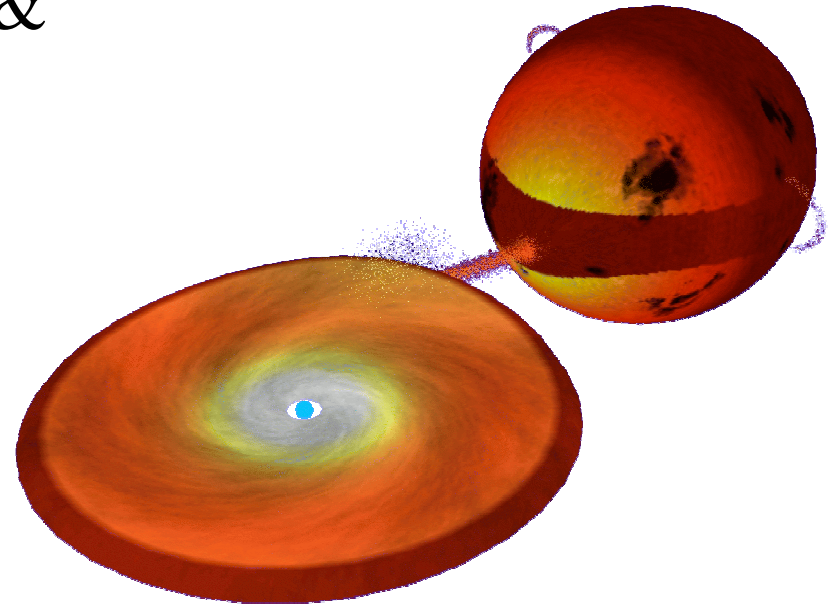
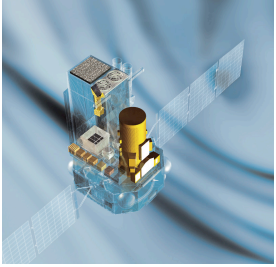


# *Cataclysmic Variables*

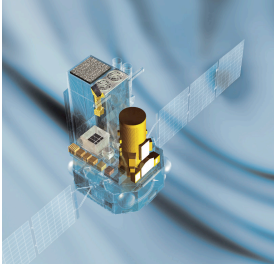
- A Roche-lobe filling red dwarf & accreting white dwarf - orbital period usually 80-500 min
- $L_x \sim 10^{32-34}$  ergs/s;  $\sim 10^7$  in the Galaxy
- $\sim 10\%$  are magnetic systems w/B $\sim 10^{6-7}$ G. Disk is disrupted (IPs) or absent (Polars)
- In a symbiotic star, white dwarf accretes from a red giant wind





