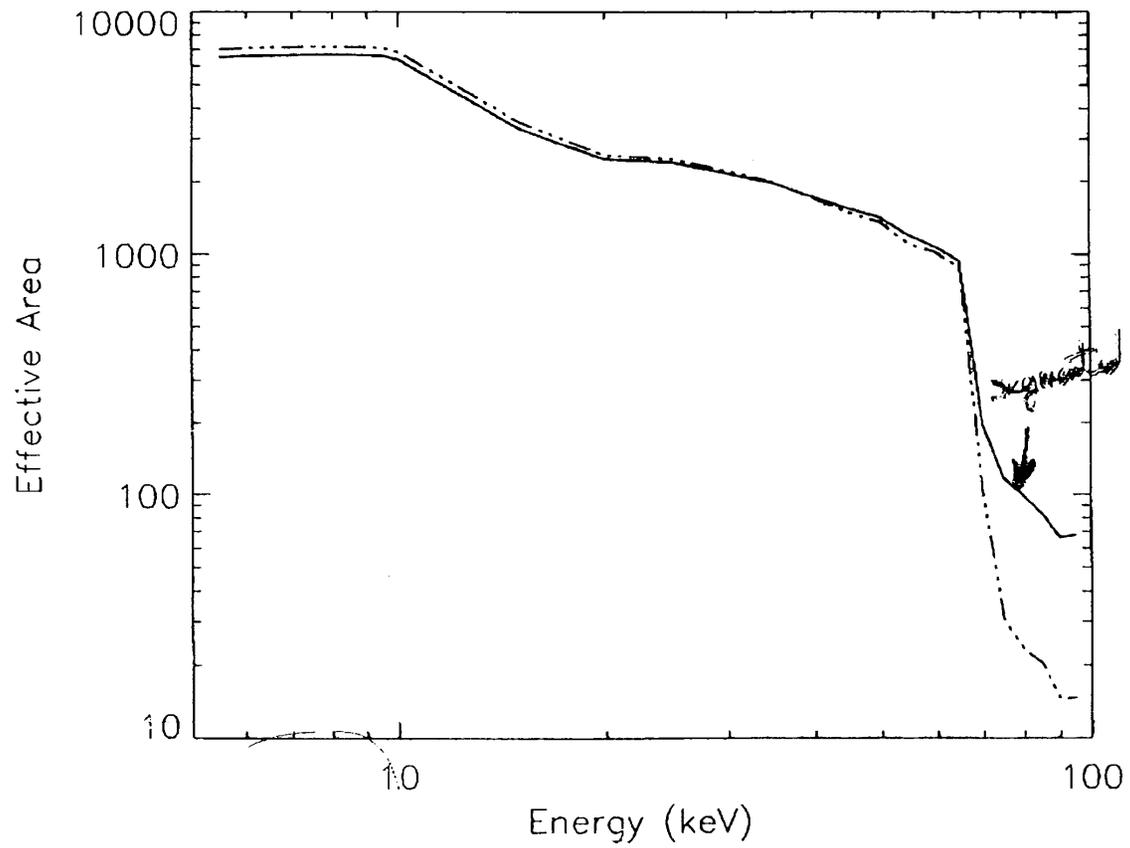


*Con-X HXT*

## Projected Performance: Effective Area

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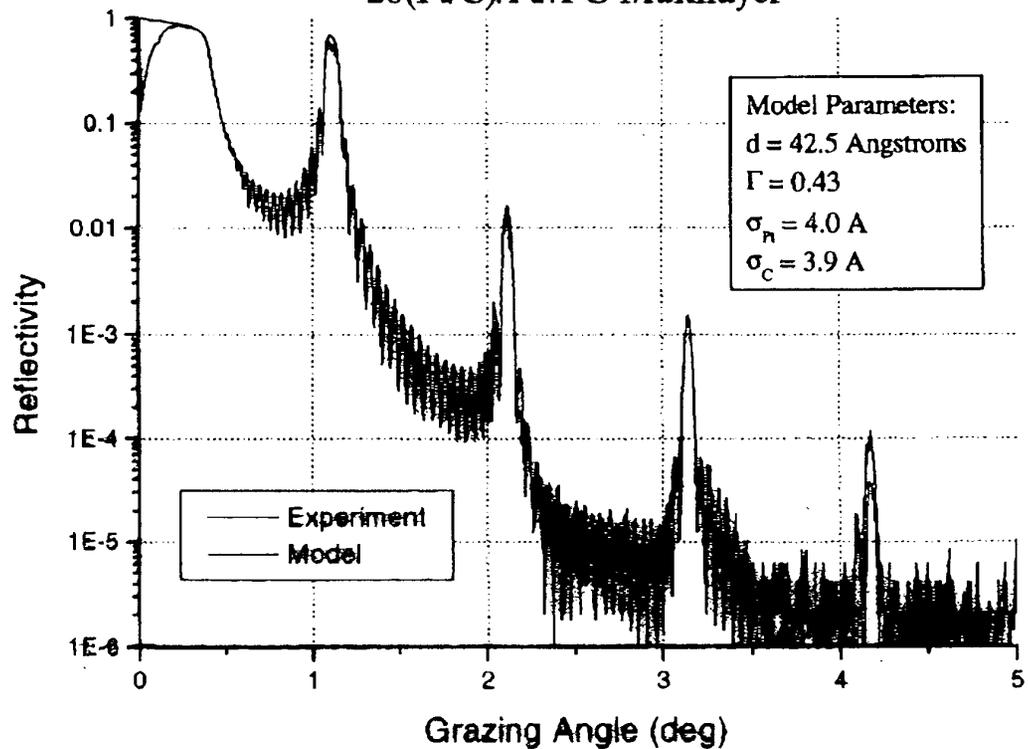


**FST Meeting 1999**

**SEU**

# GSFC Periodic Pt/C Multilayers

