

# Off-plane Reflection Grating Spectrometer for the International X-ray Observatory

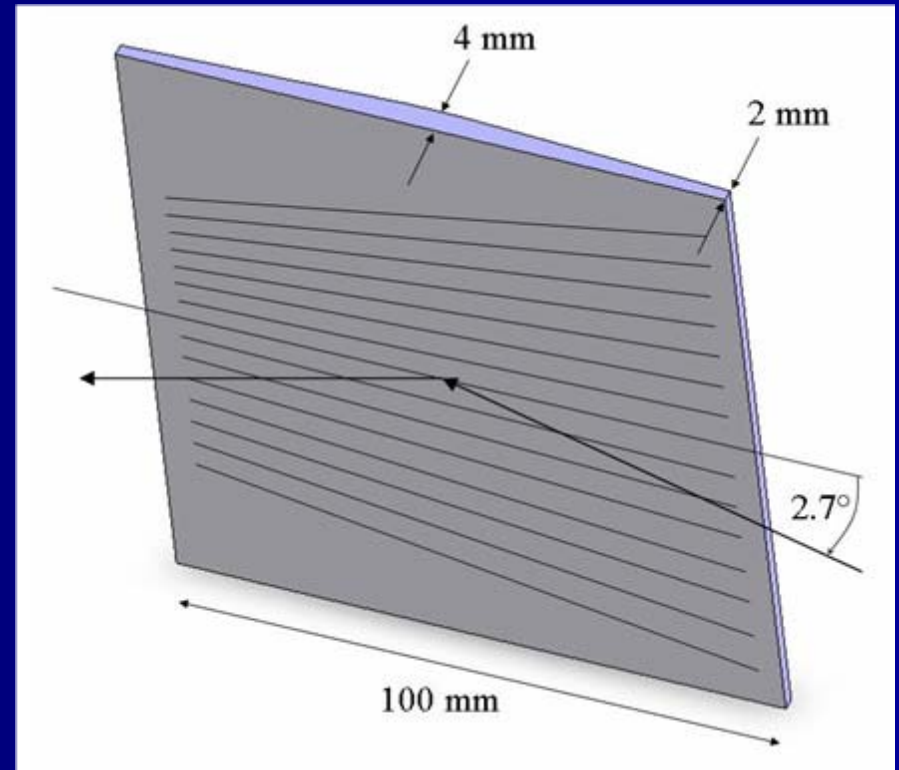
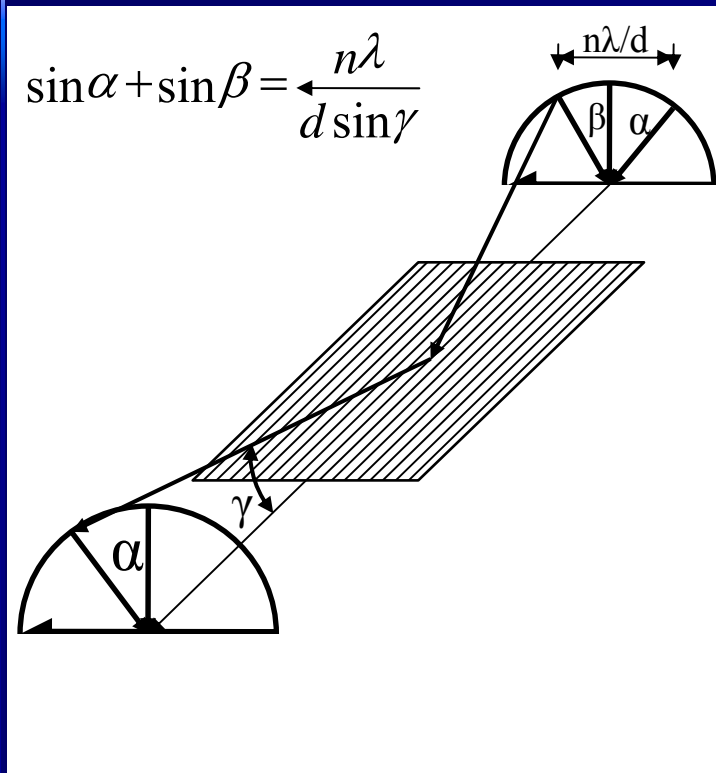
Webster Cash<sup>1</sup>

