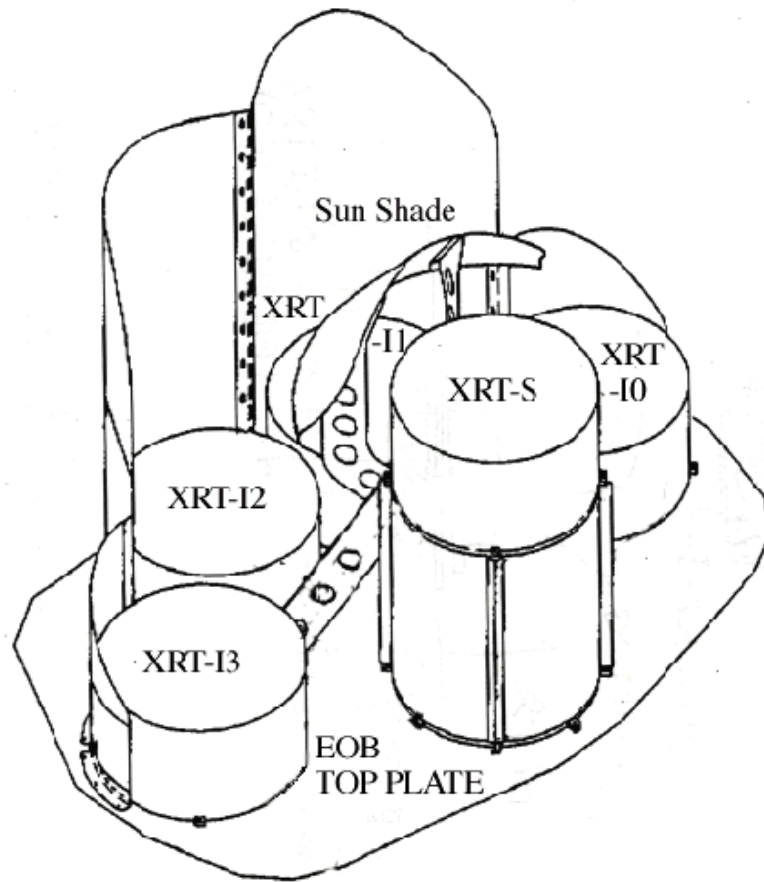
X線検出器

焦点面

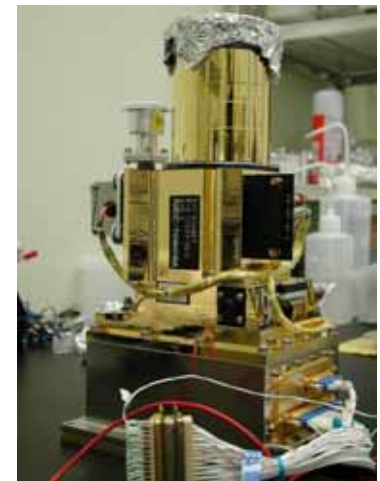
- 斜入射光学系(入射角 $0.3\sim 0.7^\circ$)
- バームクーヘン構造
厚み $170\mu\text{m}$, 175枚
- 軽量・大有効面積
- 2回反射→ 焦点距離4750mm
- 鏡の表面積 $\sim 50\text{m}^2$ (すばる)