Specular Reflectivity of a Periodic  
20(Pt/C)/Pt//FG Multilayer

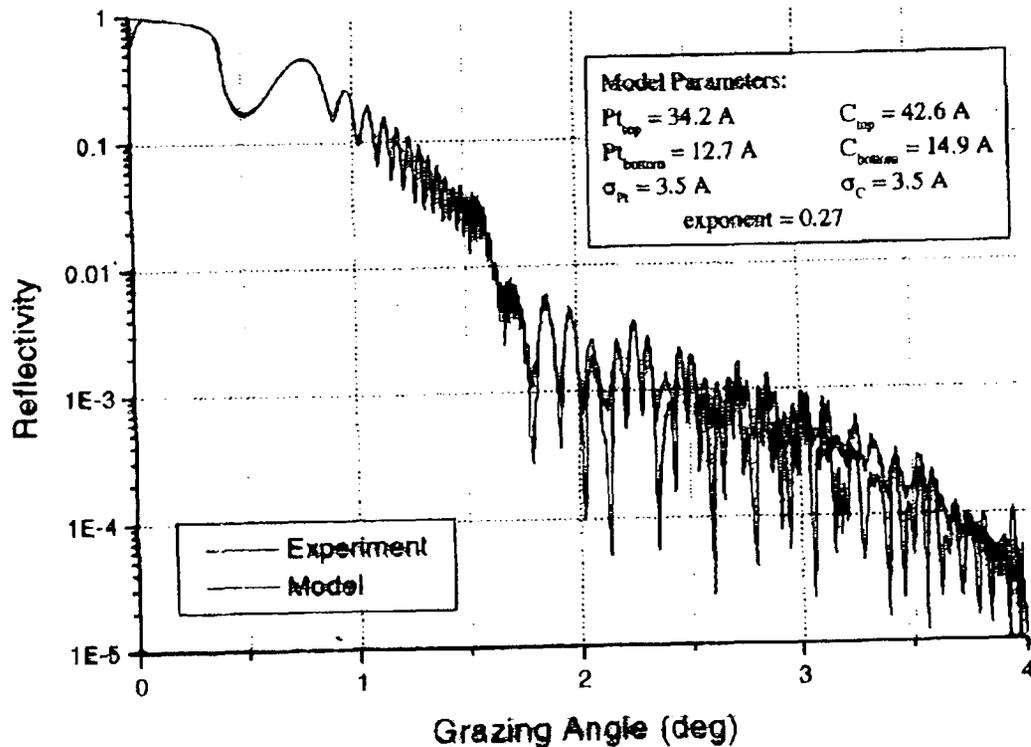


- Very stable deposition ( $\delta d < 0.2$  Å per layer).
- Interface widths relatively low
- Excellent match between theory and experiment



