3.2.1 *Continuum spectrum and luminosity of the hard component*

It is known from the *Ginga* observations that the hard X-ray spectrum of MCVs above 2 keV can be fitted by the thermal bremsstrahlung with $kT = 10$–40 keV with a partial-covering absorber (Ishida & Fujimoto 1995; Ishida 1991). Because of the higher sensitivity at lower energies of the SIS, however, the spectra of some sources which have been fitted adequately by this model (including two column densities) now require another, additional, column density, for example FO Aqr (Mukai, Ishida & Osborne 1994) and PQ Gem (Ishida, Fujimoto & Matsuzaki 1996). This is also the case for the rotational maximum spectrum of AM Her above 1 keV. The partial-covering absorber model results in $\chi^2_\nu = 1.41$, which is not acceptable at the 90 per cent confidence level. A model consisting of the thermal bremsstrahlung of $kT = 14^{+7}_{-4}$ keV with three different absorbing column densities of $N_{H1} \sim 9 \times 10^{19}$ cm^{-2}, $N_{H2} \sim 2 \times 10^{22}$ cm^{-2}, and $N_{H3} \sim 2 \times 10^{23}$ cm^{-2} can successfully fit the spectrum ($\chi^2_\nu = 0.89$), as shown in Fig. 4. Here we have adopted the neutral absorber model with solar abundance (Morrison & McCammon 1983). The covering fractions of these components are 27, 22, and 51 per cent, respectively. We have also included three Gaussians in the model, representing iron emission lines from the hot plasma (6.7 keV and 6.9 keV) and the emission line due to fluorescence (6.4 keV), as clearly indicated by Fig. 3. Their parameters are given in Section 3.2.2. Note that the *Ginga* observation found evidence of the ionization of iron in absorbing material, and the edge energy is 8.25 ± 0.17 keV which corresponds to Fe XX–XXII. Because of the limited bandpass of *ASCA*, however, the iron edge energy is not constrained by a spectral fit in the 5–10 keV band, and hence we have adopted the neutral absorber model. The observed flux during $\phi = 0.3$–0.9 is 7.2×10^{-11} erg s^{-1} cm^{-2} over 2–10 keV, consistent with that seen during the *Ginga* observation.

Note that, although we successfully fit the rotational maximum spectrum with the three column densities, this is

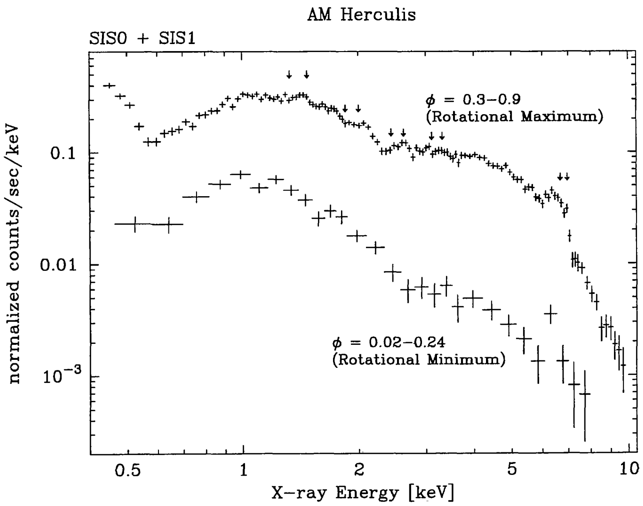

Figure 3. Rotational maximum and rotational minimum spectra of AM Her from the SIS data. Arrows indicate possible Kα lines from He-like and hydrogenic Mg, Si, S, Ar and Fe, respectively. The well-known soft blackbody component dominates the rotational maximum spectrum below 0.6 keV. The rotational minimum spectrum is characterized by a strong iron emission line between 6 and 7 keV.

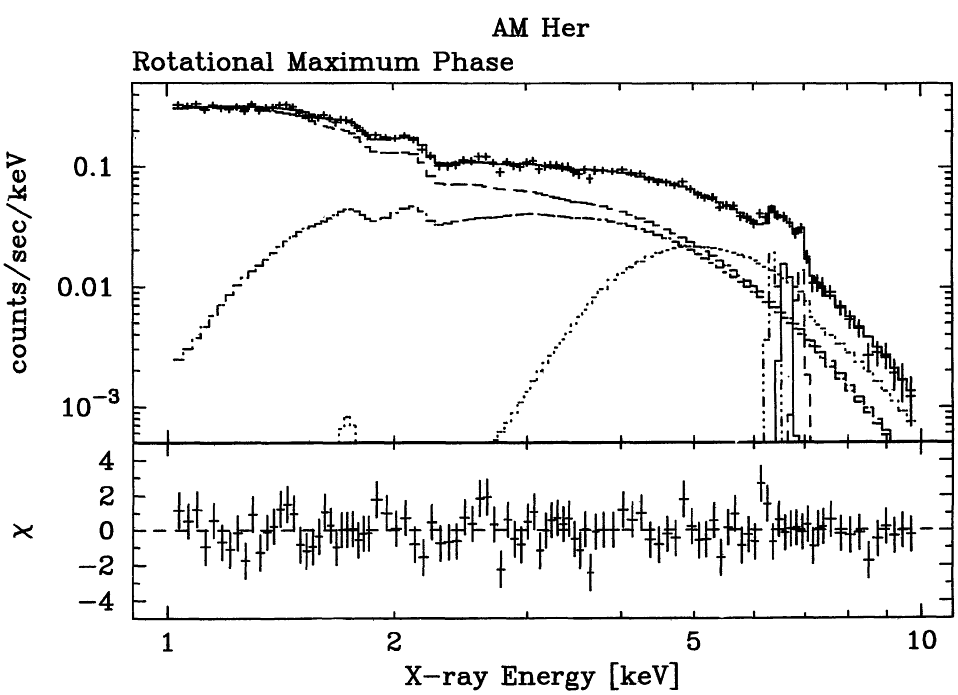

Figure 4. The result of a fit to the rotational maximum phase spectrum taken by the SIS with a single temperature thermal bremsstrahlung with three column densities. The parameters are $kT = 14^{+7}_{-4}$ keV, and $N_{H1} \sim 9 \times 10^{19}$ cm^{-2}, $N_{H2} \sim 2 \times 10^{22}$ cm^{-2}, and $N_{H3} \sim 2 \times 10^{23}$ cm^{-2} ($\chi^2_\nu = 0.89$). The iron emission lines around 6–7 keV are represented by three Gaussians (see Section 3.3).