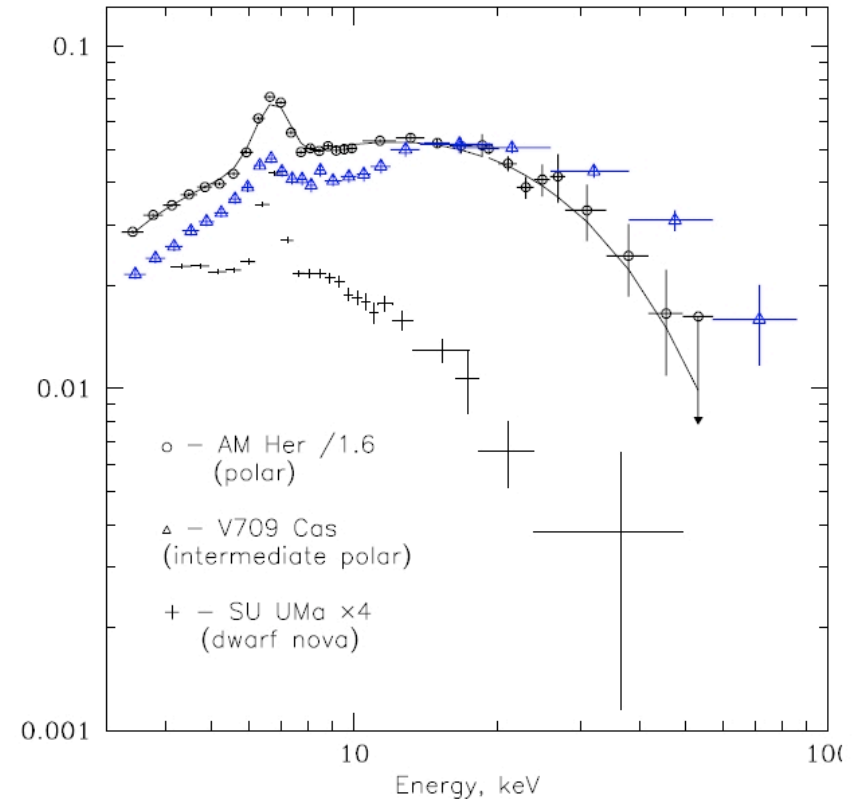
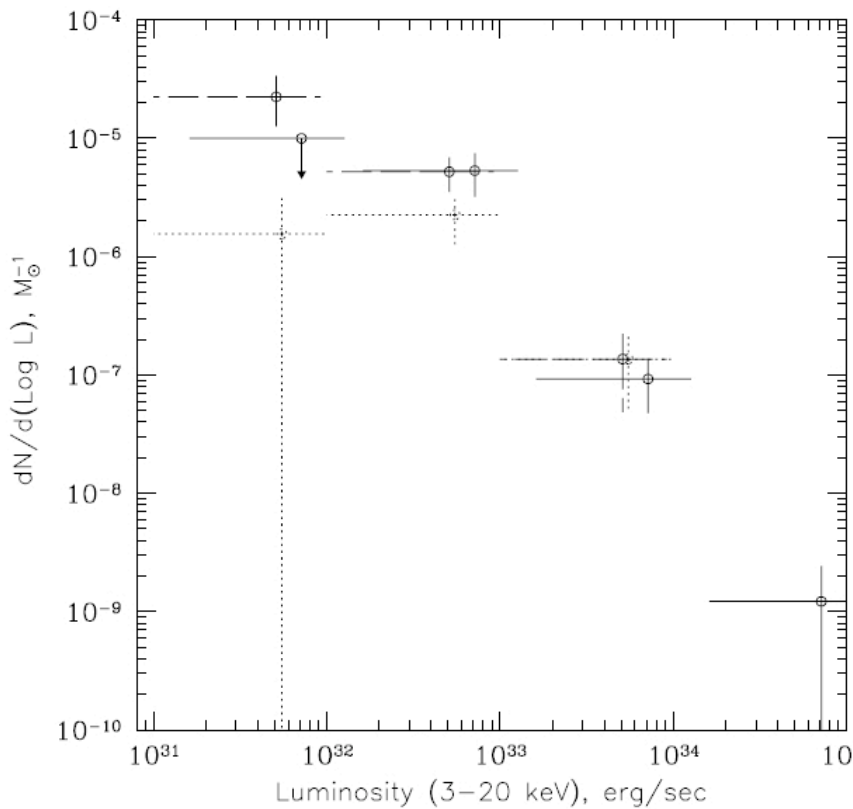
# *Cataclysmic Variables*

- Modest increase in INTEGRAL sample size since SR08
  - ~40% increase + better multi- $\lambda$  IDs
  - Still predominantly IPs,  $L_x \sim 10^{33}$  ergs/s
- Improvement in population study
  - Revnivtsev et al. 2008:  $\sim 1.3 \cdot 10^{27}$  ergs/s/ $M_\odot$
  - Contributions to Galactic ridge better quantified
    - Scale height, luminosity function
    - Also to galactic emission in general: comparable to more luminous, less numerous LMXBs

