

# VOSA

## A VO Spectral Energy Distribution Analyzer. Part 1/2

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## VOSA (VO Sed Analyzer)

- a web tool: <http://svo2.cab.inta-csic.es/theory/vosa/>
- designed to automatically determine physical parameters from comparison of observed photometry with collections of theoretical models.
- for several objects at the same time. ( $\sim 1000$  *objects*)
- More than 300 users analysing data.
- More than 6000 data files analysed.
- Using VO tools and services.

1

## Build object SEDs.

- Object properties: name resolution, distance, extinction.
- User photometry tables + VO catalogs.

2

## Analyze object SEDs.

- Fit observed data with theoretical spectra models and/or templates from the VO and estimate physical properties for the objects. (Chi-square test + Bayes analysis)
- Generate a Hertzsprung-Russel diagram using the estimated parameters, obtaining isochrones and evolutionary tracks from the VO (only stars).

3

## Save results as VOTable, ASCII, png, eps...



## VO SED Analyzer

VOSA allows to analyze both stellar and galactic data but, given that the physics involved is not the same, there are some important differences between both cases.

Please, select first what type of objects you want to work with in this session.



Stars and brown dwarfs



Galaxies

**Acknowledging VOSA in publications:**

Please include the following in any published material that makes use of VOSA:

*This publication makes use of VOSA, developed under the Spanish Virtual Observatory project supported from the Spanish MICINN through grant AyA2008-02156.*

**Referencing VOSA in publications:**

If your research benefits from the use of VOSA, we would appreciate if you could include the following reference in your publication:

*Bayo, A., Rodrigo, C., Barrado y Navascués, D., Solano, E., Gutiérrez, R., Morales-Calderón, M., Allard, F. 2008, A&A 492,277B.*

**Other services used in VOSA**

VOSA uses some external services and theoretical models that you might want to cite or acknowledge if your science benefits from the use of this tool

[See the complete credits page](#)



- User data files
  - **Object name, RA, DEC**, distance,  $A_v$ ,
  - Phot. points: filter, flux/mag, error
    - $\sim 1800$  filters available (SVO Filter Profile Service).
    - Options: *nofit*.
  - Object options.
    - $A_v$  range (extinction becomes a fit parameter).
    - Infrared excess.
    - Blue/UV excess.
- Simple VO object search.
- User files management.



Files

Objects

VO Phot.

SED

Chi-2 Fit

Bayes Analysis

HR Diag.

Save Results

Log

Help

Logout

Stars and brown dwarfs (Change)

File: prueba (info) (Change)

**Upload your own data file** (max size=500Kb)

It must comply with the [required data format](#)  
 (A small utility is available to help you to convert  
 an original file in [ascii \(csv\)](#) or [votable](#) to VOSA  
 input format)

File to  
upload: Browse...

Description:

File type:

- Fluxes (erg/cm<sup>2</sup>/s/Å)  
 Fluxes (Jy)  
 Magnitudes

**Create a single object data file**

Just write the coordinates (in decimal degrees) of  
 one object that you want to study and we will  
 create a single object data file with the adequate  
 format.

RA and DEC are compulsory.

RA:  (deg)DEC:  (deg)Obj.Name: Description: **Your files**

Folder	Filename	Descrip	Last Used	Obj.type	N.Obj.
Default folder	only_Ha_sources_for_testing.inputVOSA	prueba	2012-10-22 18:55:32	star	13 Selected

if you change something remember to click the save button

## File properties

Filename: only\_Ha\_sources\_for\_testing.inputVOSA

Uploaded: 2012-05-12 01:23:00

Last used: 2012-10-22 18:55:32

Obj. Type: star

N. objects: 13

Descrip.: Folder: 

## Actions

## Your comments

ext-prueba.dat	ext prueba	2012-10-22 15:57:59	star	26	Select
ej.distances2.dat	dis edis	2012-10-22 15:02:28	star	12	Select
640.vosa.dat	sargent 0	2012-10-04 12:30:54	star	1	Select
ej.lue.dat	lue	2012-10-04 12:28:28	star2	4	Select
ej.lue.dat	lue	2012-10-04 12:28:40	other	4	Select

