

# gnuplot

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# onde encontrar?

- [www.gnuplot.info](http://www.gnuplot.info)
  - download, manual, exemplos...
  - linux, window\$, mac O\$
- ajuda do gnuplot
  - help ou ?
  - help <task>
  - google...

# como funciona

- No terminal:

```
weasel@iag]$ gnuplot ou /usr/bin/gnuplot
```

```
gnuplot>
```

- Carregar arquivo de parâmetros:

```
weasel@iag]$ gnuplot <arquivo>
```

ou

```
gnuplot> load "<arquivo>"
```

# tipos de terminal

## gnuplot> set terminal

aqua Interface to graphics terminal server for Mac OS X

dumb printer or glass dumb terminal

eepic EEPIC -- extended LaTeX picture environment

emtex LaTeX picture environment with emTeX specials

epslatex LaTeX (Text) and encapsulated PostScript

latex LaTeX picture environment

**postscript PostScript graphics language [mode "fontname" font\_size]**

pslatex LaTeX picture environment with PostScript \specials

pstex plain TeX with PostScript \specials

pstricks LaTeX picture environment with PSTricks macros

X11 X11 Window System (identical to x11)

bmp, jpeg, gif, tiff....

# comandos tipo set-show-unset

- set xrange[a:b]
- set xlabel “eixo x”
- set key 0.0,0.0
- set key right top
- set arrow from 0.0,0.0 to 1.0,1.0 (nohead) lt 1
- set label “texto” at 0.0,0.0
- set multiplot
- set origin 0.0,0.0
- set size 1.0,1.0

# plot e splot – funções e arquivo de dados

plot 2D:

```
gnuplot> plot <função> (title 'titulo') (with points 1)
```

plot 3D:

```
gnuplot> splot <função> ...
```

arquivo de dados:

```
gnuplot> (s)plot 'datafile' (using col(a):col(b) ....)
```

obs: o gnuplot gosta de arquivos tsv...

# multiplot

```
gnuplot> set multiplot
```

```
....
```

```
gnuplot> set origin 0.0,0.0
```

```
gnuplot> set size 0.0,0.0
```

```
....
```

