

# Evolución Estelar y Nucleosíntesis

Stellar Evolution

## About Us

We study the evolution of low and intermediate mass stars ( $M < 8 M_{\odot}$ ): the mixing and nucleosynthesis processes occurring in their interiors, their surface chemical composition, final outcome as white dwarfs and/or thermonuclear supernovae, and their use in cosmology and the chemical evolution of the Universe, all both from the theoretical and observational points of view. We do also asteroseismology from space.

## Announcements:

- XII Torino Workshop on Nucleosynthesis in AGB stars (July 2016, Budapest)
- XIV International Conference on Nuclei in the Cosmos (June 2016, Japan)
- Supernovae through the ages: understanding the past to prepare for the future (August 2016, Eastern Island, Chile)

<https://wpd.ugr.es/~fqm292/>

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surface chemical composition, final outcome as white dwarfs and/or

- XIV International Conference on Nuclei in the Cosmos (June 2016, Japan)
- Supernovae through the ages: understanding the past to prepare for the

**Colaboradores: Francia, Italia, USA...**



Planetas

Estrellas

Supernovas

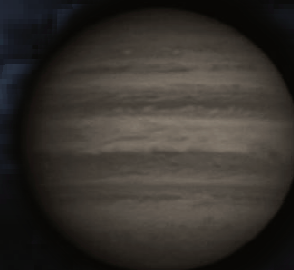
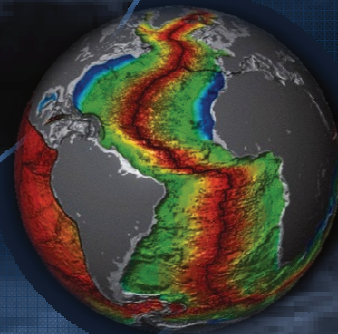
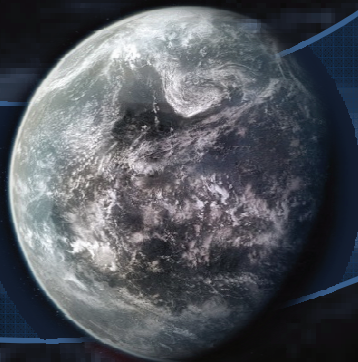
Astropartículas

Cosmoquímica  
Cosmología

TFGs (2) + TFMs (7) + PhDs (2)

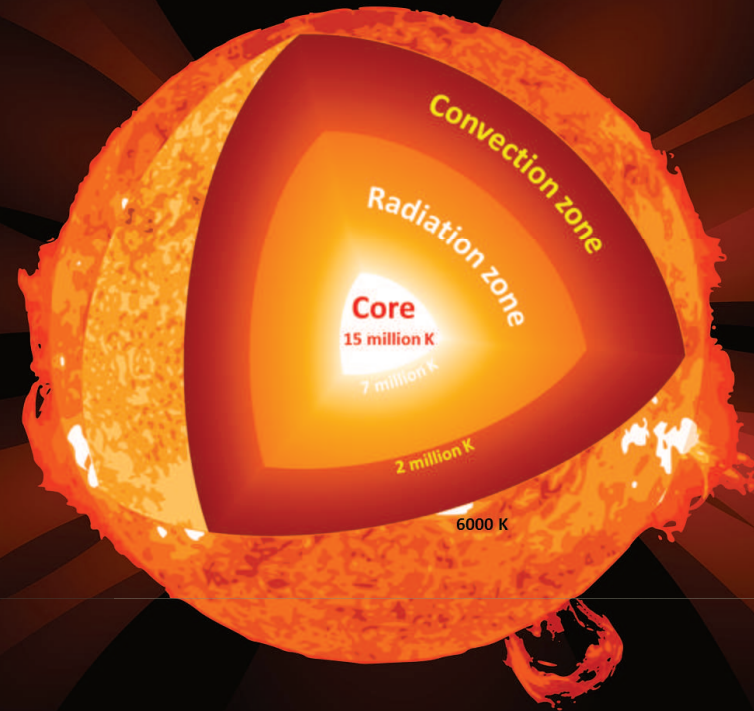
# Detección y caracterización de exoplanetas