Folder	Filename	Descrpt	Last Used	Obj.type	N.Obj.
Default folder	only_Ha_sources_for_testing.inputVOSA	prueba	2012-10-22 18:55:54	star	13 Selected

if you change something remember to click the save button

**File properties**

Filename: only\_Ha\_sources\_for\_testing.inputVOSA

Save Hide Objects VOSA Input Delete

Uploaded: 2012-05-12 01:23:00

Last used: 2012-10-22 18:55:54

Obj. Type: star

N. objects: 13

Descrip.: prueba

Folder: Default

**Actions**

**Your comments**

**Object user data**

**ChaHa1**

Position: (166.820833,-77.598333)

Distance: 160 pc

A<sub>v</sub>: 2.0

User options: Av:0.1/8.0,

Filter	$\lambda_{med}$	Flux (obs)	$\Delta F$ (obs)	Flux (der)	$\Delta F$ (der)
Generic/Johnson.B	4378.11999165	4.774004e-18	1.538957e-18	5.287261e-17	1.704411e-17
Generic/Johnson.V	5466.11399596	1.423047e-17	1.310675e-18	9.152953e-17	8.430181e-18
CFHT/CFHT.R	6515.8719123	6.934001e-17	6.386451e-18	3.117611e-16	2.871426e-17
DENIS/DENIS.I	7862.1015966	2.964345e-16	2.730263e-16	9.374406e-16	8.634147e-16
CFHT/CFHT.I	8090.44887259	3.724973e-16	1.715414e-17	1.118020e-15	5.148674e-17
2MASS/2MASS.J	12350	1.440806e-15	3.184876e-17	2.543047e-15	5.621359e-17
2MASS/2MASS.H	16620	9.705768e-16	2.324229e-17	1.388179e-15	3.324257e-17
2MASS/2MASS.Ks	21590	5.782932e-16	1.278306e-17	7.288548e-16	1.611120e-17
WISE/WISE.W1	33156.5603084	1.669687e-16	9.227030e-19	1.908538e-16	1.054697e-18
WISE/WISE.W2	45644.9905454	8.650895e-17	6.374215e-19	9.502120e-17	7.001421e-19
WISE/WISE.W3	107868.444578	2.716162e-17	3.752517e-19	3.017880e-17	4.169356e-19
WISE/WISE.W4	219149.640363	2.142475e-17	2.190354e-18	2.222721e-17	2.272394e-18

**ChaHa10**

Position: (167.106667,-77.658333)

Distance: 160 pc

A<sub>v</sub>: 2.0

User options: Av:0.1/8.0,

Filter	$\lambda_{med}$	Flux (obs)	$\Delta F$ (obs)	Flux (der)	$\Delta F$ (der)
Generic/Johnson.B	4378.11999165	5.739615e-18	1.850233e-18	6.356685e-17	2.049153e-17
Generic/Johnson.V	5466.11399596	8.188782e-18	7.542147e-19	5.266975e-17	4.851063e-18
CFHT/CFHT.R	6515.8719123	3.639015e-17	3.351657e-18	1.636146e-16	1.506946e-17



## Filter Profile Service

An experiment about filter standardization in the VO



VO Service Browse Search

AuthId:  Passw:  Login Register

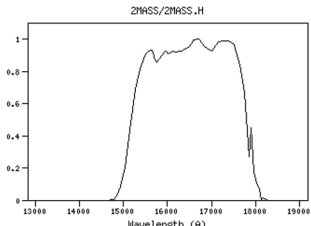
Most of the filters from the [SVO Filter Profile Service](#) are available to be used in VOSA using the FilterID as name.

Some of them are not in the list below, in some cases to make the list more easy to browse (because they seem to be less popular filters) and in other cases because not all the synthetic photometry is ready yet. In any case, you can try to use them too.

