



AHELP for CIAO 3.4

dered

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Synopsis

Dereddening function. Integration OFF.

Description

This dereddening model uses the analytic formula for the mean extension law described in Cardelli, Clayton, & Mathis 1989, ApJ 345, 245:

$$A(\lambda) = E(B-V) (aR_v + b) = 1.086 \tau(\lambda)$$

where $\tau(\lambda)$ is the wavelength-dependent optical depth,

$$I(\lambda) = I(0) \exp[-\tau(\lambda)] ,$$

and a and b are computed using wavelength-dependent formulae which we will not reproduce here, for the wavelength range 1000 Å – 3.3 microns. The relationship between the color excess and the column density is

$$E(B-V) = [N_{\text{Hgal}} (10^{20} \text{ cm}^{-2})] / 58.0$$

(Bohlin, Savage, & Drake 1978, ApJ 224, 132). The value of the ratio of total to selective extinction, R_v , is initially set to 3.1, the standard value for the diffuse ISM. The final model form is:

$$I(\lambda) = I(0) \exp[-N_{\text{Hgal}}(aR_v + b) / 58.0 / 1.086]$$

This model should only be used as a multiplicative model:

```
sherpa> powlaw1d[con1](1.,2588.6,0.1)
sherpa> dered[dr](3.1,0.1)
sherpa> source 1 = con1*dr
```

This model provided courtesy of Karl Forster.

DERED Parameters

Number	Name	Description
1	rv	total to selective extinction ratio R_v
2	nhgal	absorbing column density $N(\text{H}_{\text{gal}})$

See "ahelp integrate" for further information about source model integration.

Bugs

See the [Sherpa bug pages](#) online for an up-to-date listing of known bugs.

See Also

sherpa

[atten](#), [bbody](#), [bbodyfreq](#), [beta1d](#), [beta2d](#), [box1d](#), [box2d](#), [bpl1d](#), [const1d](#), [const2d](#), [cos](#), [delta1d](#), [delta2d](#), [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](#), [xsbbody](#), [xsbbodyrad](#), [xsbexrav](#), [xsbexriv](#), [xsbknpower](#), [xsbmc](#), [xsbremss](#), [xsbvapec](#), [xsc6mekl](#), [xsc6pmekl](#), [xsc6pvmkl](#), [xsc6vmekl](#), [xscabs](#), [xscemekl](#), [xscevml](#), [xscflow](#), [xscmpbb](#), [xscmpls](#), [xscmpst](#), [xscmpstt](#), [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](#), [xsnpshock](#), [xsnsa](#), [xsnteea](#), [xspcfabs](#), [xspgpwrlw](#), [xspexrav](#), [xspexriv](#), [xspfabs](#), [xsplabs](#), [xsplcabs](#), [xspesm](#), [xspowerlaw](#), [xspshock](#), [xspwab](#), [xsraymond](#), [xsredden](#), [xsredge](#), [xsrefsch](#), [xssedov](#), [xssmedge](#), [xsspline](#), [xssrcut](#), [xssresc](#), [xssssice](#), [xssstep](#), [xstbabs](#), [xstbgrain](#), [xstbvarabs](#), [xsuvred](#), [xsvapec](#), [xsvarabs](#), [xsvbremss](#), [xsvequil](#), [xsvgnei](#), [xsvmcflow](#), [xsvmeka](#), [xsvmekal](#), [xsvnei](#), [xsvnpshock](#), [xsvphabs](#), [xsvpshock](#), [xsvraymond](#), [xsvsedov](#), [xswabs](#), [xswndabs](#), [xsxion](#), [xszbbody](#), [xszbremss](#), [xszedge](#), [xszgauss](#), [xszhighecut](#), [xszpcfabs](#), [xszphabs](#), [xszpowerlw](#), [xsztbabs](#), [xszvarabs](#), [xszvfeabs](#), [xszvphabs](#), [xszwabs](#), [xszwndabs](#)

slang

[usermodel](#)

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