

pexriv: reflected powerlaw, ionized medium

Exponentially cut off power law spectrum reflected from ionized material (Magdziarz & Zdziarski MNRAS, 273, 837; 1995). Ionization and opacities of the reflecting medium is computed as in the absori model. The output spectrum is the sum of the cutoff power law and the reflection component. The reflection component alone can be obtained for $rel_{\text{refl}} < 0$. Then the actual reflection normalization is $|rel_{\text{refl}}|$. Note that you need to change then the limits of rel_{refl} excluding zero (as then the direct component appears). If $E_c = 0$ there is no cutoff in the power law. The metal and iron abundances are variable with respect to those defined by the command **abund**.

The core of this model is a Greens' function integration with one numerical integral performed for each model energy. The numerical integration is done using an adaptive method which continues until a given estimated fractional precision is reached. The precision can be changed by setting IREFLECT_PRECISION eg xset IREFLECT_PRECISION 0.05. The default precision is 0.01 (ie 1%).

par1	Γ , first power law photon index, $N_E \propto E^{-\Gamma}$
par2	E_c , cutoff energy (keV) (if $E_c = 0$ there is no cutoff)
par3	rel_{refl} , reflection scaling factor (0, no reflected component $< rel_{\text{refl}} < 1$ for isotropic source above disk)
par4	redshift, z
par5	abundance of elements heavier than He relative to the solar abundances
par6	iron abundance relative to that defined by abund
par7	cosine of inclination angle
par8	disk temperature in K
par9	disk ionization parameter, $\xi = 4\pi \frac{F_{\text{ion}}}{n}$, where F_{ion} is the 5eV – 20keV irradiating flux, n is the density of the reflector; see Done et al., 1992, ApJ, 395, 275.
norm	photon flux at 1 keV (photons $\text{keV}^{-1}\text{cm}^{-2}\text{s}^{-1}$) of the cutoff broken power-law only (no reflection) in the observed frame.