If you want to upload your own photometry into VOSA as magnitudes, make sure that VOSA will transform those magnitudes to fluxes as you expect (click on the filter name in this list to see the details of the transformation for that case). If not, please, transform your photometry to fluxes before uploading it.

You can click on the table headers to sort the list by that field

Filter ID	$\lambda_{eff}$	$W_{eff}$	$A_t/A_v$	ZP (Jy)	Mag.Sys.	ZP Type	Description
<a href="#">2MASS/2MASS.H</a>	16620.00	2509.40	0.19	1024.00	Vega	Pogson	2MASS H



### 2MASS/2MASS.H

a.k.a. **2MASS\_H** (you can still use the old vosa name for this filter in your input files)

VOSA will assume that, if you include in your input file magnitudes corresponding to this filter, these magnitudes must be transformed to fluxes using the following relation:

$$F = F_0 * 10^{-mag/2.5}$$

where

- $F_0 = 1024.00 \text{ Jy } (1.13e-10 \text{ erg/cm}^2/\text{s}/\text{Å})$

If this is not right for your case, please, transform your magnitudes to fluxes before uploading them to VOSA

More info about this filter in the [Filter Profile Service](#)



## Photometry from VO catalogs.

- More than 20 catalogues.
- Infrared:
  - 2MASS, DENIS, MSX6C, AKARI, Spitzer, UKIDSS, WISE
- Optical:
  - Tycho, CMC14, Stromgren, Johnson, SDSS, IPHAS
- Ultraviolet:
  - GALEX, IUE



Files	Objects	VO Phot.	SED	Chi-2 Fit	Bayes Analysis	HR Diag.	Save Results	Log	Help	Logout
Stars and brown dwarfs (Change)							File: aa (info) (Change)			

## VO photometry

This option allows you to increase the wavelength coverage of the SEDs of your objects adding photometry from VO catalogues.

Take a look to the corresponding [Help Section](#) and [Credits Page](#) for more information.

### First select the VO services that you want to use




## Infrared

### 2MASS All-Sky Point Source Catalog

2MASS has uniformly scanned the entire sky in three near-infrared bands to detect and characterize point sources brighter than about 1 mJy in each band, with signal-to-noise ratio (SNR) greater than 1. [More Info.](#)

Filters:  2MASS/2MASS.J  2MASS/2MASS.H

2MASS/2MASS.Ks

Search radius:  arcsec

[Show magnitude limits](#)

### DENIS Catalogue

This catalogue is the latest incremental release of the DENIS project. It consists of a set of 355,220,325 point sources detected by the DENIS survey in 3662 strips (covering each 30 degrees in declination and 12 arcmin in right ascension). [More Info.](#)

Filters:  DENIS/DENIS.I

Search radius:  arcsec

[Show magnitude limits](#)

### MSX6C Infrared Point Source Catalog

Version 2.3 of the Midcourse Space Experiment (MSX) Point Source Catalog (PSC), which supersedes the version (1.2) that was released in 1999 (Cat. V/107), contains over 100,000 more sources than the previous version.. [More Info.](#)

Filters:  MSX/MSX.A  MSX/MSX.C

MSX/MSX.D  MSX/MSX.E

Search radius:  arcsec

[Show magnitude limits](#)

### AKARI/IRC mid-IR all-sky Survey (ISAS/JAXA, 2010)

The AKARI/IRC Point Source Catalogue Version 1.0 provides positions and fluxes for 870,973 sources observed with the InfraRed Camera (IRC). [More Info.](#)

Filters:  AKARI/IRC.S9W  AKARI/IRC.L18W

Search radius:  arcsec

[Show magnitude limits](#)

### AKARI/FIS All-Sky Survey Point Source Catalogues (ISAS/JAXA, 2010)

### C2D Spitzer and Ancillary Data

C2D Fall '07 Full CLOUDS Catalog (CHA\_II, LUP, OPH, PER, SER).

## Object properties.

- Coordinates
  - Resolving object names.
- Distance
  - to calculate object luminosities.
- Extinction properties
  - to deredden SED.
- Using VO services.



