



 AHELP for CIAO 3.4

xsnpshock

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Synopsis

Plane-parallel shock with ion and electron temperatures. XSpec model.

Description

Plane-parallel shock plasma model with separate ion and electron temperatures. This model is slow.

kTa provides a measure of the average energy per particle (ions + electrons) and is constant throughout the post-shock flow in plane shock models (Borkowski et al., 2001, ApJ, 548, 820). kTb should always be less than kTa. If kTb exceeds kTa then their interpretations are switched (i.e. the larger of kTa and kTb is always the mean temperature).

Additional references for this model can be found in the help file for the xsequil model ("ahelp xsequil").

xsnpshock Parameters

Number	Name	Description
1	kTa	ion shock temperature in keV
2	kTb	electron temperature immediately behind the shock front (keV)
3	Abundanc	metal abundances (He fixed at cosmic). The elements included are C, N, O, Ne, Mg, Si, S, Ca, Fe, Ni. Abundances are set by the xspecabundan command.
4	Taul	lower limit on ionization timescales (s/cm ³) to include
5	Tauu	upper limit on ionization timescales (s/cm ³) to include
6	redshift	redshift, z
7	norm	$10^{-14} / (4 \pi (D_A * (1+z))^2) \int n_e n_H dV$, where D_A is the angular size distance to the source (cm), n_e is the electron density (cm ⁻³), and n_H is the hydrogen density (cm ⁻³)

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](#), [xsbody](#), [xsbodyrad](#), [xsbexrav](#), [xsbexriv](#), [xsbknpower](#), [xsbmc](#), [xsbremss](#), [xsbvapec](#), [xsc6mekl](#), [xsc6pmekl](#), [xsc6pvmkl](#), [xsc6vmekl](#), [xscabs](#), [xscemekl](#), [xscevmecl](#), [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](#), [xsnsa](#), [xsnteea](#), [xspcfabs](#), [xspgpwrlw](#), [xspexrav](#), [xspexriv](#), [xspfabs](#), [xspplabs](#), [xspplcabs](#), [xsposm](#), [xspowerlaw](#), [xspshock](#), [xspwab](#), [xsvraymond](#), [xsreddn](#), [xsredge](#), [xsrefsch](#), [xssedov](#), [xssmedge](#), [xsspline](#), [xssrcut](#), [xssresc](#), [xssssice](#), [xsstep](#), [xstbabs](#), [xstbgrain](#), [xstbvarabs](#), [xsuvred](#), [xsvapec](#), [xsvarabs](#), [xsvbremss](#), [xsvequil](#), [xsvgnei](#), [xsvmcflow](#), [xsvmekal](#), [xsvmekal](#), [xsvnei](#), [xsvnpshock](#), [xsvphabs](#), [xsvpshock](#), [xsvraymond](#), [xsvsedov](#), [xswabs](#), [xswndabs](#), [xsxion](#), [xszbbody](#), [xszbremss](#), [xszedge](#), [xszgauss](#), [xszhigect](#), [xszpcfabs](#), [xszphabs](#), [xszpowerlw](#), [xsztbabs](#), [xszvarabs](#), [xszvfeabs](#), [xszyphabs](#), [xszwabs](#), [xszwndabs](#)

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<http://cxc.harvard.edu/ciao3.4/xsnpshock.html>
Last modified: December 2006