LIFE

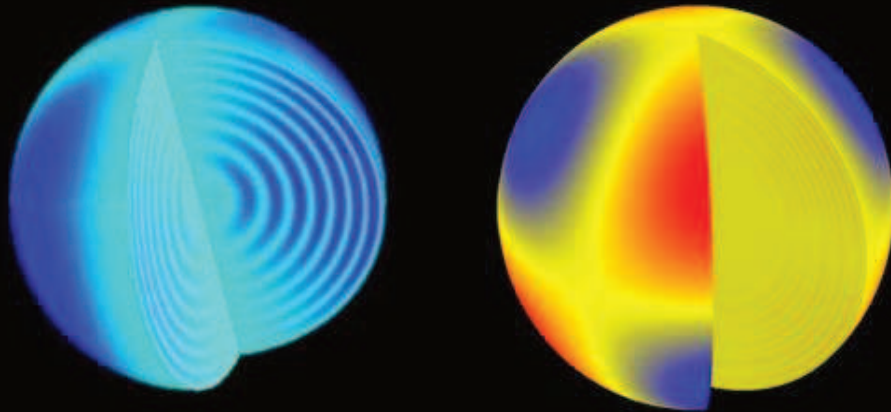




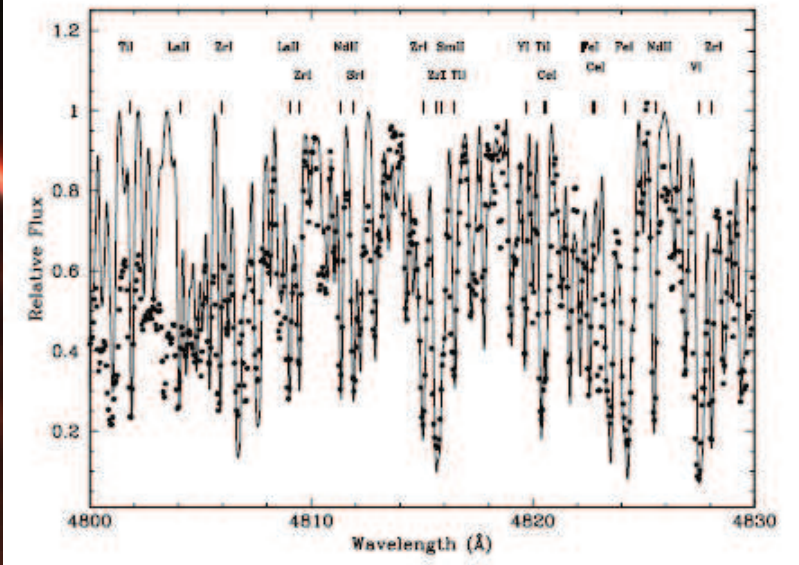