Files	Objects	VO Phot.	SED	Chi-2 Fit	Bayes Analysis	HR Diag.	Save Results	Log	Help	Logout
Stars and brown dwarfs (Change)						File: <b>dis edis</b> (info) (Change)				

Coordinates Distances Extinction

### Object coordinates

This option allows you to query Sesame VO service to search for object coordinates using the object name.

Take a look to the corresponding [Help Section](#) and [Credits Page](#) for more information.

Search for Obj. Coordinates

Mark all:

Unmark all:

Object	Final		User Data		Sesame	
	RA (deg)	DEC (deg)	RA (deg)	DEC (deg)	RA (deg)	DEC (deg)
HD000693	2.8160	-15.46797939	2.8160	-15.46797939	??	??
HD001835	5.72	-12.20943607	5.72	-12.20943607	??	??
HD002665	7.68935948	+57.065	7.68935948	+57.065	??	??
HD002796	7.82047741	-16.79466529	7.82047741	-16.79466529	??	??
HD003567	9.63311447	-8.30927645	9.63311447	-8.30927645	??	??
HD003628	9.80	+3.1339	9.80	+3.1339	??	??
HD004306	11.36317975	-9.54438717	11.36317975	-9.54438717	??	??
HD004307	11.369	-12.88	11.369	-12.88	??	??
HD004614	12.27621124	+57.81518773	12.27621124	+57.81518773	??	??
HD006582	17.068	+54.7	17.068	+54.7	??	??
HD006755	17.42943586	+61.54727506	17.42943586	+61.54727506	??	??
HD006833	17.46777005	+54.73896613	17.46777005	+54.73896613	??	??

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#### Other services used in VOSA

VOSA uses several external services and theoretical models that you might want to cite or



Files	Objects	VO Phot.	SED	CM-2 Fit	Bayes Analysis	HR Diag.	Save Results	Log	Help	Logout
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Stars and brown dwarfs (Change)

File: ext prueba (info) (Change)

Coordinates Distances Extinction

## Object Distances

This option allows you to query VO services to search for object distances using the object coordinates.

Take a look to the corresponding [Help Section](#) and [Credits Page](#) for more information.

In some cases observational errors are large and the given distances could be doubtful.

When the relative error is larger than 10%, values are shown in red.

Search for Obj. Distances

Search radius:  arcsec (default: 5").Mark all:  Hipparcos  KharchenkoUnmark all:  Hipparcos  Kharchenko

Save Obj. Distances

Object	Final		User		Hipparcos							Kharchenko							
	Name	RA (deg)	DEC (deg)	D (pc)	ΔD (pc)	Δ (arcsec)	RA (deg)	DEC (deg)	Plx (mas)	ΔPlx (mas)	D (pc)	ΔD (pc)	Δ (arcsec)	RA (deg)	DEC (deg)	Plx (mas)	ΔPlx (mas)	D (pc)	ΔD (pc)
prueba1	83.79	9.94	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba10	267.625	1.300	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba11	263.162	7.062	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba12	264.875	-0.327	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba13	290.688	-3.711	...	...	...	2.016	280.690232	-3.731542	1.90	1.07	526.310	518.006	1.7712	280.690179	-0.731497	1.06	1.07	531.915	529.006
prueba14	332.690	16.86	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba15	340.337	23.847	...	...	...	1.6164	340.307206	23.846077	0.07	0.79	14203.714	10124.490	1.6164	340.307207	+23.846075	0.23	0.79	4347.826	14933.837
prueba16	134.280	-30.32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba17	33.439	-3.703	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba18	300.279	27.7335	...	...	...	0.2864	300.275201	27.730373	14.67	0.64	66.106	2.974	0.2864	300.275202	+27.730374	14.47	0.62	66.106	2.961
prueba2	294.82	3.96	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba20	312.4662	41.255	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba21	317.968	15.517	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba22	330.171	17.739	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba23	332.864	-0.6205	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba24	342.942	15.9458	...	...	...	0.72	342.942229	15.009542	7.26	0.82	137.741	15.506	0.72	342.942233	+15.009542	7.26	0.81	137.931	15.410
prueba25	94.94394	23.274	...	...	...	1.8432	94.943945	23.274307	0.36	1.00	2031.579	6025.209	1.8432	94.943946	+23.274307	0.15	1.00	6090.007	4444.444
prueba26	273.894	-26.387	...	...	...	3.482	273.89496	-26.387971	-0.22	0.91	4046.450	10001.653	3.482	273.894942	-26.387971	-0.33	0.91	6036.303	6326.280
prueba27	35.7907	64.3900	...	...	...	0.1954	30.790790	64.390015	0.94	0.64	1003.830	724.310	0.1954	030.790790	+64.390021	1.12	0.62	692.007	494.260
prueba3	269.675	6.671	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba4	136.74	-57.61	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba5	248.549	39.653	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba6	263.189	1.63	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba7	265.636	4.956	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
prueba8	261.439	3.114	...	...	...	3.3444	261.439467	2.11422	129.54	0.95	7.720	0.007	3.3444	261.439470	+02.114214	129.39	0.93	7.729	0.006
prueba9	297.093	23.348	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

