ACIS Response Matrix Products: Status

- Status of FEF ACIS files
  - -120 C CTI-corrected I-array & S2: released early 2003
  - -120 C S3: released fall 2001.
  - Other: older.
- Note that the -120 FEFs are based on data taken in spring 2000.
- Good news: time dependence is a gain shift effect. See Alexey's talk for details on how to correct.

ACIS FEF: The Shopping List

12 June 2003

- **S1 matrices: not very good shape now**
  - **unmodelled serial CTI effect**
  - **node-to-node gain problems**
  - **prototype not good enough yet**
  - **line width and gain issues.**
  - **estimated timeframe TBD**
- **Additional points in BI matrices near the Si edge**
  - **prototype exists**
  - **definition of "gain" is problematic (needs to be smooth function)**
- **Low energy gains and tails for S3 -120 C FEF**
- **-110 BI matrices**
  - **prototypes have line width issues:**
  - **spectral resolution of BI chips at -110 is better than at -120 C**
  - **estimated timeframe TBD**

ACIS FEF: The Shopping List (cont'd)

12 June 2003

- **CC mode, transfer streak calibration; other nonstandard frame times**
  - **estimated timeframe TBD**
- **CTI correction for other chips**
  - **S3? Would need to include serial CTI**
  - **S4? Often used in imaging studies**
  - **Improved algorithms, including sacrificial charge: Under study.**

An A_{eff} "Feature" near 2 keV

- **Spurious emission feature shows up in fits to continuum sources near 2 keV**
- **Present in HETG and ACIS spectra. Also LETG?**
- **Coincident in energy with the Ir M V edge (in grating spectra)**
- **Believed to be a mirror model problem**
- **Could explain it with a modest overlayer of hydrocarbon on the mirror**