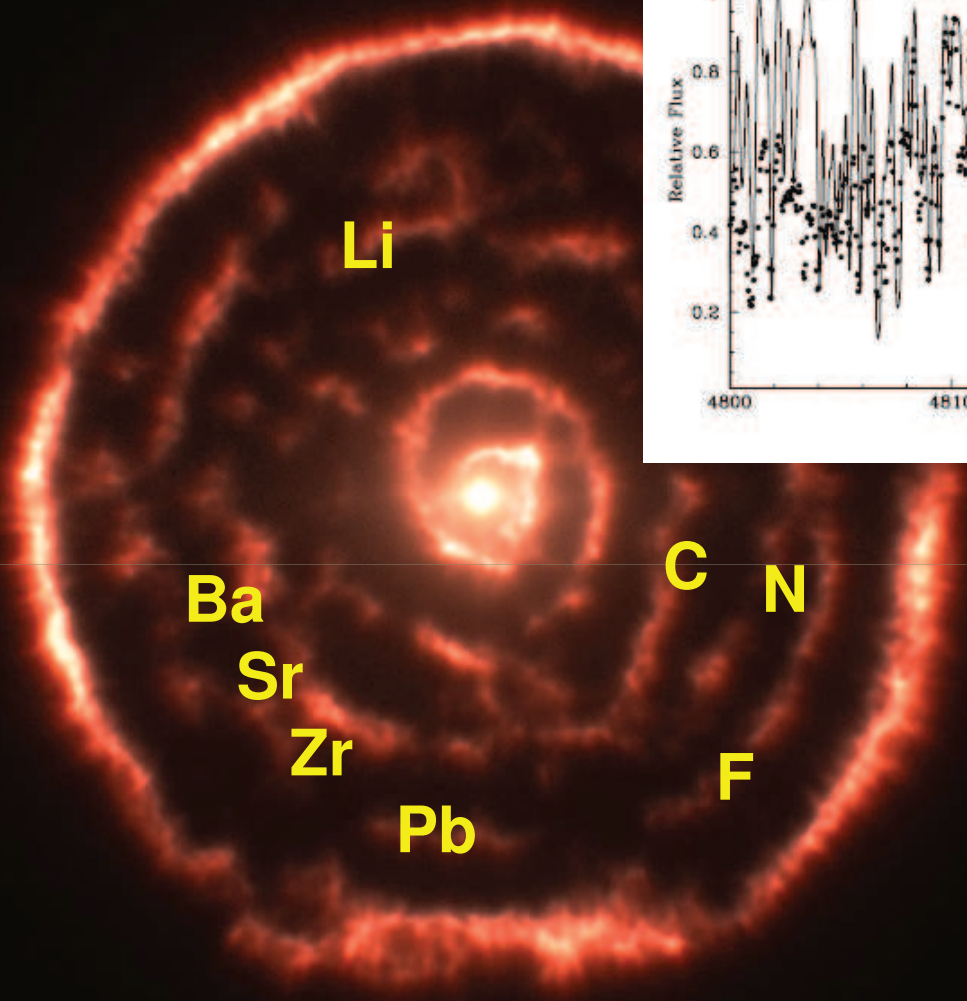
# Estructura y Evolución Estelar