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Files	Objects	VO Phot.	SED	Chi-2 Fit	Bayes Analysis	HR Diag.	Save Results	Log	Help	Logout
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Stars and brown dwarfs (Change) File: ext prueba (info) (Change)

Coordinates Distances **Extinction**

### Extinction properties

This option allows you to query VO services to search for the extinction properties of these objects using the object coordinates.

Take a look to the corresponding [Help Section](#) and [Credits Page](#) for more information.

[See a brief inline help about how using the form](#)

#### Search in VO catalogues

Search for Extinction properties

Search radius:  arcsec  
(default: 5").

#### Add default user values

Rv:  3.1, E(B-V): , Av:

Av range:  -

Add

#### Select/unselect values

Mark all:

User Dias Kodaira Jones Larson Savage Rowan-Robinson Leborgne Glushkova

Morales Layden

Unmark

User Dias Kodaira Jones Larson Savage Rowan-Robinson Leborgne Glushkova

all:

Morales Layden

Save Extinction properties

Object			Final		User				VO Data					Source
Name	RA (deg)	DEC (deg)	Av	Rv	E(B-V)	Av	Av range	$\Delta$ (arcsec)	RA (deg)	DEC (deg)	Rv	E(B-V)	Av	Source
prueba1	83.79	9.94	---	3.1										
prueba10	267.025	1.300	1.147	3.1		1.147		0	267.025	+1.300	---	0.370	---	Dias+, 2002-2010 (?)
prueba11	263.102	7.062	0.31	3.1				1.44	263.102	+7.062	---	---	0.31	Kodaira+, 1992 (?)
prueba12	264.875	-0.327	0.77	3.1				0.9	264.87525	-0.32700	---	---	0.77	Jones+, 2009 (?)
prueba13	260.688	-3.731	2.356	3.1				2.1204	260.68823	-03.73154	---	---	0.76	Larson+, 2005 (?)
prueba14	332.600	18.80	---	3.1										
prueba15	340.357	23.847	0.341	3.1				1.44	340.357	+23.847	---	---	0.11	Savage+, 1985 (?)
prueba16	154.280	-99.52	---	3.1										
prueba17	33.439	-3.703	0.50	3.1				2.1096	033.439579	-03.702900	---	---	0.50	Rowan-Robinson+, 2008 (?)
prueba18	300.275	27.7535	0.00	3.1				0.2412	300.27504	+27.75356	---	---	0.00	Le Borgne+, 2000 (?)
prueba2	264.82	3.56	---	3.1										
prueba20	312.4692	41.255	2.759	3.1				0	312.4692	+41.2550	---	---	0.89	Glushkova+, 2009 (?)
								4.428	312.471	+41.255	---	---	0.890	Dias+, 2002-2010 (?)
prueba21	317.508	15.517	0.5	3.1		0.5		1.656	317.508	+15.517	---	---	0.100	Dias+, 2002-2010 (?)
prueba22	330.171	17.739	0.17	3.1				1.44	330.171	+17.739	---	---	0.17	Kodaira+, 1992 (?)
prueba23	332.864	-0.0505	0.21	3.1				1.0692	332.86429	-0.05056	---	---	0.21	Jones+, 2009 (?)
prueba24	342.942	15.0858	0.403	3.1				0.81	342.94223	+15.08584	---	---	0.13	Larson+, 2005 (?)
prueba25	94.84384	23.274	1.67115984	3.1				---	94.84384542	23.2745075	3.276784	0.51	---	Morales+, 2006 (?)

