

reflect: reflection from neutral material

Convolution model for reflection from neutral material according to the method of Magdziarz & Zdziarski (1995, MNRAS, 273, 837). This is a generalization of the `pexrav` and `bexrav` models. 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 $|rel_{\text{refl}}|$ excluding zero (as then the direct component appears). If $E_c = 0$, there is no cutoff in the power law. The metal and iron abundance are variable with respect to those set by the command **abund**. The opacities are those set by the command **xsect**. As expected in AGNs, H and He are assumed to be fully ionized.

When using this model it is essential to extend the energy range over which the model is calculated because photons at higher energies are Compton down-scattered into the target energy range. The energy range can be extended using the `extend` command. The upper limit on the energies should be set above that for which the input spectrum has significant flux. To speed up the model, calculation of the output spectrum can be limited to energies below a given value by using **xset** to define `REFLECT_MAX_E` (in units of keV). For instance, suppose that the original data extends up to 100 keV. To accurately determine the reflection it may be necessary to extend the energy range up to 500 keV. Now to avoid calculating the output spectrum between 100 and 500 keV use the command `xset REFLECT_MAX_E 100.0`.

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	reflection scaling factor (1 for isotropic source above disk)
par2 = z	redshift
par3	abundance of elements heavier than He relative to the solar abundances
par4	iron abundance relative to the above
par5	$\cos i$, the inclination angle