




---

 AHELP for CIAO 3.4

# identify

Context: [guide](#)

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

---

## Synopsis

List emission lines near given wavelength.

## Syntax

```
identify(wavelength,[delta_wavelength, min_emissivity])
```

## Description

'identify' lists wavelengths, specific transition levels, and peak emissivities and temperatures for emission lines within `delta_wavelength` (in Angstroms) of the given wavelength. Only lines with peak emissivities larger than `min_emissivity` are shown. In addition, as a convenience the relative intensity of each line is given under `RelInt`. This value is simply the emissivity of the line at its peak temperature divided by brightest of the listed lines (i.e., the one with the largest peak emissivity). The strongest line, therefore, will have `RelInt = 1.000`. See also the [GUIDE thread](#) showing how to use GUIDE with grating data to identify and describe emission lines.

`identify` is a GUIDE routine, which must be initialized using the `require("guide")` command in `chips` or `sherpa`. GUIDE uses the optional `ATOMDB` database, and this command will fail if the `ATOMDB` is not available on your system. Although both `delta_wavelength` and `min_emissivity` are optional, if `min_emissivity` is provided a value for `delta_wavelength` is also required.

## Example 1

```
sherpa> require("guide")
GUIDE Initialized using ATOMDB v1.3.0
sherpa> identify(8.25,0.05,1.e-19)
Lambda -- Ion UL - LL Emissivity@ kT RelInt For More Info
Angstrom ph cm^3/s keV
8.2104 Ni XXIV 96- 8 1.68e-19 @ 1.366 0.022 describe(28,24,96,8)
8.2126 Fe XXII 157- 4 2.64e-19 @ 1.085 0.035 describe(26,22,157,4)
8.2326 Fe XXIV 12- 2 7.51e-18 @ 1.719 1.000 describe(26,24,12,2)
8.2329 Ni XXI 432- 1 3.30e-19 @ 0.862 0.044 describe(28,21,432,1)
8.2448 Ni XXIV 78- 6 2.28e-19 @ 1.366 0.030 describe(28,24,78,6)
8.2546 Fe XXI 786- 5 2.17e-19 @ 1.085 0.029 describe(26,21,786,5)
```

```
8.2563 Fe XXII 247- 10 3.00e-19 @ 1.085 0.040 describe(26,22,247,10)
8.2615 Fe XXI 784- 5 1.09e-19 @ 1.085 0.014 describe(26,21,784,5)
8.2685 Ni XXIII 248- 1 2.05e-18 @ 1.085 0.273 describe(28,23,248,1)
8.2850 Fe XXIV 9- 2 2.89e-18 @ 1.719 0.385 describe(26,24,9,2)
8.2966 Ni XIX 245- 1 1.85e-19 @ 0.685 0.025 describe(28,19,245,1)
8.2977 Fe XXII 229- 9 1.73e-19 @ 1.085 0.023 describe(26,22,229,9)
```

Here we listed all emission features with wavelengths between 8.20 and 8.30 Angstroms whose emissivity is larger than  $10^{-19}$  ph cm<sup>3</sup>/s.

## Example 2

```
chips> require("guide")
GUIDE Initialized using ATOMDB v1.3.0
identify(10.23)
Lambda -- Ion UL - LL Emissivity@ kT RelInt For More Info
Angstrom ph cm^3/s keV
10.2385 Ne X 7- 1 3.42e-17 @ 0.544 1.000 describe(10,10,7,1)
10.2396 Ne X 6- 1 1.71e-17 @ 0.544 0.500 describe(10,10,6,1)
```

List all emission features with wavelengths between 10.22–10.24 Angstroms, using the default delta\_wavelength of 0.01 Angstroms and the default minimum emissivity of  $1.e-18$  ph cm<sup>3</sup>/s.

## Parameters

name	type	ftype	min	units	reqd
wavelength	float	input			yes
delta_wavelength	float	input		Angstrom	no
min_emissivity	float	input	0	ph cm <sup>3</sup> /s	no

## Detailed Parameter Descriptions

**Parameter=wavelength** (float required filetype=input)

*The central wavelength used for the list.*

**Parameter=delta\_wavelength** (float not required filetype=input units=Angstrom)

*The +/- width of the wavelength region to be printed; defaults to +/- 0.01 Angstroms.*

**Parameter=min\_emissivity** (float not required filetype=input min=0 units=ph cm<sup>3</sup>/s)

*The minimum emissivity of the lines to be output; default is  $10^{-18}$  ph cm<sup>3</sup>/s.*

## Bugs

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

## See Also

*guide*

[describe](#), [ionbal](#), [mdl2latex](#), [strong](#)

---

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/identify.html>  
Last modified: December 2006

Ahelp: identify – CIAO 3.4