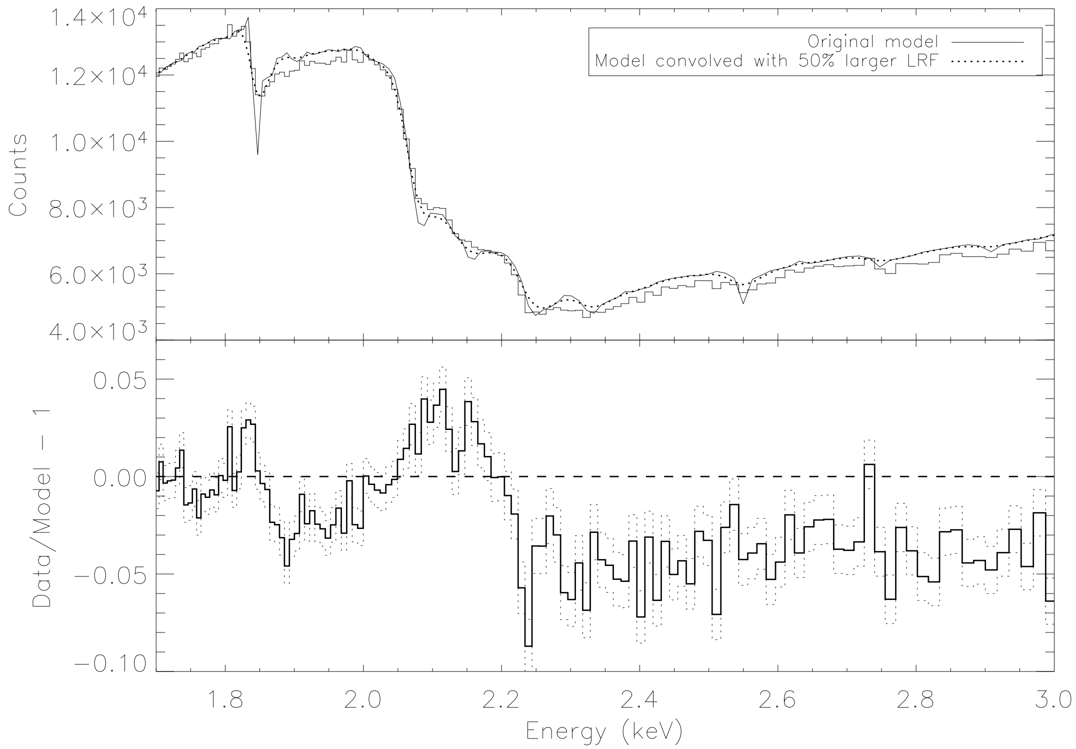

Figure 1: Pileup-corrected LETG/ACIS-S spectrum of Mkn 421 in outburst, with powerlaw model fit and residuals. Note the feature between 2.0 and 2.2 keV, near the Ir M-edges. This skews the fit at other energies as well.

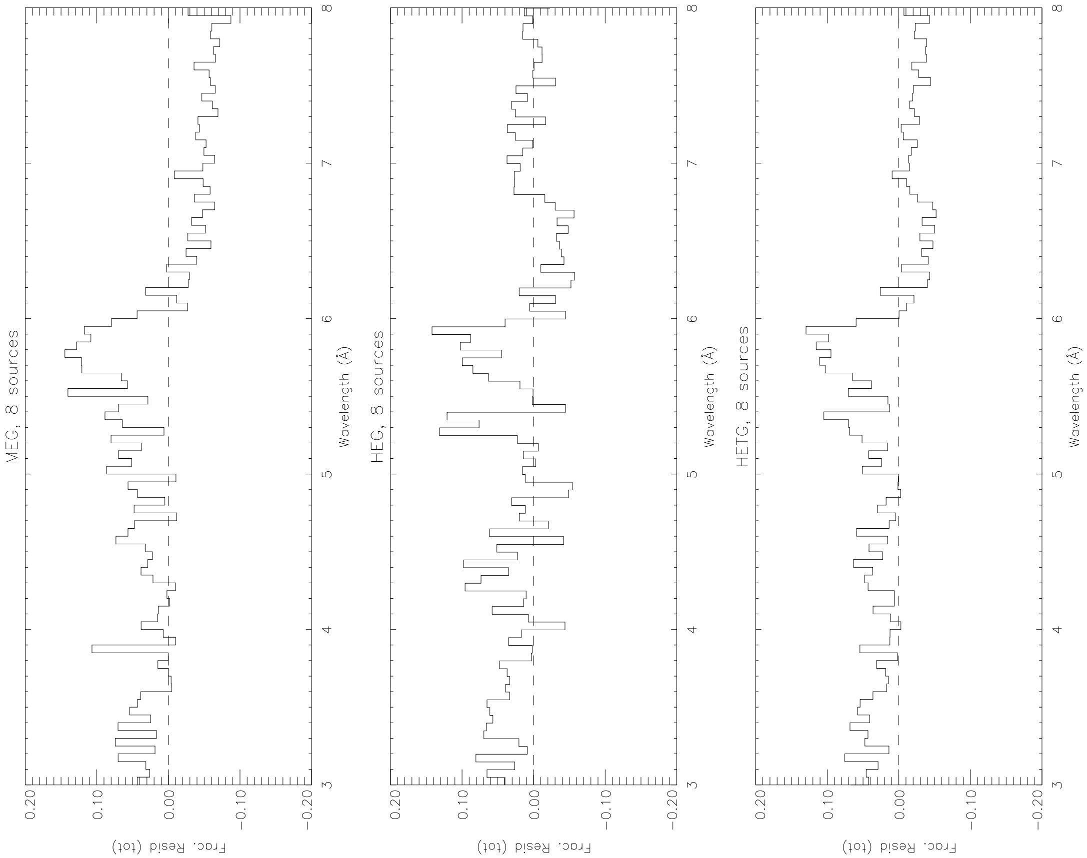

Figure 2: Stacked residuals of 8 weak HETG powerlaw sources vs. wavelength: MEG (top), HEG (mid), and HETG (bottom). The Effective area feature appears between 5 and 6 Å.