## Stellar Vibrations



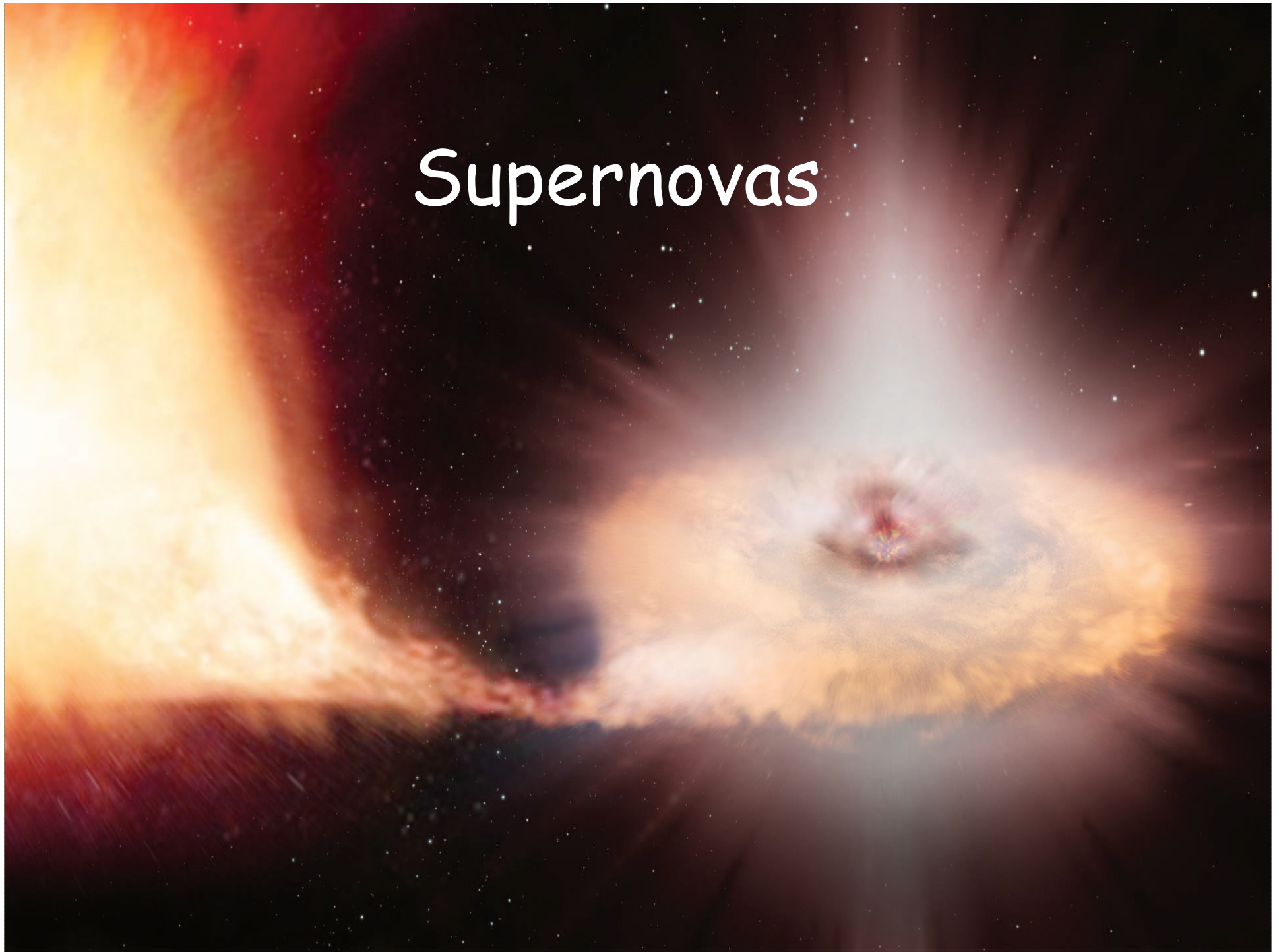
**SISMOLOGÍA  
ESTELAR**



# Estrellas AGB

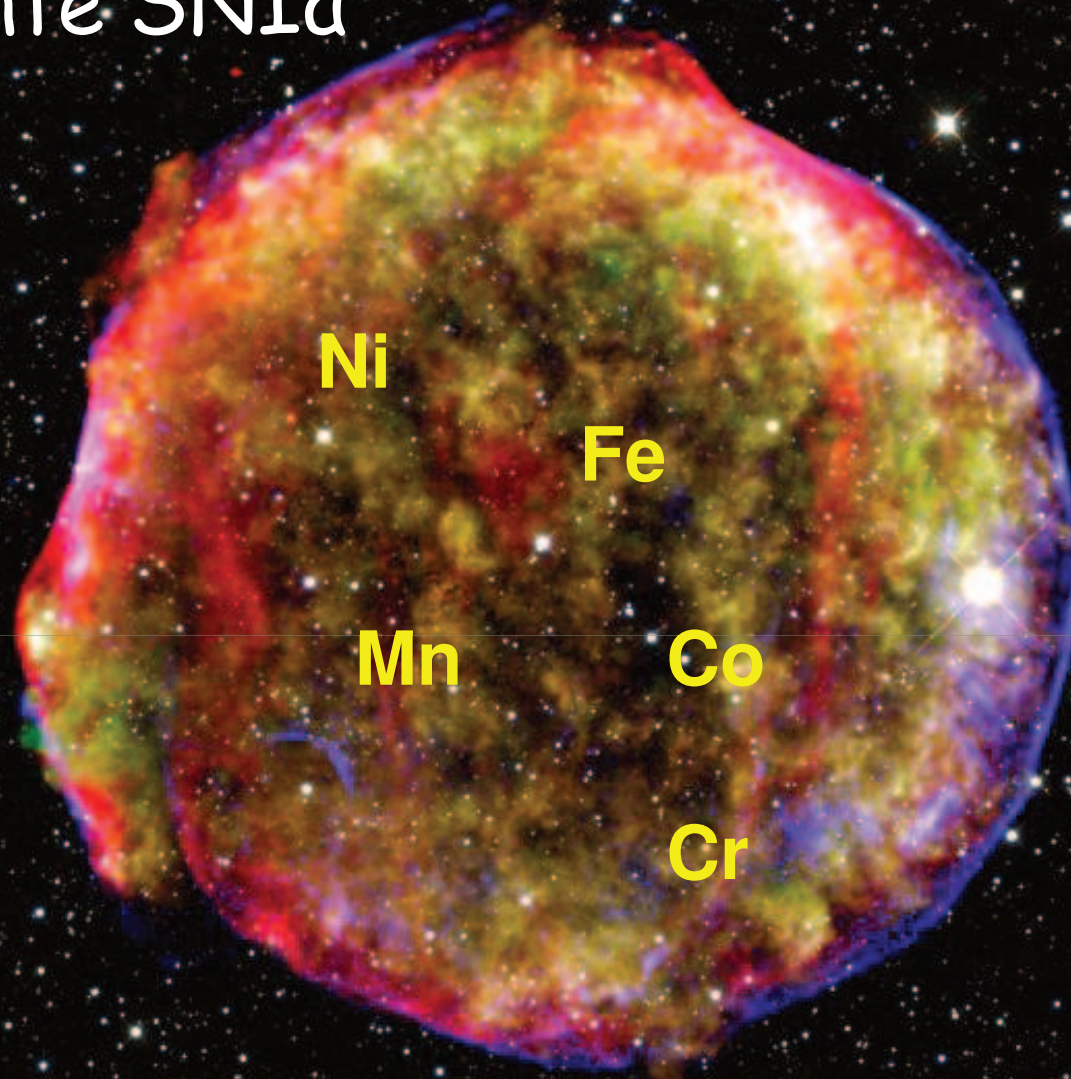


# Supernovas





# Remanente SNIa

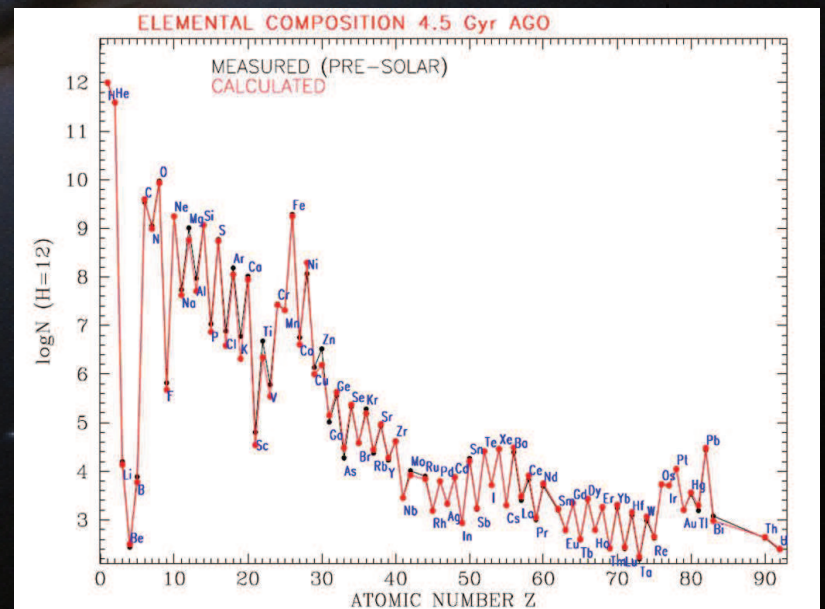


Tycho Brahe 1572

