rd_kmod

Extracts a Kurucz model from his theoretical grid. These grids are all in a standard format defined by Kurucz and can be downloaded from his website `http:kurucz.harvard.edu`.

Syntax

RD_KMOD,teff,logg,metal,model,header,tail[,type=type]

Return Value

RD_KMOD produces a plain-text file with a single Kurucz model atmosphere.

Arguments

teff - (float) Effective tempereature (K)

logg - (float) log10 of the surface gravity (g in cm/s/s)

metal - (float) [M/H] overall metallicity relative to solar

model - (string) Name for the output model atmosphere file

header - (strarr) Array of strings containing the header of the Kurucz model file

tail - (starr) Array of strings containin the tail of the Kurucz model file

Keywords

- type - (string) it can take one of three values: old, odfnew, or alpha, which leads to the use of models in files that start by a 4-character metallicity identifier (e.g. ap05 or am45 for models with metallicities [Fe/H]$= +0.5$ or -4.5, respectively, followed by 'k2.dat' (type='old'), 'ak2odfnew.dat' (type='odfnew'), or 'ak2odfnew.dat' (type='alpha', for alpha-enhanced, odfnew models).

References

Kurucz, R. L. 1979, ApJS, 40, 1

Kurucz, R. L. 1970, SAO Special Report, 309,

Castelli, F., & Kurucz, R. L. 2004, arXiv:astro-ph/0405087

Mészáros, Sz., Allende Prieto, C. 2012, in preparation (on the linear interpolation of model atmospheres and fluxes)

Example

To extract a Teff=5750 K, logg=4.0 and solar metallicity model from the odfnew grid with a 2 km/s microturbulence (model which should be in the file p00k2odfnew.dat', and which the user needs to have accessible to the code editing 'kpath' in the source code):

IDL> rd_kmod,5750.,4.0,0.0,'model1.mod'

Version History

C. Allende Prieto, UT, initial version coded in 1999

Bug fixed in 2005

adapted to included newer (odfnew) models in 2006