



AHELP for CIAO 3.4

xsvgnei

Context: [sherpa](#)

Jump to: [Description](#) [Bugs](#) [See Also](#)

Synopsis

Non-equilibrium ionization collisional plasma model with variable abundances. XSpec model.

Description

Non-equilibrium ionization collisional plasma model. This is a generalization of the xsnei model where the temperature is allowed to have been different in the past, i.e. the ionization timescale averaged temperature is not necessarily equal to the current temperature. For example, in a standard Sedov model with equal electron and ion temperatures, the ionization timescale averaged temperature is always higher than the current temperature for each fluid element. The references for this model can be found in the help file for the xsequil model ("ahelp xsequil").

xsvgnei Parameters

Number	Name	Description
1	kT	plasma temperature in keV
2	H	hydrogen density in cm^{-3}
3–13	(element)	abundances for He, C, N, O, Ne, Mg, Si, S, Ca, Fe, Ni with respect to Solar. Abundances are set by the xspecabundan command.
14	Tau	ionization timescale in units of s/cm^3
15	kTave	ionization timescale averaged plasma temperature in keV
16	redshift	redshift, z
17	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](#), [deref](#), [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](#), [steph1d](#), [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](#), [xscmpbb](#), [xscmpls](#), [xscmpst](#), [xscmptt](#), [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](#), [xsnphock](#), [xsnsa](#), [xsnteea](#), [xspcfabs](#), [xspgpwrlw](#), [xspexrav](#), [xspexriv](#), [xsphabs](#), [xsplabs](#), [xsplcabs](#), [xspesm](#), [xspowerlaw](#), [xspshock](#), [xspwab](#), [xstraymond](#), [xsredden](#), [xsredge](#), [xsrefsch](#), [xssedov](#), [xssmedge](#), [xsspline](#), [xssrcut](#), [xssresc](#), [xssssice](#), [xsstep](#), [xstbabs](#), [xstbgrain](#), [xstbvarabs](#), [xsuvred](#), [xsvapec](#), [xsvarabs](#), [xsvbremss](#), [xsvequil](#), [xsvmcflow](#), [xsvmekal](#), [xsvmekal](#), [xsvnei](#), [xsvnpshock](#), [xsvphabs](#), [xsvphock](#), [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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URL:
<http://cxc.harvard.edu/ciao3.4/xsvgnei.html>
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