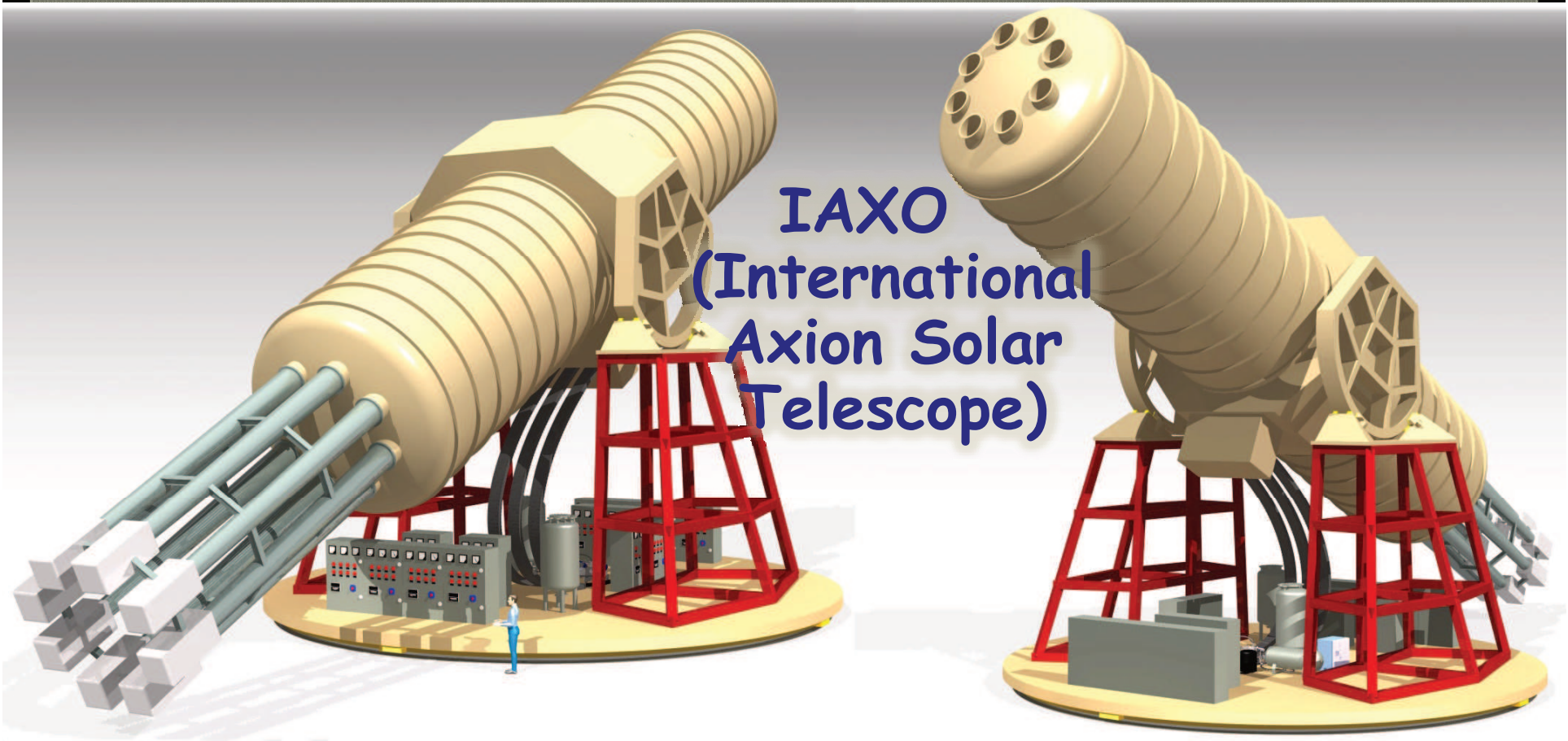


# Cosmología y Cosmoquímica

SN1994D  
SNIa



# Astropartículas: axiones & ALPs





# Simulaciones numéricas

**MODELOS  
DE  
EVOLUCIÓN  
ESTELAR**

**MODELOS  
DE  
ATMÓSFERAS  
ESTELARES**

**SISMOLOGÍA  
ESTELAR**

**EXPLOSIÓN**

**ESPECTROS  
SINTÉTICOS**

**CURVAS DE  
LUZ**

**MODELOS DE  
EVOLUCIÓN  
QUÍMICA DE  
GALAXIAS**

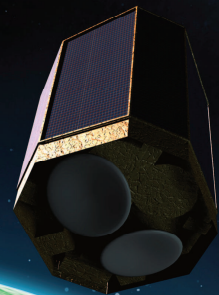
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0.0

