**Chandra X-ray Center**

*AHELP for CIAO 3.4*                 **xspexrav**                 Context: sherpa

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# Synopsis

Exponentially cutoff power law reflected from neutral matter. XSpec model.

# Description

Exponentially cutoff power law spectrum reflected from neutral material (Magdziarz and Zdziarski 1995, MNRAS, 273, 837). The output spectrum is the sum of an e–folded power law and the reflection component.

The reflection component alone can be obtained for relRefl < 0. Then the actual reflection normalization is |relRefl|. Note that you then need to change the limits of relRefl to exclude zero (as then the direct component appears). If foldE = 0 there is no cutoff in the power law.

The metal and iron abundance are variable with respect to those defined by the xspecabundan command. The opacities are from Balucinska and McCammon (ApJ 400, 699 and 1994, private communication). H and He are assumed to be fully ionized.

## xspexrav Parameters

| Number | Name | Description |
|---|---|---|
| 1 | PhoIndx | power law photon index, N_E prop. to E^(−PhoIndx) |
| 2 | foldE | the e–folding energy in keV (if foldE=0, there is no cutoff; change the lower limit for that) |
| 3 | relRefl | reflection scaling factor; if < 0, there is no direct component; relRefl=1 for isotropic source above disk |
| 4 | Redshift | redshift, z |
| 5 | abund | abundance of elements heavier than He relative to that defined by xspecabundan |
| 6 | FeAbund | iron abundance relative to that defined by xspecabundan |
| 7 | cosIncl | cosine of inclination angle |
| 8 | norm | photon flux at 1 keV (photons/keV/cm^2/s) of the power law only in the observed frame |

This information is taken from the XSpec User's Guide. Version 11.3.1 of the XSpec models is supplied with CIAO 3.2.

# Bugs

For a list of known bugs and issues with the XSPEC models, please visit the XSPEC bugs page.

# See Also

*sherpa*

atten, bbody, bbodyfreq, beta1d, beta2d, box1d, box2d, bpl1d, const1d, const2d, cos, delta1d, delta2d, dered, devaucouleurs, edge, erf, erfc, farf, farf2d, fpsf, fpsf1d, frmf, gauss1d, gauss2d, gridmodel, hubble, jdpileup, linebroad, lorentz1d, lorentz2d, models, nbeta, ngauss1d, poisson, polynom1d, polynom2d, powlaw1d, ptsrc1d, ptsrc2d, rsp, rsp2d, schechter, shexp, shexp10, shlog10, shloge, sin, sqrt, stephi1d, steplo1d, tan, tpsf, tpsf1d, usermodel, xs, xsabsori, xsacisabs, xsapec, xsbapec, xsbbody, xsbbodyrad, xsbexrav, xsbexriv, xsbknpower, xsbmc, xsbremss, xsbvapec, xsc6mekl, xsc6pmekl, xsc6pvmkl, xsc6vmekl, xscabs, xscemekl, xscevmkl, xscflow, xscompbb, xscompls, xscompst, xscomptt, xsconstant, xscutoffpl, xscyclabs, xsdisk, xsdiskbb, xsdiskline, xsdiskm, xsdisko, xsdiskpn, xsdust, xsedge, xsequil, xsexpabs, xsexpdec, xsexpfac, xsgabs, xsgaussian, xsgnei, xsgrad, xsgrbm, xshighecut, xshrefl, xslaor, xslorentz, xsmeka, xsmekal, xsmkcflow, xsnei, xsnotch, xsnpshock, xsnsa, xsnteea, xspcfabs, xspegpwrlw, xspexriv, xsphabs, xsplabs, xsplcabs, xsposm, xspowerlaw, xspshock, xspwab, xsraymond, xsredden, xsredge, xsrefsch, xssedov, xssmedge, xsspline, xssrcut, xssresc, xsssice, xsstep, xstbabs, xstbgrain, xstbvarabs, xsuvred, xsvapec, xsvarabs, xsvbremss, xsvequil, xsvgnei, xsvmcflow, xsvmeka, xsvmekal, xsvnei, xsvnpshock, xsvphabs, xsvpshock, xsvraymond, xsvsedov, xswabs, xswndabs, xsxion, xszbbody, xszbremss, xszedge, xszgauss, xszhighect, xszpcfabs, xszphabs, xszpowerlw, xsztbabs, xszvarabs, xszvfeabs, xszvphabs, xszwabs, xszwndabs

*slang*

usermodel

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