



AHELP for CIAO 3.4

xsvnpshock

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Synopsis

Plane-parallel shock plasma model with separate ion and electron temperatures and variable abundances. XSpec model.

Description

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

kT_a 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). kT_b should always be less than kT_a . If kT_b exceeds kT_a then their interpretations are switched (i.e. the larger of kT_a and kT_b is always the mean temperature).

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

xsvnpshock Parameters

Number	Name	Description
1	kT_a	mean shock temperature in keV
2	kT_b	electron temperature immediately behind the shock front (keV)
3	H	hydrogen density in cm^{-3}
4–14	(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.
15	Taul	lower limit on ionization timescales (s/cm^3) to include
16	Tauu	upper limit on ionization timescales (s/cm^3) to include
17	redshift	redshift, z
18	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](#).