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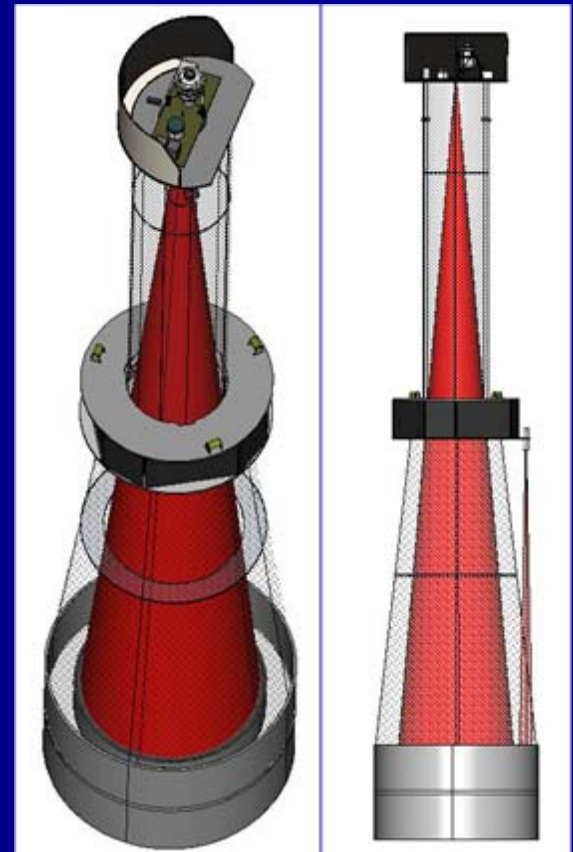
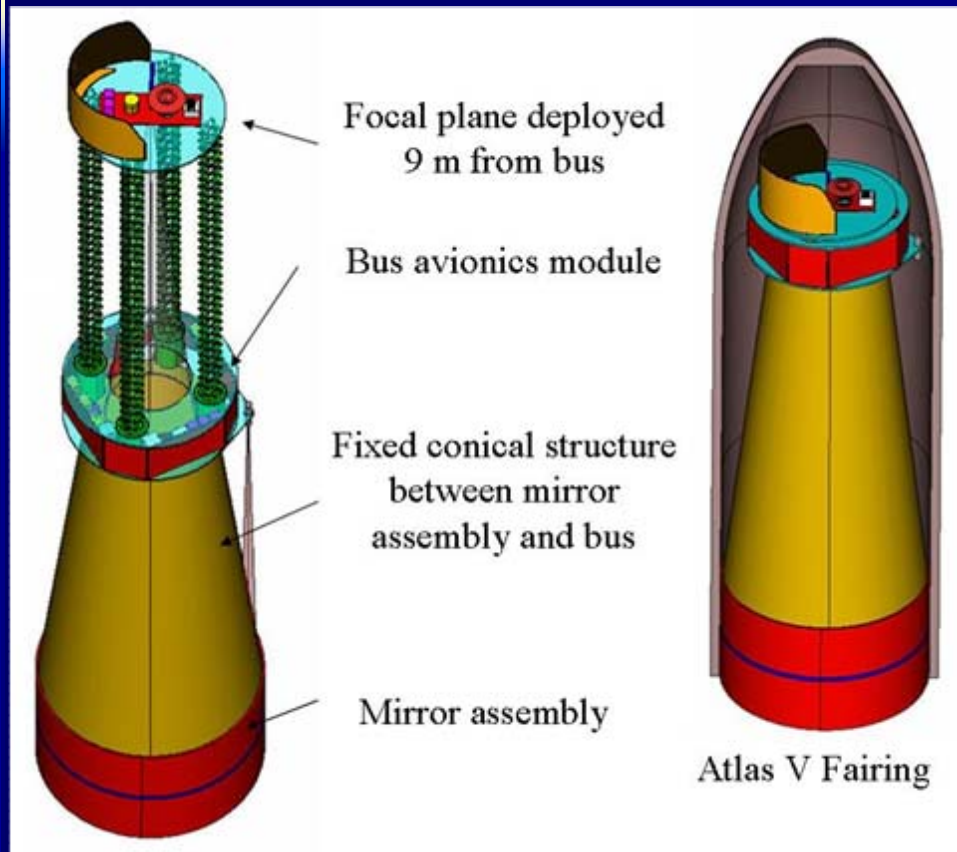
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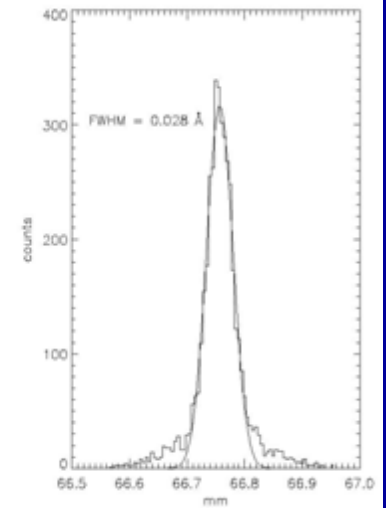
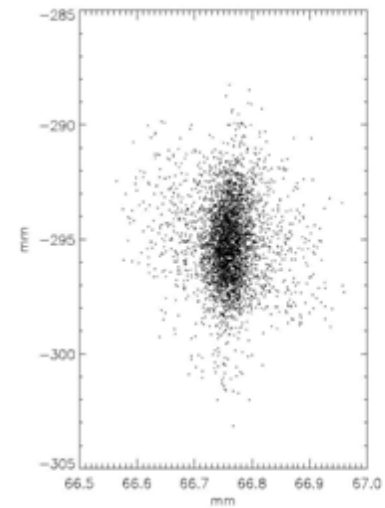
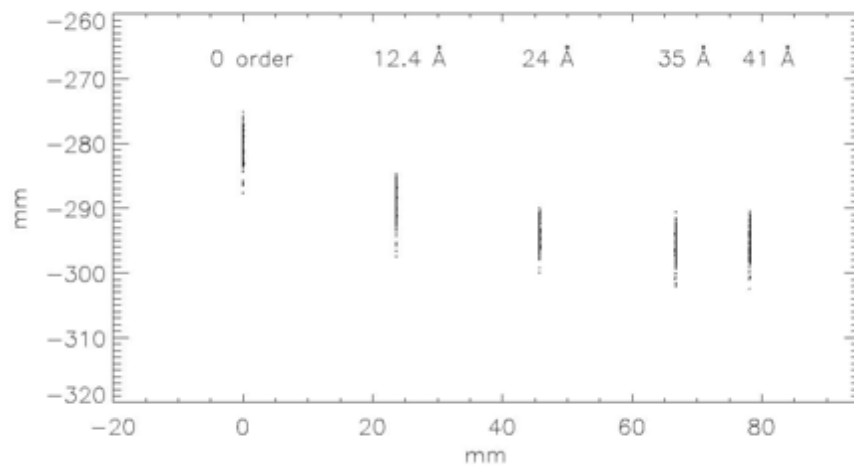
# Off-plane reflection gratings