# GSFC Graded/Replicated Multilayers

Angular Response at 8.05 keV of a Prototype 60(Pt/C)  
Power Law Graded, Thin Foil Replicated Mirror

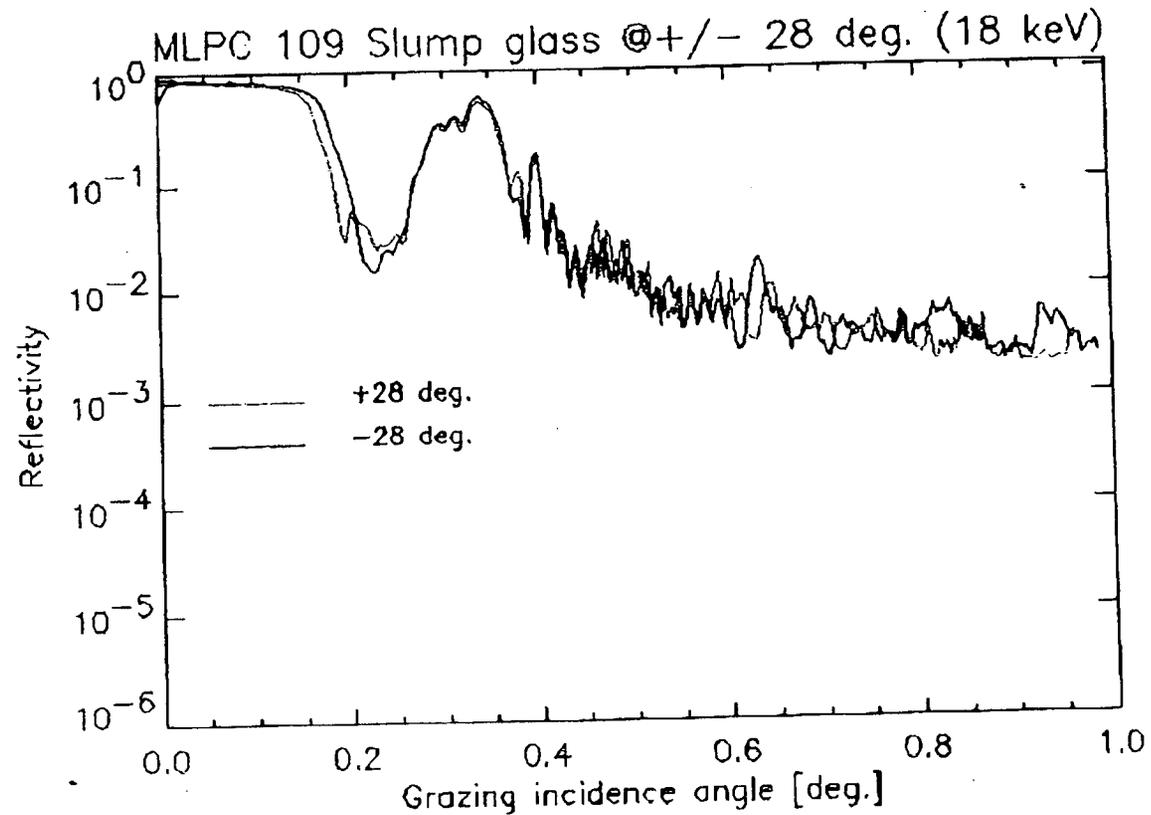


- Replication of multilayer surfaces onto thin foil substrates does not significantly change the interface widths.
- Agreement between experiment and theory means we can confidently predict energy response.



