



AHELP for CIAO 3.4

xsdiskpn

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Synopsis

Accretion disk around a black hole. XSpec model.

Description

Blackbody spectrum of an accretion disk. This is an extension of the xdiskbb model, including corrections for temperature distribution near the black hole. The temperature distribution was calculated in Paczyński–Wiita pseudo–Newtonian potential. An accretion rate can be computed from the maximum temperature found. For details see Gierlinski et al., 1999, MNRAS, 309, 496. Please note that the inner disk radius (R_{in}) can be a free parameter only close to $R_{in} = 6$; otherwise R_{in} is strongly correlated with the norm parameter.

xsdiskpn Parameters

Number	Name	Description
1	Tmax	maximum temperature in the disk (keV)
2	Rin	inner disk radius in $R_g = GM/c^2$ units, $6 \leq R_{in} \leq 1000$
3	norm	$(M^2 \cos(i)) / (D^2 \beta^4)$, where M is the central mass in solar masses, D is the distance to the source in kpc, i is the inclination of the disk, and β is the color/effective temperature ratio.

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](#), [xsbexray](#), [xsbexriv](#), [xsbknpower](#), [xsbmc](#), [xsbremss](#), [xsbvapec](#), [xsc6mekl](#), [xsc6pmekl](#), [xsc6pvmekl](#), [xsc6vmekl](#), [xscabs](#), [xscemekl](#), [xscevmekl](#), [xscflow](#), [xscompbh](#), [xscompls](#),

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<http://cxc.harvard.edu/ciao3.4/xsdiskpn.html>
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