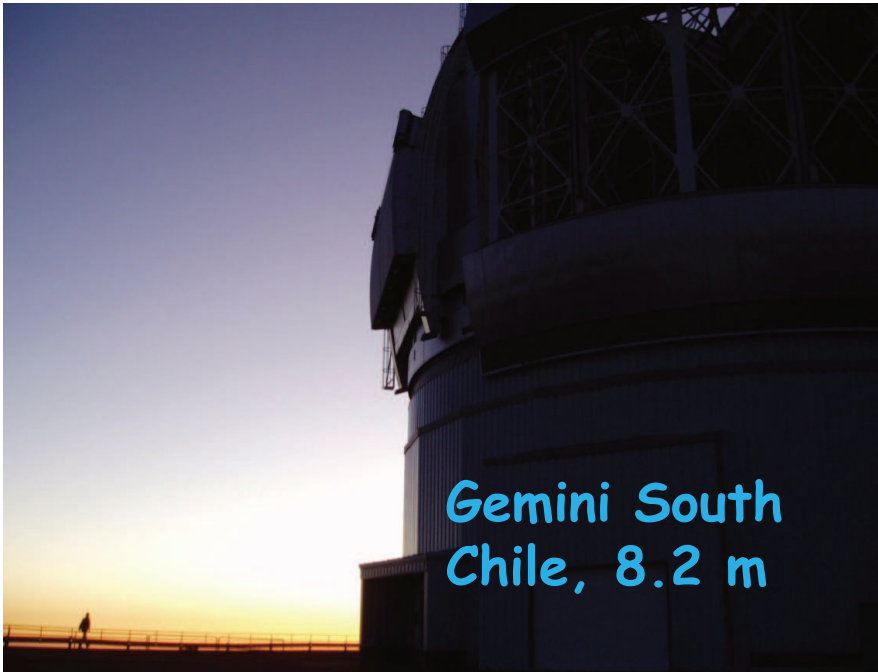


PLATO 2.0

2025







Gemini South  
Chile, 8.2 m



ESA-INTEGRAL



ESA-GAIA  
DR2 1700 millones de estrellas

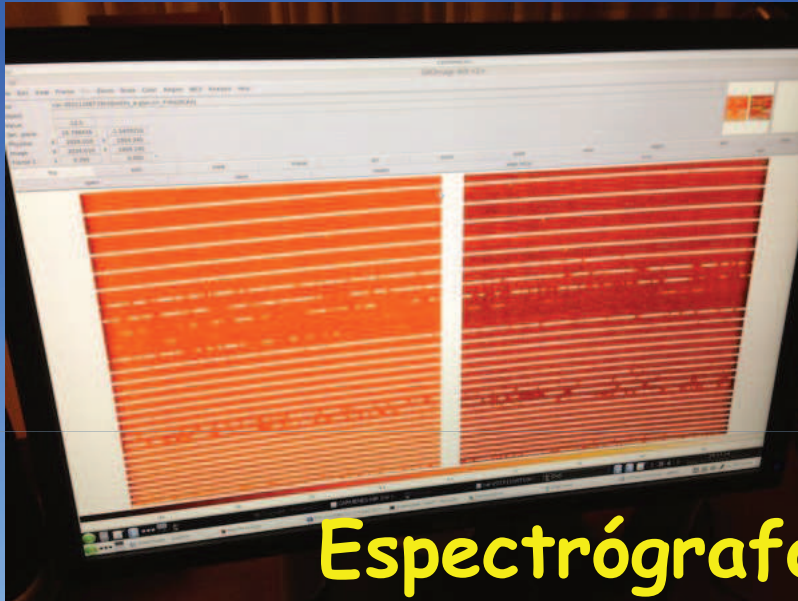


Calar Alto





# carmenes



Espectrógrafo de alta resolución en el IR



Calar Alto- CAHA



BIG DATA

CÁLCULO MASIVO

# Herramientas en VO

# TOUCAN



The VO gateway to Stellar Models



## Toucan Data Search

[New Search](#) | [Restart](#)

199 results have been found for your search criteria.

### Summary table

Here you can see the minimum and maximum value of the parameters for the models satisfying your query.

	$T_{\text{eff}}$	Lum	Log(g)	Density	Age	[Fe/H]	Z	Hcent	$R_{\text{c}}$	Mass	Vrot	Wrot	Trot	$\alpha_{\text{MLT}}$	Over.	F0	F1	F0/F1	$\Delta(v)$	$\delta(v)$
min	6066.07	1.884	-4.057	0.332	0	0.122	0.022	9.555e-4	1.244	1.300	0	0	0	1.600	0	209.000	277.800	0.688	59.880	-83.280
max	6413.64	4.238	4.362	0.950	3587.000	0.122	0.022	0.693	1.767	1.300	0	0	0	1.600	0	334.700	433.200	0.773	112.000	104.300

[HR diag](#)

### Search results

Showing results 1 to 10. Use pagination/sort options if you wish.

