



AHELP for CIAO 3.4

## xsgnei

 Context: [sherpa](#)

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

## Synopsis

Generalized single ionization NEI plasma model. XSpec model.

## Description

Non-equilibrium ionization collisional plasma model. This is a generalization of the nei 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").

### xsgnei Parameters

Number	Name	Description
1	kT	plasma temperature in keV
2	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.
3	Tau	ionization timescale in units of s/cm <sup>3</sup>
4	kTave	ionization timescale averaged plasma temperature in keV
5	redshift	redshift, z
6	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 <sup>-3</sup> ), and $n_H$ is the hydrogen density (cm <sup>-3</sup> )

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](#),

## Ahelp: xsgnei – CIAO 3.4

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, xsboxrav, xsboxriv, xsbknpower, xsbsmc, xsbremss, xsbvapec, xsc6mekl, xsc6pmekl, xsc6pvmkl, xsc6vmekl, xscabs, xscemekl, xscvtml, xscflow, xscmpbb, xscmpls, xscmpst, xscmpstt, xscconstant, xscutoffpl, xscyclabs, xsdisk, xsdiskbb, xsdiskline, xsdiskm, xsdisko, xsdiskpn, xsdust, xsedge, xsequil, xsexpabs, xsexpdec, xsexpfac, xsgabs, xsgaussian, xsgrad, xsgrbm, xshighecut, xshrefl, xslaor, xslorentz, xsmeka, xsmekal, xsmkcfllow, xsnei, xsnotch, xsnpshock, xsnsa, xsnntea, xspcfabs, xspgpwrlw, xspexrav, xspexriv, xspfabs, xsplabs, xsplcabs, xspasm, xspowerlaw, xspshock, xspwab, xrraymond, xredden, xredge, xrefsch, xssedov, xssmedge, xsspline, xssrcut, xssresc, xssssice, xsstep, xstbabs, xstbgrain, xstbvarabs, xsvred, xsvapec, xsvarabs, xsvbremss, xsvsequil, xsvgnei, xsvmcfllow, xsvmeka, xsvmekal, xsvnei, xsvnpshock, xsvphabs, xsvpshock, xsvraymond, xsvsedov, xswabs, xswndabs, xsxion, xszbbody, xszbremss, xszedge, xszgauss, xszhighcut, xszpcfabs, xszphabs, xszpowerlw, xsztbabs, xszvarabs, xszvfeabs, xszvphabs, xszwabs, xszwndabs

*slang*

usermodel

---

The Chandra X-Ray Center (CXC) is operated for NASA by the Smithsonian Astrophysical Observatory.  
60 Garden Street, Cambridge, MA 02138 USA.  
Smithsonian Institution, Copyright © 1998–2006. All rights reserved.

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