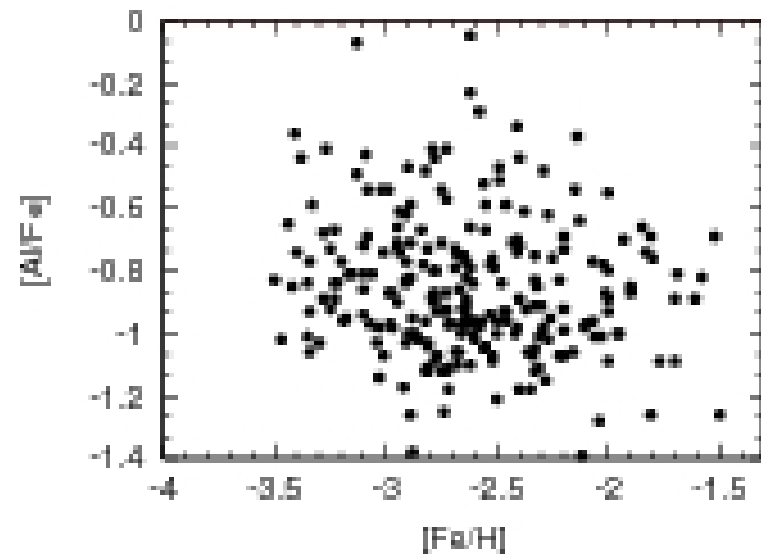
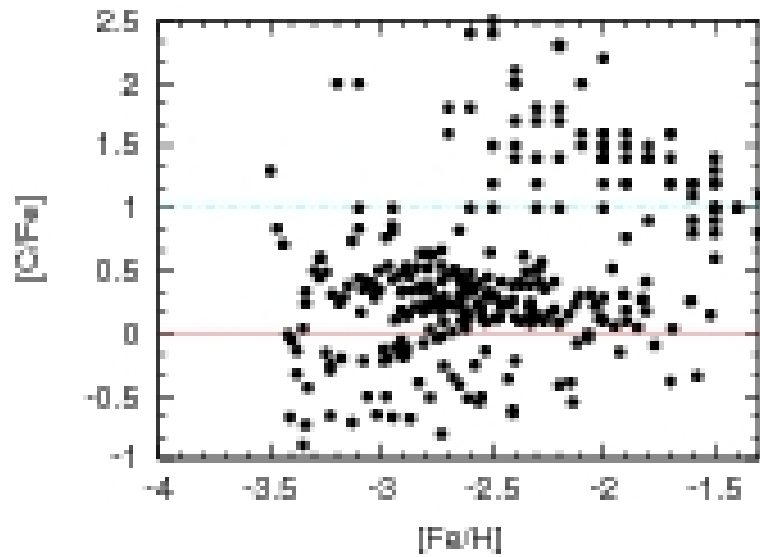
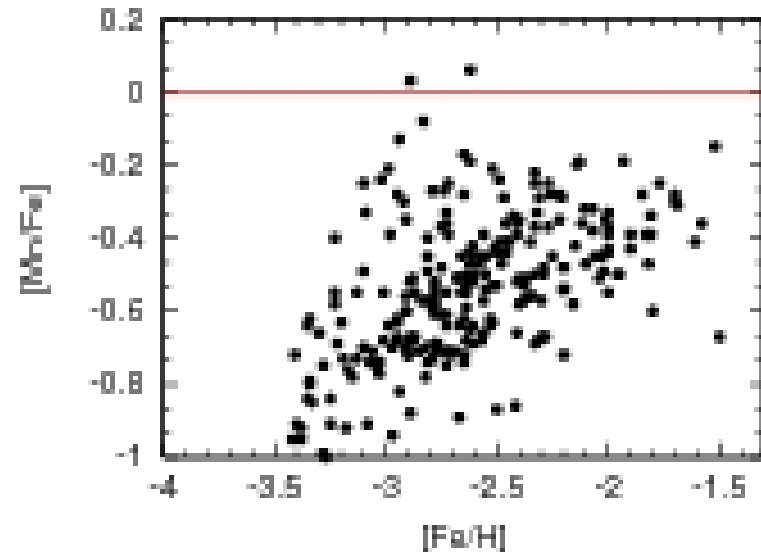
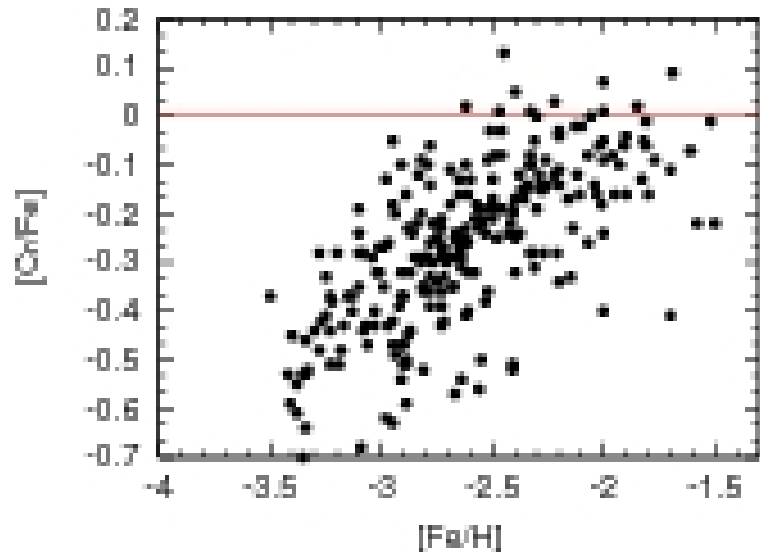
```
gnuplot> set origin 0.0,0.0
```

```
gnuplot> set size 0.0,0.0
```

```
....
```