Order by:   Show:  results per page

Go to page:  <Prev Next>

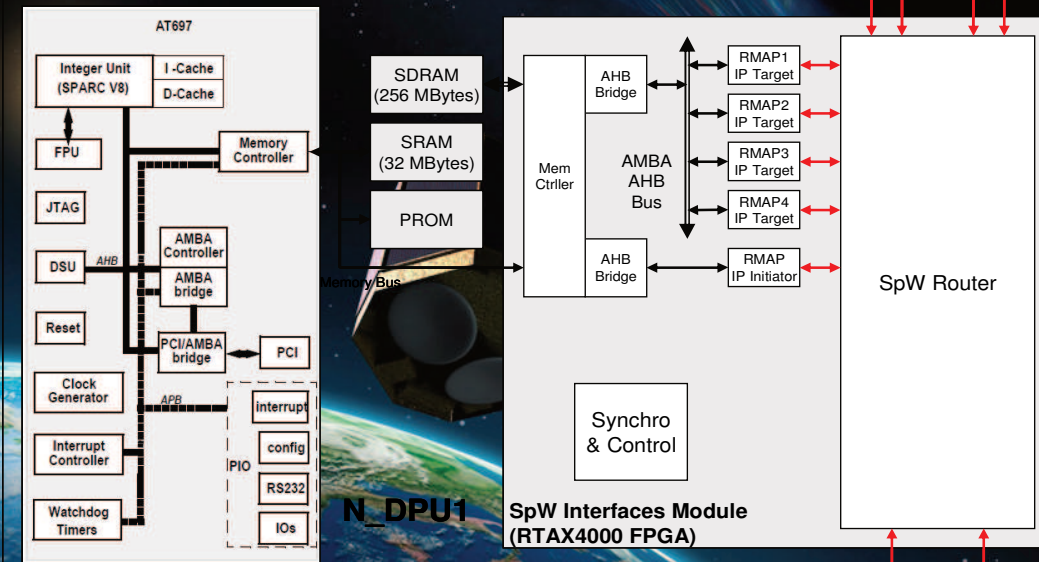
[Mark All](#) | [Unmark All](#) | [Plot](#)

Plot	Files	Date Col.	Track Id	AuthID	$T_{\text{eff}}$	Lum	Log(g)	Density	Age	[Fe/H]	Z	Hcent	$R_{\text{c}}$	Mass	Vrot	Wrot	Trot	$\alpha_{\text{MLT}}$	Over.	F0	F1
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1528	6243.39	4.227	4.060	0.336	3587.000	0.122	0.022	9.555e-4	1.761	1.300	0	0	0	1.600	0	209.200	277.900
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1527	6237.88	4.238	4.058	0.333	3587.000	0.122	0.022	0.001	1.766	1.300	0	0	0	1.600	0	209.200	277.900
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1526	6231.64	4.224	4.057	0.332	3587.000	0.122	0.022	0.001	1.767	1.300	0	0	0	1.600	0	209.000	277.800
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1525	6225.77	4.195	4.059	0.334	3587.000	0.122	0.022	0.001	1.764	1.300	0	0	0	1.600	0	209.500	278.400
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1524	6220.89	4.162	4.061	0.336	3586.000	0.122	0.022	0.001	1.760	1.300	0	0	0	1.600	0	210.200	279.300
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1523	6217.08	4.134	4.063	0.338	3586.000	0.122	0.022	0.001	1.756	1.300	0	0	0	1.600	0	210.800	280.100
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1522	6214.16	4.112	4.064	0.340	3586.000	0.122	0.022	0.001	1.753	1.300	0	0	0	1.600	0	211.300	280.800
<input type="checkbox"/>	CESAM2k+GraCo	Test JR 2	VO-m130fe012a160c000rot000	1521	6212.15	4.099	4.065	0.341	3586.000	0.122	0.022	0.001	1.751	1.300	0	0	0	1.600	0	211.300	280.800

# Desarrollo Instrumental

## PLATO 2.0

### Main Electronic Units



N\_DPU1

SpW Interfaces Module (RTAX4000 FPGA)

To Router\_M To Router\_R



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