

powerlaw, zpowerlw: power law photon spectrum

powerlaw is a simple photon power law. The **zpowerlw** variant computes a redshifted spectrum.

$$A(E) = KE^{-\alpha}$$

par1 = α photon index of power law (dimensionless)

norm = K photons $\text{keV}^{-1}\text{cm}^{-2}\text{s}^{-1}$ at 1 keV

For **zpowerlw** the formula and corresponding parameters are:

$$A(E) = K \left[E(1+z)^{-\alpha} \right] / (1+z)$$

where :

par1 = α photon index of power law (dimensionless)

par2 = z Redshift

norm = K photons $\text{keV}^{-1}\text{cm}^{-2}\text{s}^{-1}$ at 1 keV

If POW_EMIN and POW_EMAX have been defined by the **xset** command then the norm becomes the flux in units of $10^{-12} \text{ ergs cm}^{-2} \text{ s}^{-1}$ over the energy range (POW_EMIN, POW_EMAX) keV unless POW_EMIN = POW_EMAX in which case the norm becomes the flux density in micro-Jansky at POW_EMIN keV. In these cases it is important that POW_EMIN and POW_EMAX lie within the energy range on which the model is being evaluated.