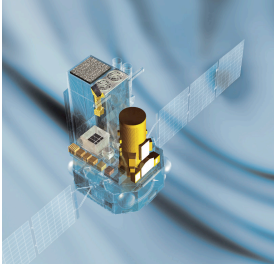


# Cataclysmic Variables

INTEGRAL-derived  
luminosity function consistent  
with RXTE LF over plotted

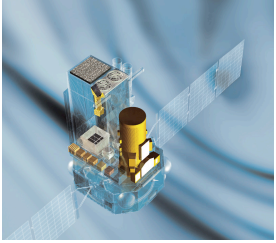


Typical INTEGRAL  
spectra. IPs comprise the  
hard X-ray sample.



# Cataclysmic Variables

- New idea: hard-X-ray selected CVs as candidate SN Ia progenitors
  - Kennea et al. 2009
- **Symbiotic systems:** CH Cyg, RT Cru:
  - Spectral fits indicate high temperature
  - Plasma shock temperature scales with  $M/R$
  - Using DN (e.g. SS Cyg)  $\rightarrow m \sim 1.4 M_{\odot}$



# Cataclysmic Variables

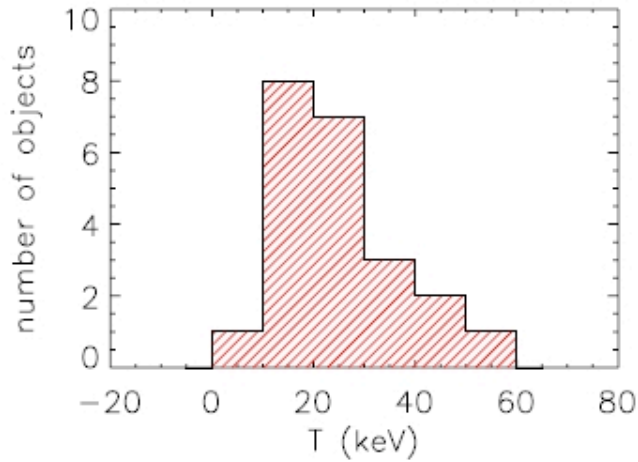


Figure 2. Temperature distribution of the whole IBIS CVs sample.