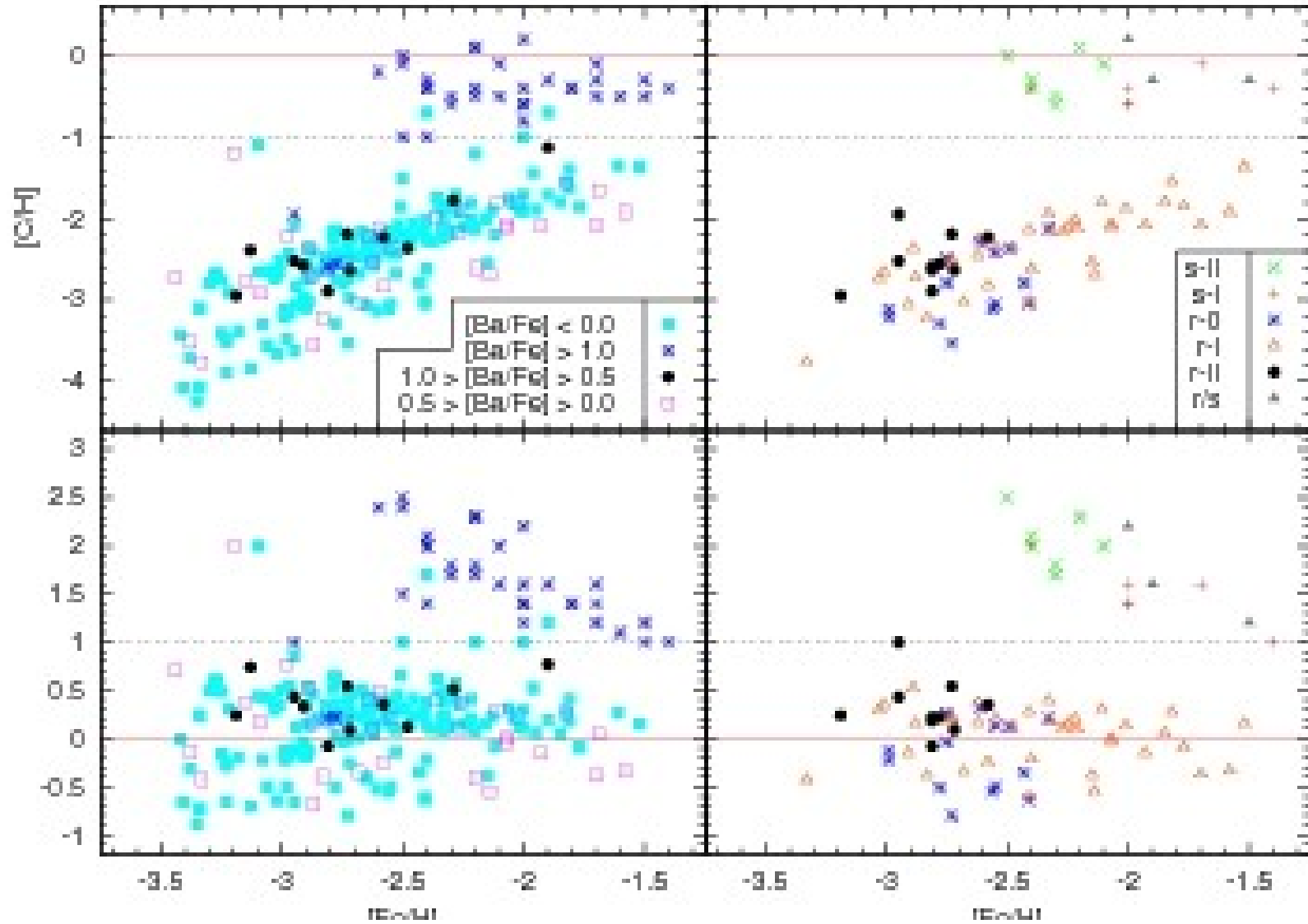
```
gnuplot> unset multiplot
```

# multiplot

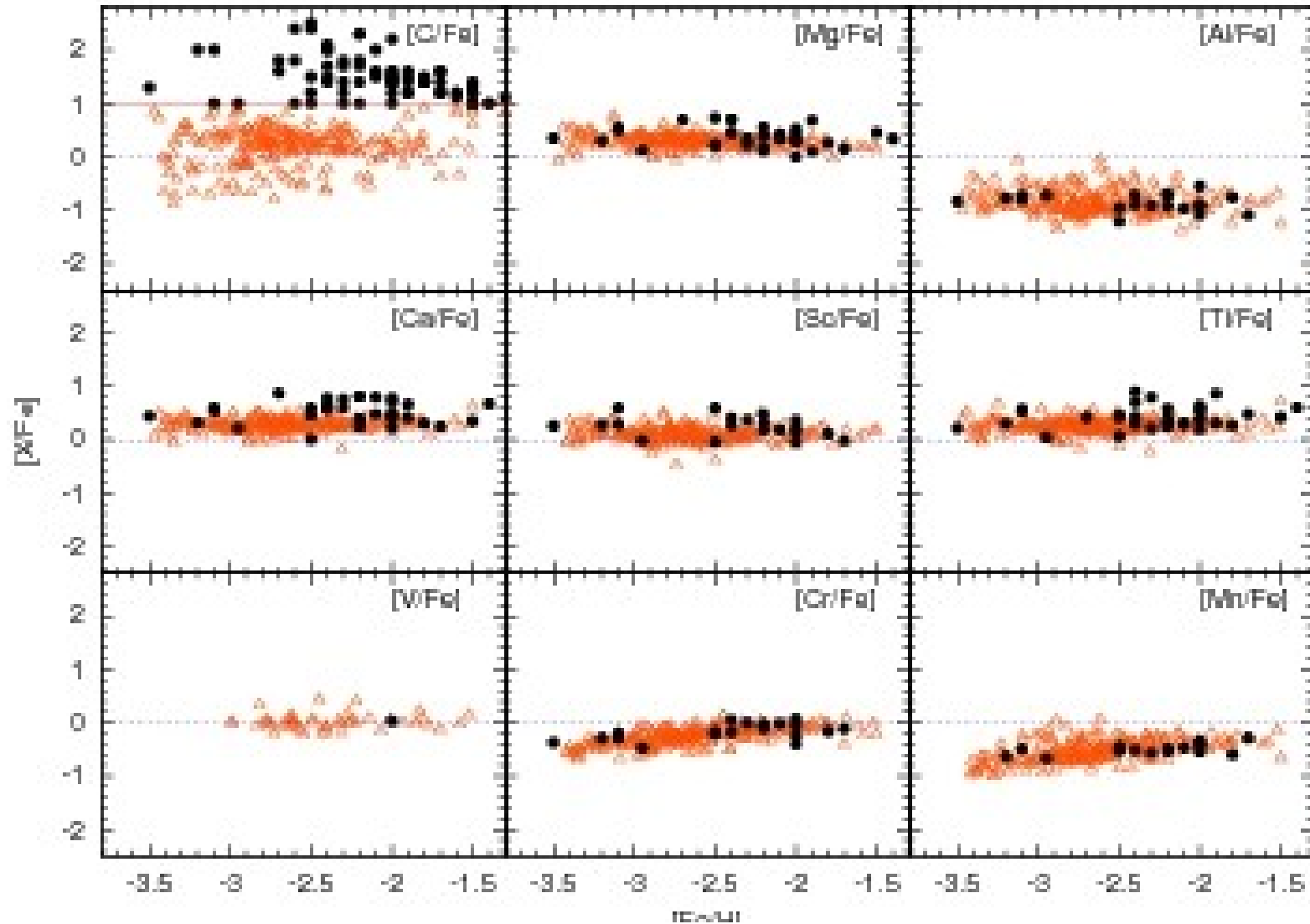




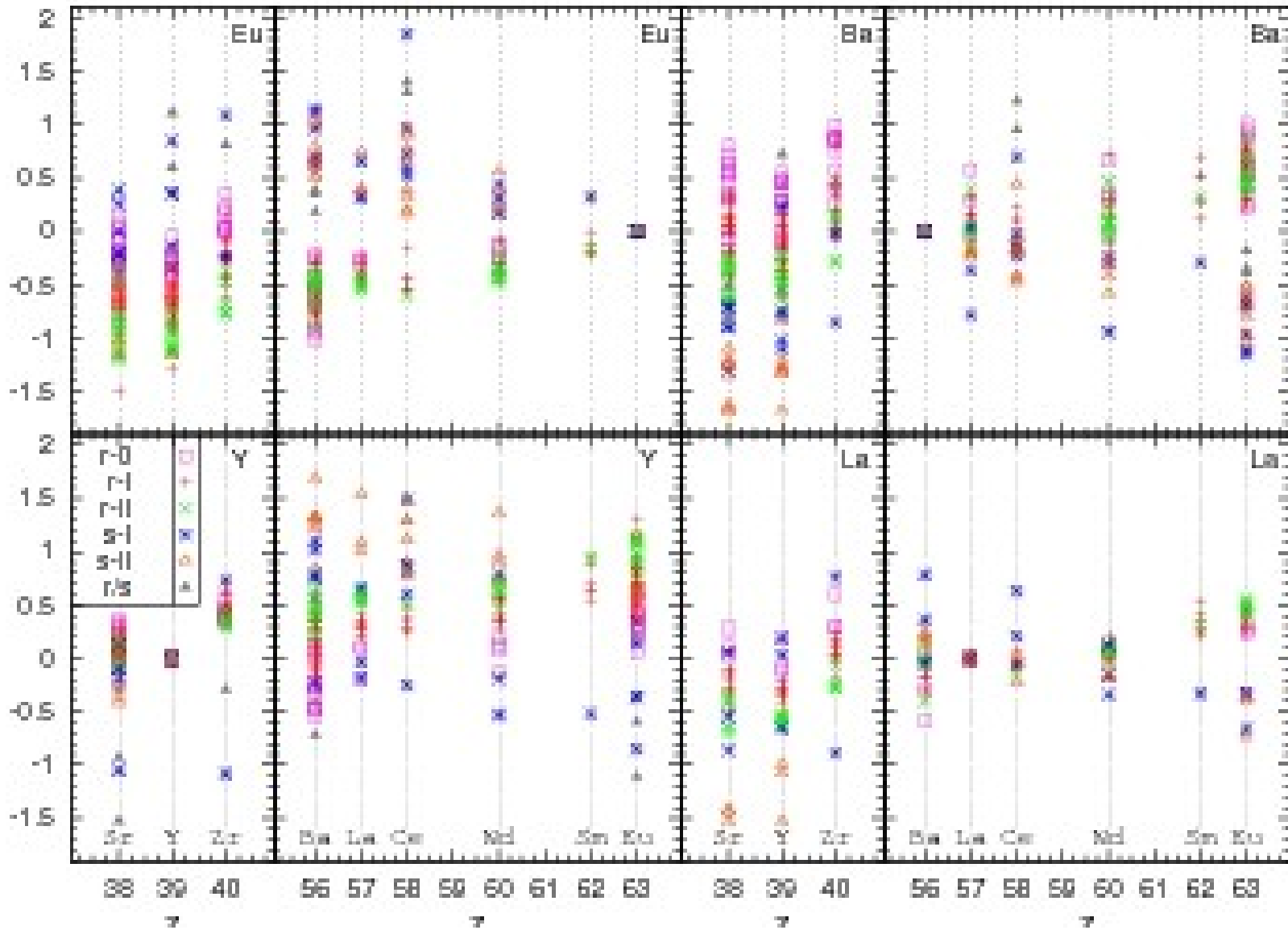
# multiplot



# multiplot



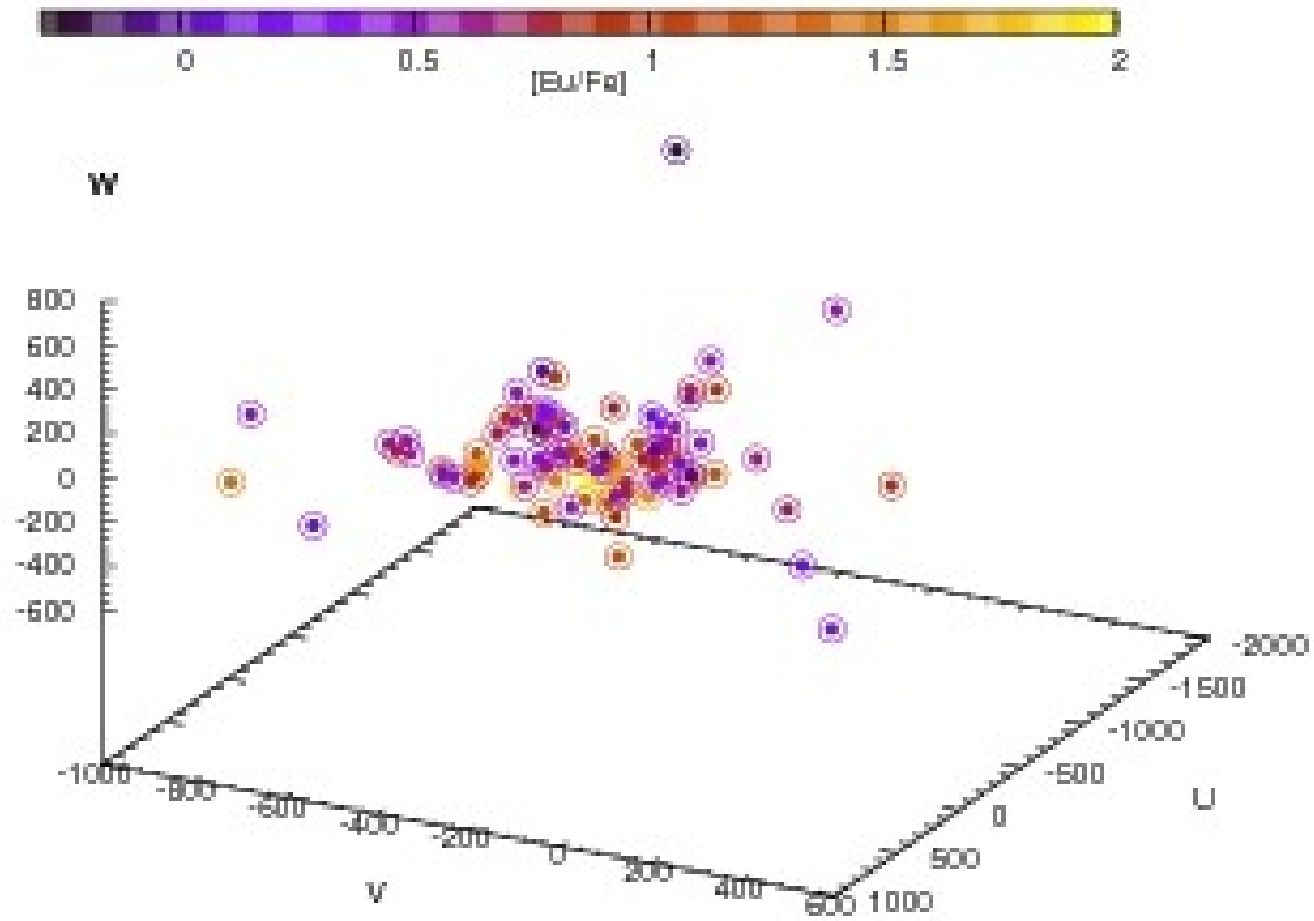
# multiplot



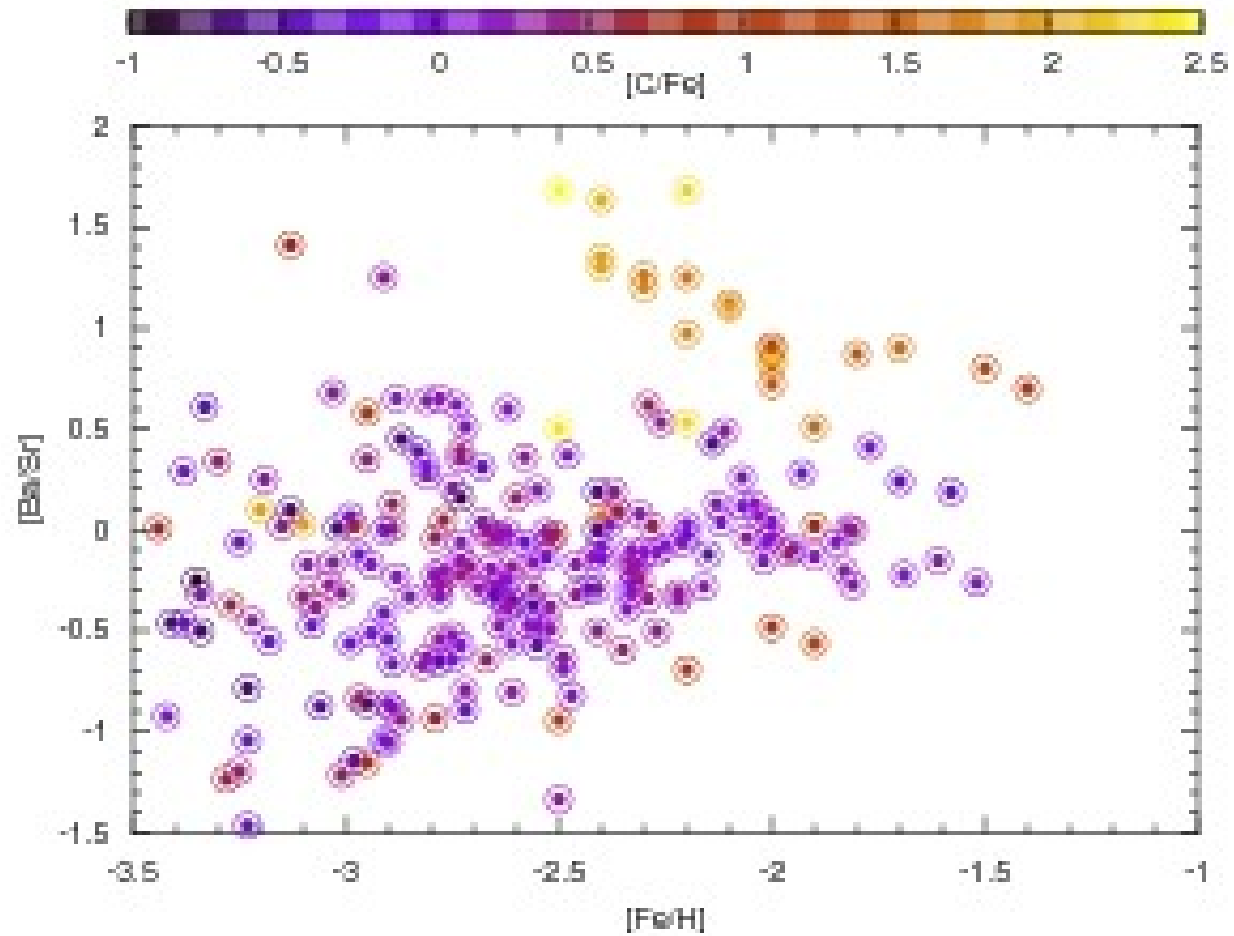
# splot e mapas 3D

- splot no terminal x11 permite interagir com a superfície
- set pm3d
  - plot 3D + escala de cor = 4 variáveis
- set pm3d map
  - plot 2D + escala de cor = 3 variáveis