5台のXRT

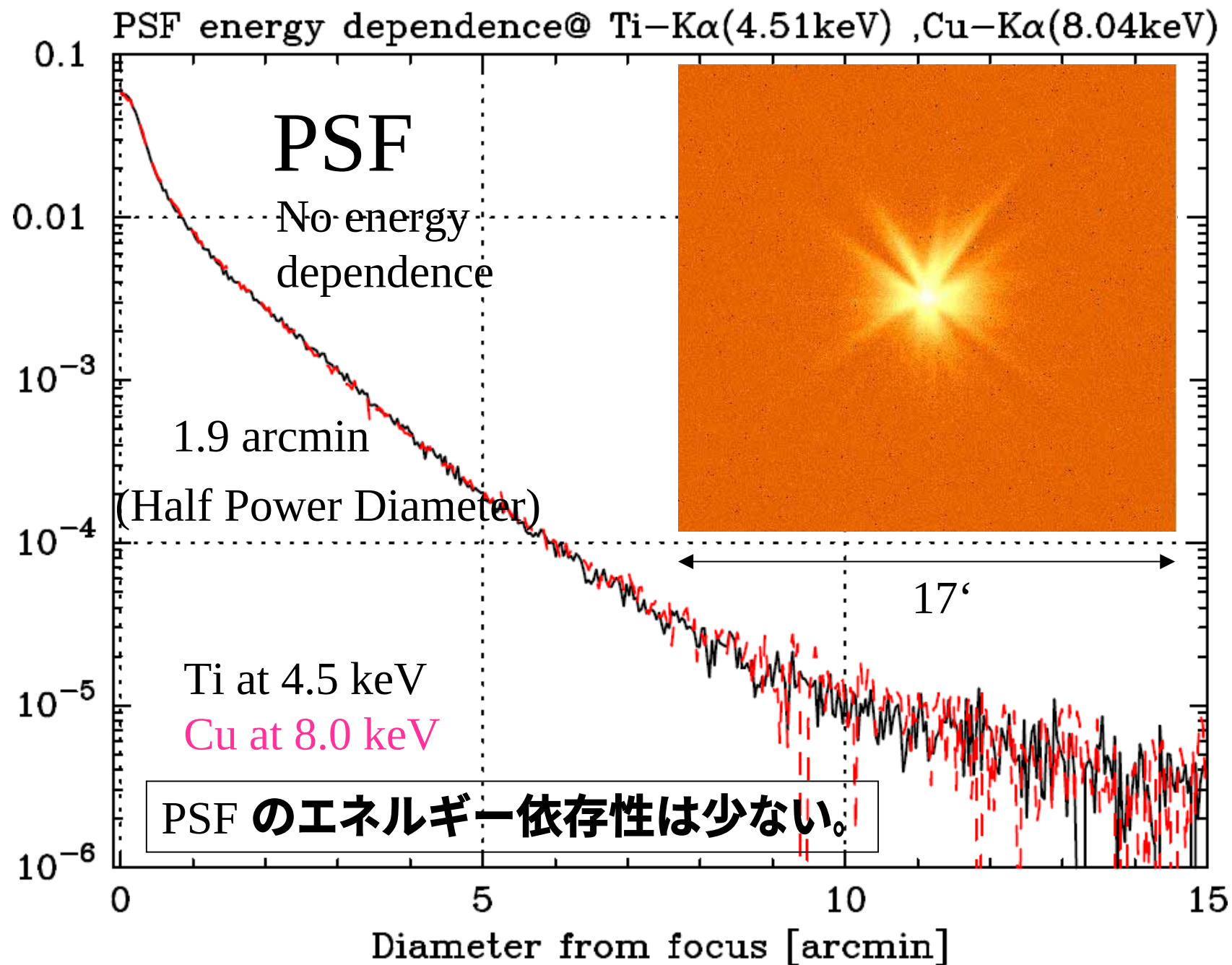
XRT-S (1台) → XRS (F.L. 4500 mm)