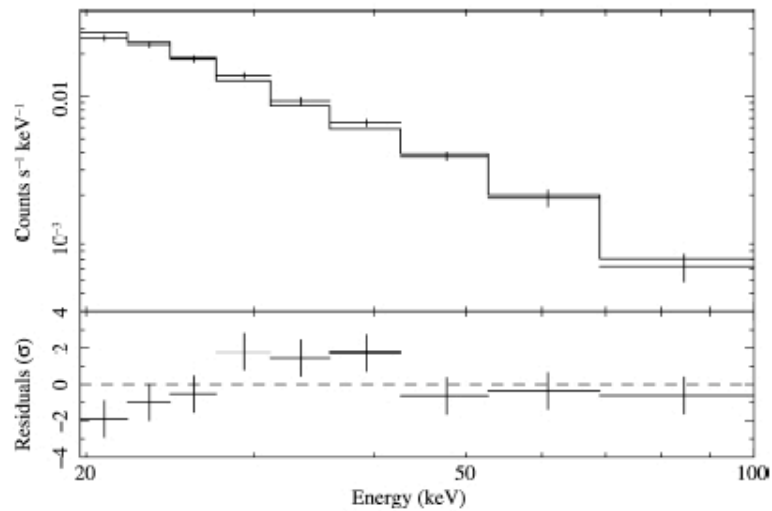
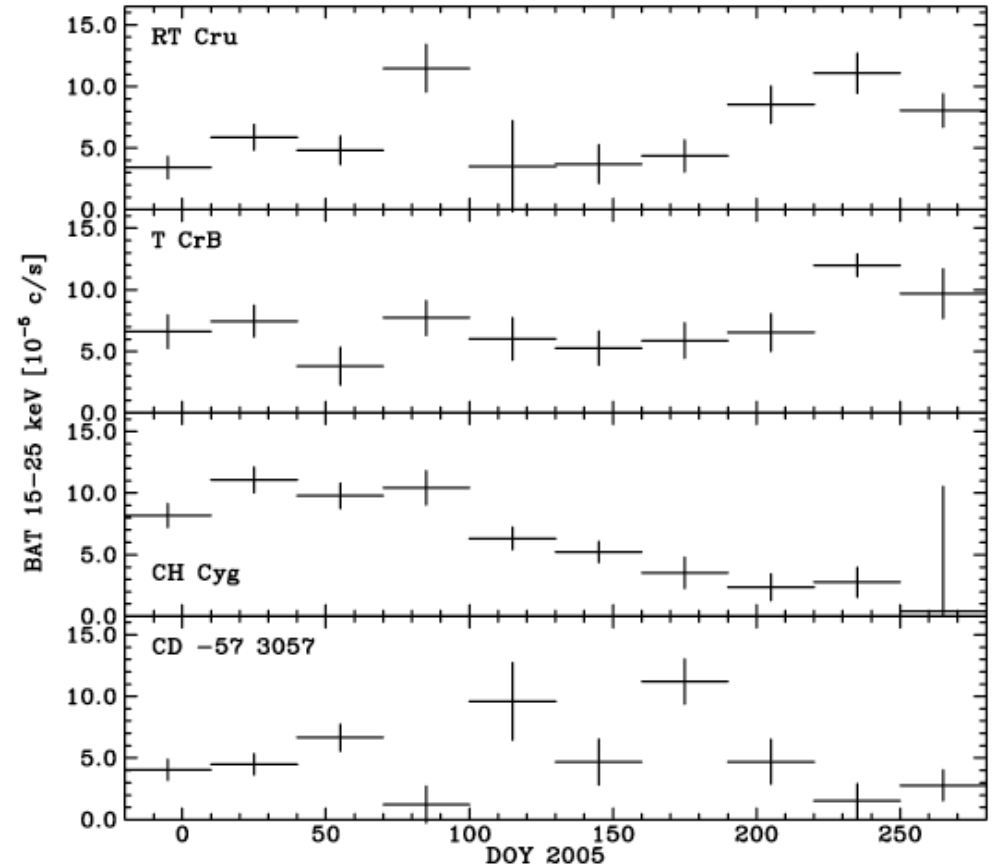
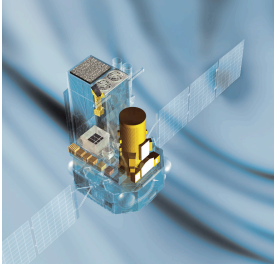