# Spacecraft



# 3 m raytrace results



# To Achieve $R \sim 1250$ , $A \sim 10000$

If we push gratings hard:

15"  $\rightarrow$  5" So  $R$  goes from 3000 to 10,000

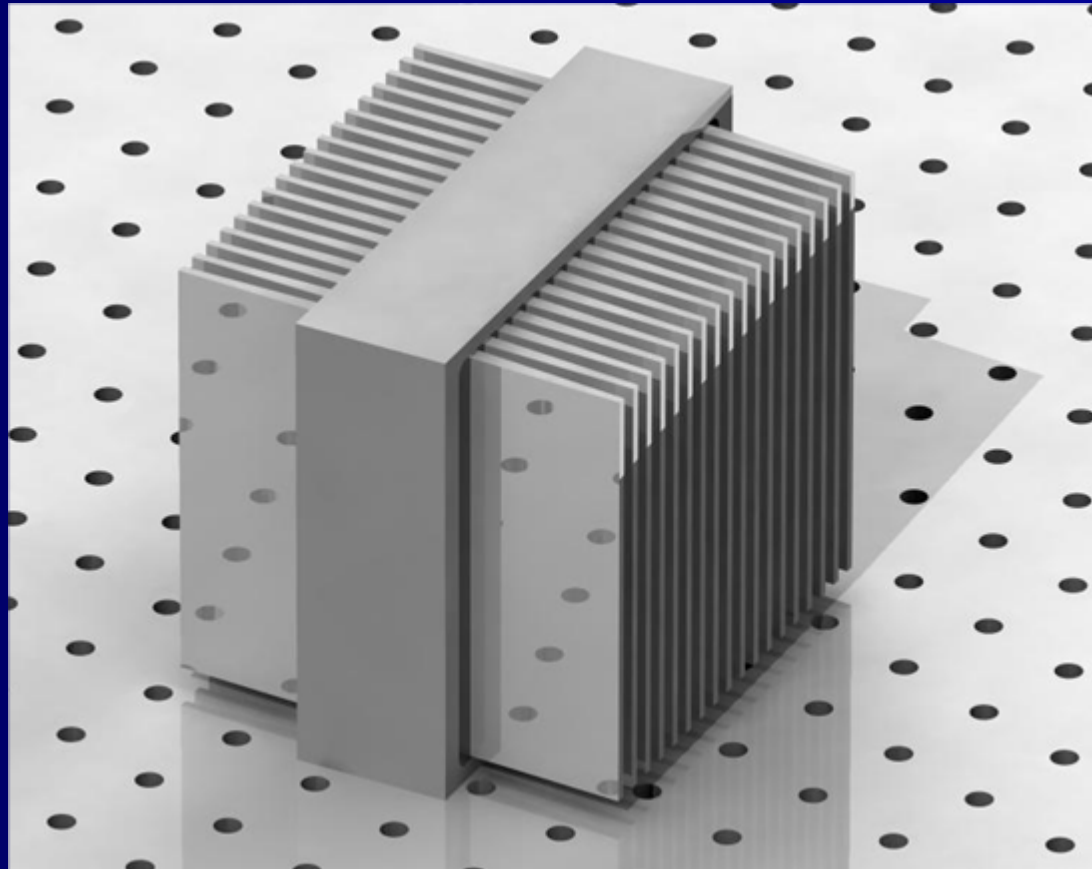
IXO has  $3\text{m}^2$  so  $A \sim 10,000\text{cm}^2$

Move 6x closer to the focal plane  $R \sim 1600$

Drop C shape  $R \sim 1250$

Beam now 50cm across - just catch 10%

# Module example



# This is easy

- Cube of conventional gratings
  - 18 @ 110x110mm
- Mass 2.2kg
- Flatness tolerance 30"
- Can be made thicker if gratings made a little larger

# We've already flown one!