# Constellation-X MFS Team Meeting

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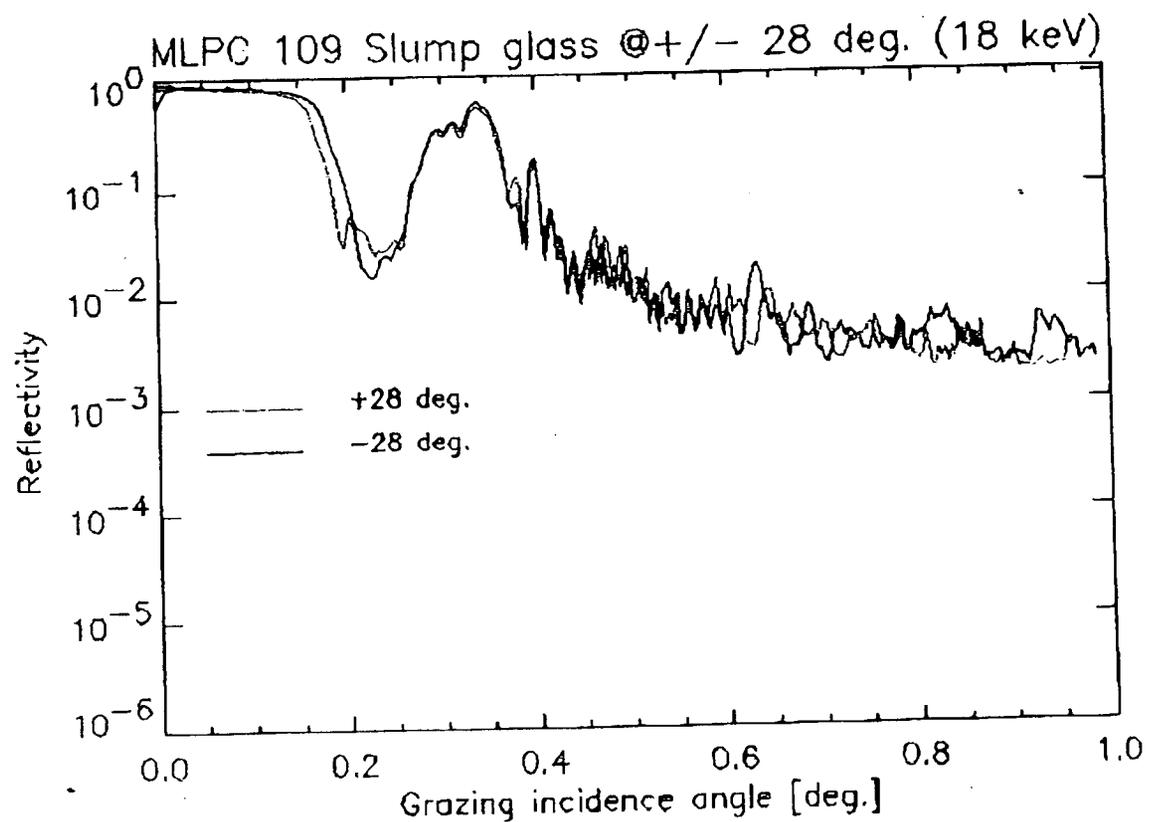


15 October 1999

SAO-MLF

# Constellation-X MFS Team Meeting

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## Progress: Detectors

*Con-X HXT*

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Material uniformity has been problematic

IR imaging and X-ray scanning at GSFC has yielded defect-free  
1-inch wafers

Until recently low-energy thresholds on CdZnTe/ASIC hybrids have been  
~15 keV, and energy resolution typically 3 - 5 keV @ 60 keV

Fully-functional low-noise custom CMOS ASIC (650  $\mu\text{m}$  pixels)  
developed and demonstrated in hybrid(CIT)

- threshold < 2 keV
- 390 eV FWHM (18 keV), 550 eV FWHM (60 keV)  
(collimated beam)
- demonstration of imaging performance/event reconstruction
- QE measurements at  $E < 20$  keV still required.

## Progress: Detectors

*Con-X HXT*

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## Work Plan HXT Detectors - Jan. 2000

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- Characterize low-energy efficiency and response of CdZnTe pixel detector ( $E < 5$  keV)
  - fabricate pixel detector with GSFC-scanned/selected sensor
  - bond to CIT custom low-noise readout
  - X-ray, laser scanning of detector
  - absolute efficiency measurements
- Characterize PIN pixel detector with 500 micron pixels
- Support mission level engineering studies (mass/power etc)
- Support team meeting for detailed technical exchange

Shield design optimization was too costly for allotted funds

- impact on focal plane mass