# splot e mapas 3D



# splot e mapas 3D



# matrizes

- splot "datafile" matrix with lines -1

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3 – eixo X</b>
<b>eixo y - 0</b>	0	1	4	9
<b>1</b>	1	2	5	10
<b>2</b>	4	5	8	13
<b>3</b>	9	10	13	18
<b>4</b>	16	17	20	25
<b>5</b>	25	26	29	34

- set xtics ("100" 0, "300" 3)

# ajuste de funções e dados

```
gnuplot> f(x) = a*x**2 + b*x + c
```

```
gnuplot> a = ....
```

```
gnuplot> fit f(x) 'datafile' ( using col(a):col(b) ) via a,b,c
```

```
gnuplot> plot 'datafile' with points 1, f(x) w l 1
```



# barras de erro

- erros pré-definidos

```
gnuplot> plot "datafile" using 1:2:3:4 with xyerrorbars
```

1 – x

2 – y

3 – sigma x

4 – sigma y

... xerrorbars (1:2:3), yerrorbars (1:2:4)

- fração dos valores

```
gnuplot> plot "datafile" using 1:2:(0.05*$1):(0.1*$2)
```

# fazendo contas com colunas e 'awk'

- Colunas

(col.a):(col.b)

... using (\$20-(2\*log10(\$56))):(cos(3\*\$2))

- awk

plot "<awk '<condições>' datafile" (using... w p 1)

ex. 1) '(\$3>2 && \$5<=45) && \$10!=-9.99'