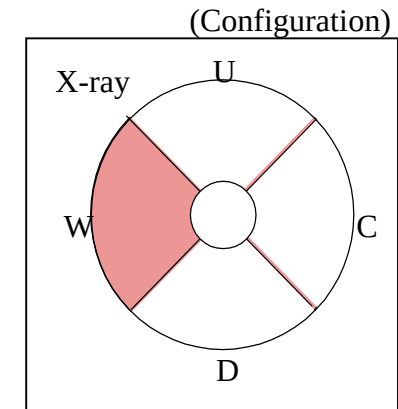
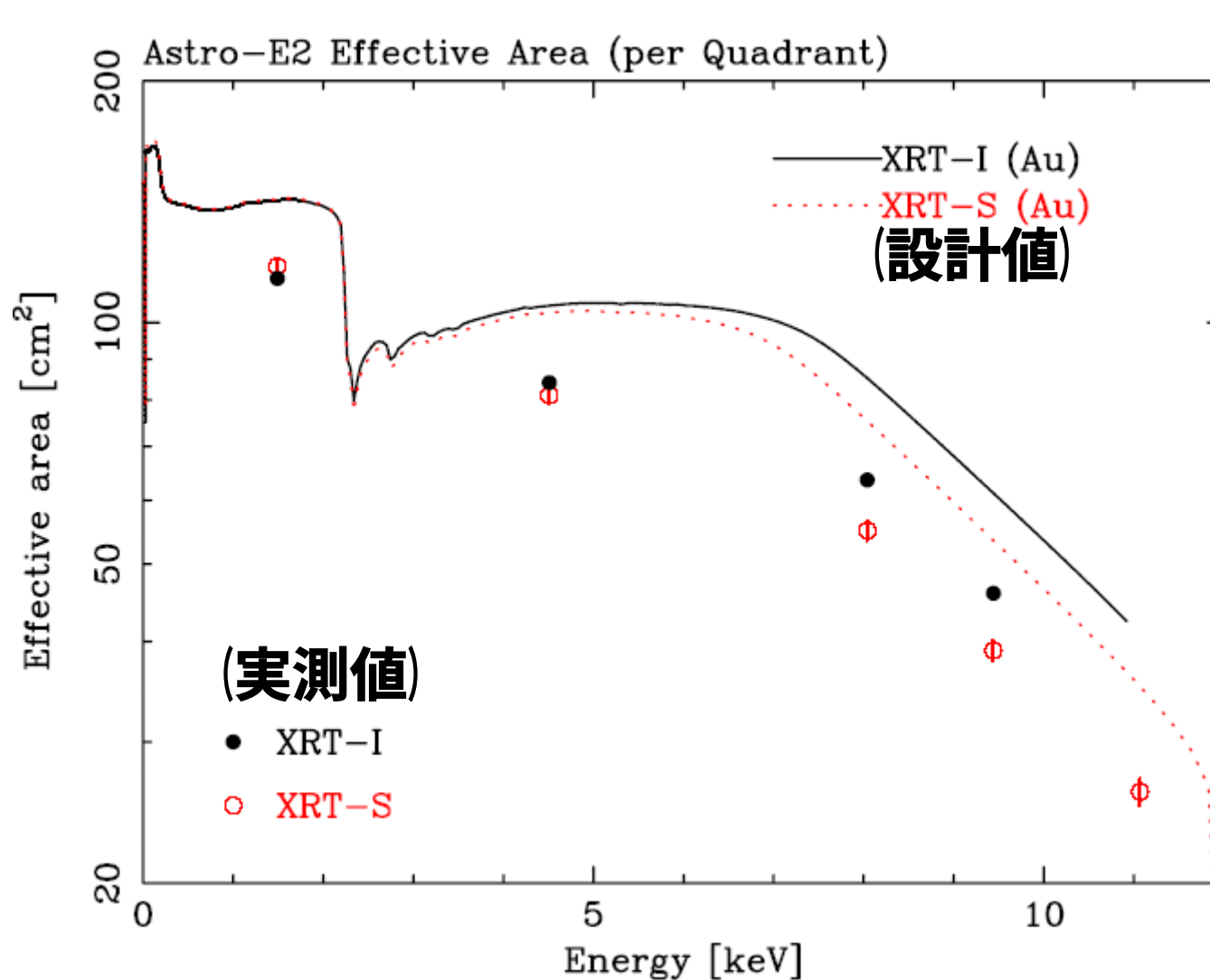
XRT-I (4台) → XIS
F.L. 4750 mm



Astro-E2 XRT



有効面積(Quadrant)