## SED editing

- SED plot (observed and dereddened).
- *nofit*: including points in the SED that won't be used for the analysis.
- Deleting points.
- Modify infrared excess.
- Modify blue/UV excess.

## Object data

| Next &gt;

ChaHa1

ChaHa10

ChaHa11

ChaHa12

ChaHa13

ChaHa2

ChaHa3

ChaHa4

ChaHa5

ChaHa6

ChaHa7

ChaHa8

ChaHa9

excess

See all

## ChaHa1

Position: (166.820833,-77.598333) Distance: 160 pc  $A_V$ : 2.0

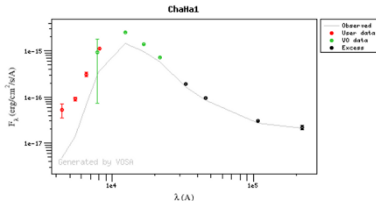
Data for this object:

Filter	Final SED			User data			VO data						
	$\lambda_{med}$	Flux	$\Delta F$	Flux	$\Delta F$	NoFit	Uplim	Delete	Flux	$\Delta F$	NoFit	Uplim	Delete
Generic/Johnson.B	4378.12	5.287e-17	1.704e-17	5.287e-17	1.704e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generic/Johnson.V	5466.11	9.153e-17	8.430e-18	9.153e-17	8.430e-18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CFHT/CFHT.R	6515.87	3.118e-16	2.871e-17	3.118e-16	2.871e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DENIS/DENIS.I	7862.10	9.374e-16	8.634e-16	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.374e-16	8.634e-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CFHT/CFHT.I	8090.45	1.118e-15	5.149e-17	1.118e-15	5.149e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2MASS/2MASS.J	12350.00	2.543e-15	5.621e-17	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.543e-15	5.621e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2MASS/2MASS.H	16620.00	1.388e-15	3.324e-17	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.388e-15	3.324e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2MASS/2MASS.Ks	21590.00	7.289e-16	1.611e-17	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.289e-16	1.611e-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WISE/WISE.W1	33156.56	1.909e-16	1.055e-18	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.909e-16	1.055e-18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WISE/WISE.W2	45644.99	9.502e-17	7.001e-19	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.502e-17	7.001e-19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WISE/WISE.W3	107868.44	3.018e-17	4.169e-19	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.018e-17	4.169e-19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WISE/WISE.W4	219149.64	2.223e-17	2.272e-18	---	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.223e-17	2.272e-18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply changes

(Be careful. If you mark any 'Delete' checkbox, that point will be deleted without asking for confirmation)

No infrared excess detected.

You can manually specify where excess applies (*please remember to click the 'Change excess' button to apply these changes*).Apply infrared excess from Apply UV/blue excess up to  Angstroms.

| Next &gt;



- **Chi-2 fitting and Bayes analysis.**
  - 16 collections of theoretical models.
  - 4 collections of observational templates.
  - Using SVO synthetic photometry VO service.
- Compare observed and synthetic photometry to estimate object properties.
  - $T_{\text{eff}}$ ,  $\text{Log}g$ , metallicity, etc (for stars).
  - Age, metallicity (for galaxies).
  - Bolometric luminosity, using the model as a correction to the observed data.
- Extinction as a fit parameter.

Continues... (part 2)