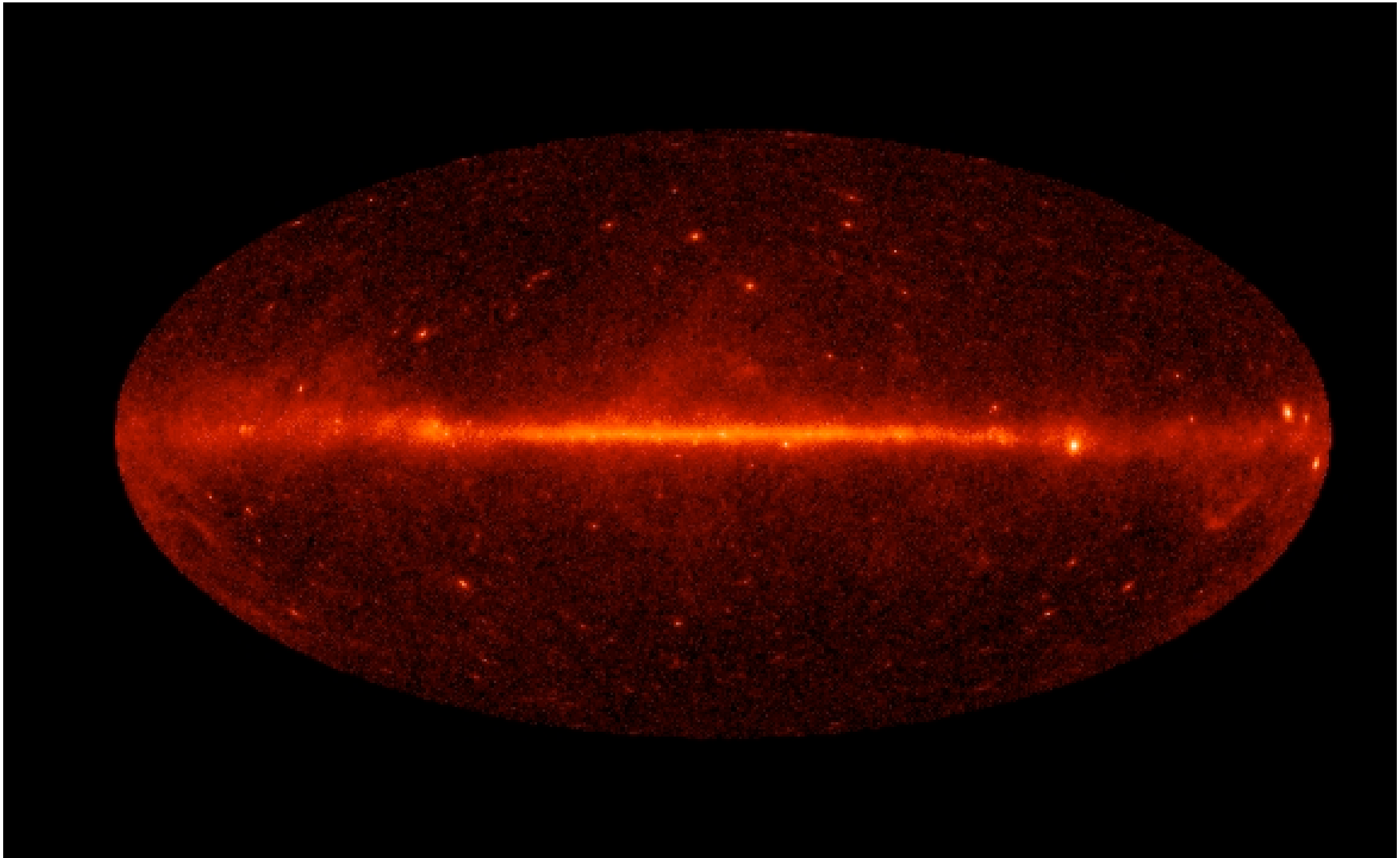
Figure 3. IBIS average spectrum fitted with a simple power law (upper panel); residuals to this model are in units of  $\sigma$  (lower panel).

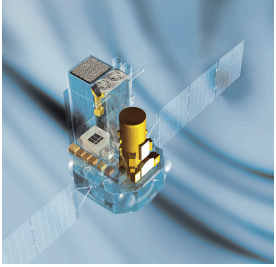




# *INTEGRAL* in the Fermi Era

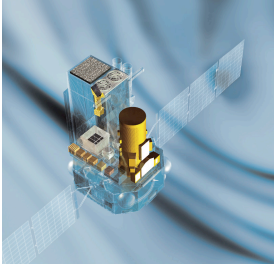
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# INTEGRAL - Fermi

- Hard-X-ray contents of LAT unidentified source error circles
- Broad SEDs (blazars, PWN, pulsars, XRBs)
- New results on XRBs
  - Phase dependencies in TeV, GeV, X-ray (LSI +61303, LS 5039)
  - Associated behavior of hard-X-ray &  $\gamma$ -rays in Cyg X-3
- Diagnostic tests for modeling of CR propagation & diffuse emission models



# INTEGRAL - Fermi