**有効面積
(望遠鏡1台)**

T1-4 310-330

T5 320

(cm²)

at 4.5 keV

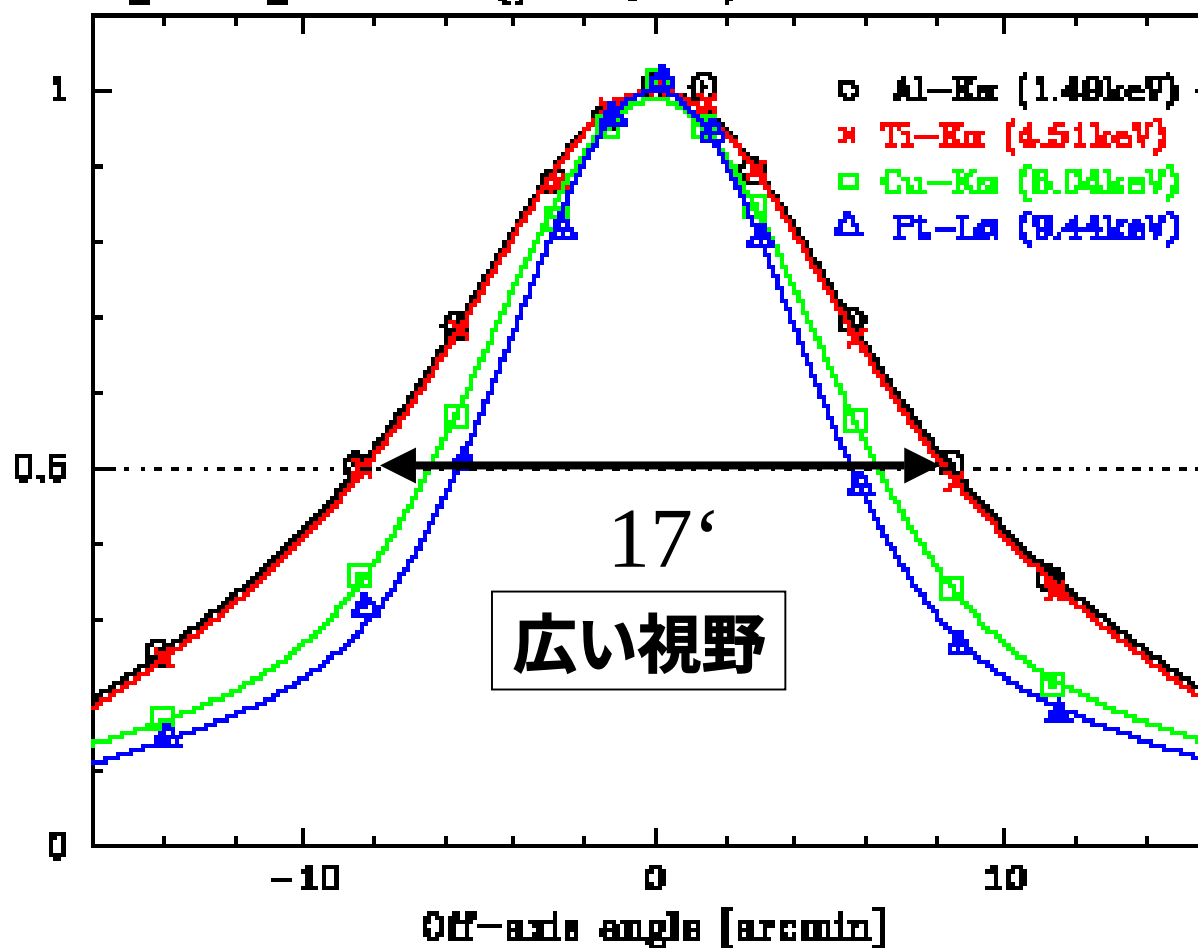
Dynamic Range **は約2桁**(0.2 – 12 keV)。

Vignetting (XRT-I)

Astro-E2 T2 Q3 @ W-side

XRT-S 視野内では一定

Vignetting Function ($\phi=45^\circ, 135^\circ$)



F.O.V.: 3' (XRS), 17' (XIS)

Summary: XRT-S

エネルギー帯域	0.2 – 12 keV
有効面積	~320 cm ² at 4.5keV
結像性能	2 arcmin (HPD)
視野	~ 17' (FWHM at 5 keV)
迷光	2 - 10' off axis
	(~1/4 for uniformly extended)