ex. 2) '\$1~/string/'

# exemplo de arquivo de parâmetros

```
set terminal postscript eps enhanced color
```

```
set output "arquivo.eps"
```

```
set pointsize 1.0
```

```
set mxtics 5
```

```
set mytics 5
```

```
set xrange [0:10]
```

```
set yrange [0:20]
```

```
set xlabel "eixo x"
```

```
set ylabel "eixo y"
```

```
set key bottom left
```

```
plot x title "x" with lines 1
```

```
exit
```

...?

- Dê preferência para arquivos tsv
- Para comentar uma linha utilize “ # ”
  - ou “set datafile commentschars “bla”
- Para quebra de linha utilize “ \ ”
- Limite de pontos para gráficos ? Sim, mas é bem alto...
- Letras gregas: `{/Symbol a}` – no terminal postscript enhanced
- Tenha paciência, não é o programa que é burro...

# links

- <http://www.gnuplot.info/>
- <http://gnuplot.sourceforge.net/demo/>
- <http://www.bmsc.washington.edu/people/merritt/gnuplot/>
- <http://sparky.rice.edu/~hartigan/gnuplot.html>
- <http://nucl.sci.hokudai.ac.jp/~ohnishi/gnuplot.html>
- <http://t16web.lanl.gov/Kawano/gnuplot/index-e.html>