

Summary of some theoretical models already accessible in the V0

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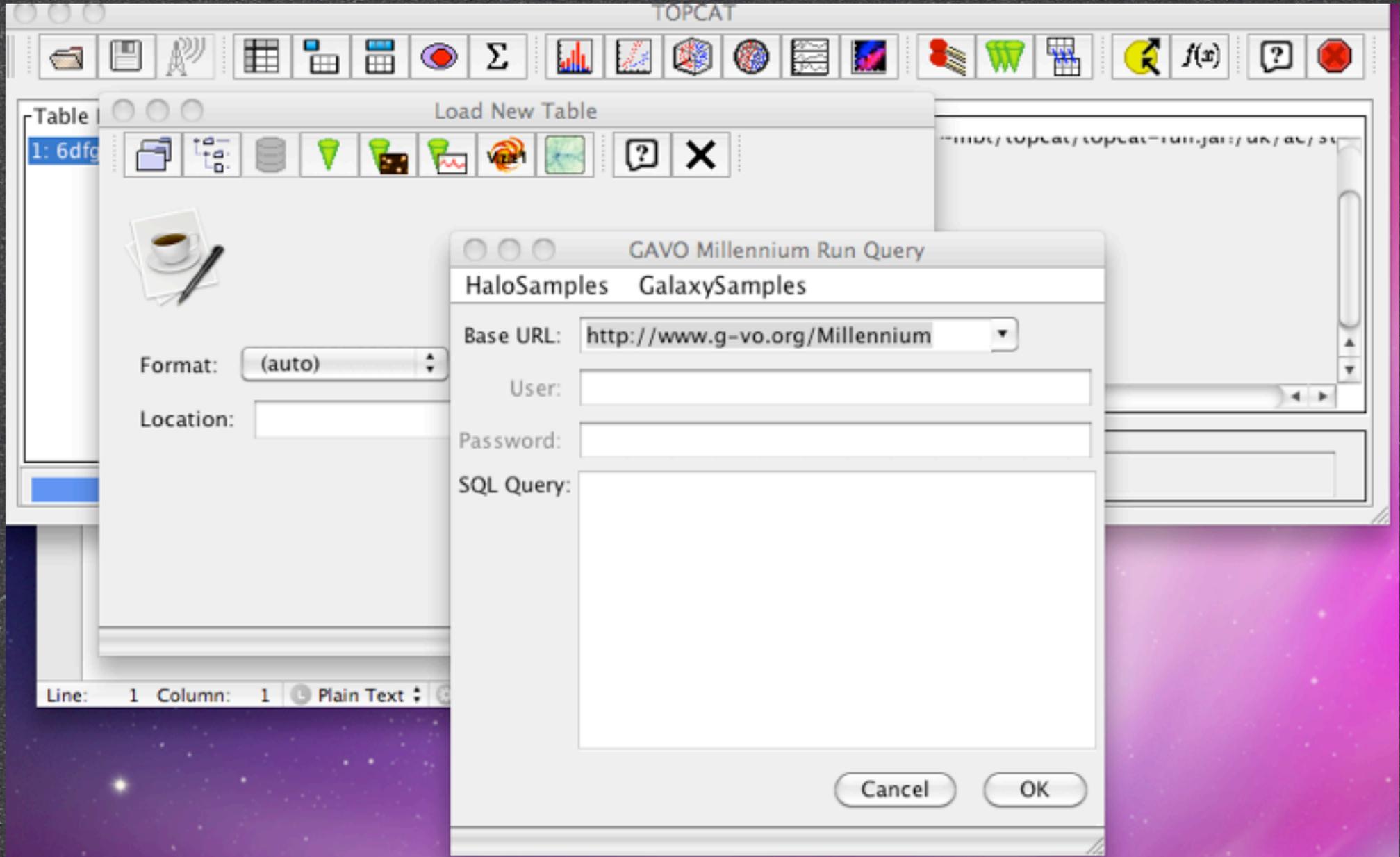
- As an user: Where can I find theory data using the V0?
- Using V0 applications
- Looking in National projects V0 websites

V0 applications: VOSpec

The screenshot shows the VOSpec Server Selector application window. The window is titled "Server Selector" and is divided into several sections:

- Query by Service:** A tree view showing "SSA Services" and "Theoretical Spectra Services". Under "Theoretical Spectra Services", there is a list of 20 services, each with a checkbox. The status "Green services are online and support params selected" is displayed at the top of this section.
- Query Outlook:** A yellow box containing a "Refresh" button, an "Add SSA/TSA" button, and a "Select All SSA" checkbox. Below this is a scrollable list of URLs, all pointing to "http://svo.cab.inta-csic.es/theory/db2vo2/html/ssap.php?mode=hres".
- Query by params:** A large list of parameters including MTIME, APERTURE, VARAMPL, TIMERES, CREATORDID, FLUXCALIB, REDSHIF, REDSHIFL, TIME, TOP, TARGETCLASS, COLLECTION, SNR, RUNID, FORMAT, COMPRESS, BAND, MAXREC, PUBDID, and SPECPR. A "Tree" button is located at the top right of this list.
- Insert Param Value:** A section with the instruction "Point mouse on param label to see description". It contains a "Text Param" input field, an "Add" button, and "Query" and "Reset" buttons at the bottom.

V0 applications: TopCat



V0 applications (Indirect use): VizieR

The screenshot shows the VizieR web interface. On the left, a 'Server selector' window is open, displaying the 'VizieR catalog service' form. The 'Catalo...' field contains 'VI/109' and the 'Author, free text...' field contains 'tracks', which is highlighted with a red box. Below the form, a table lists 10 catalog(s) found:

Name	Category	Density	Description
VI/102	IR	0	Geneva stel
<input checked="" type="checkbox"/> VI/109	UV	0	Population
J/A+A/339/123	Radio	0	PSR J1012+5
J/A+A/361/1023	IR	0	Evolution m
J/A+AS/141/371	IR	0	Low-mass st

The main browser window displays the 'Detailed Description of VI/109' page. The title is 'VI/109 Population Synthesis Models at very low metallicities (Schaerer, 2003)'. The text describes the transition from Population III to normal galaxies, focusing on Ly α and HeII λ 1640 emission and ionising properties. The author is identified as Schaerer D. with the reference <Astron. Astrophys. 397, 527 (2003)> and a link to the paper: =2003A&A...397..527S. The page also includes ADC_Keywords, Keywords, and an Abstract.



VO applications (Indirect use): VizieR

Server selector

Others File all-VO FOV Sextractor

Image servers: Aladin images, SkyView, Sloan, MA

Catalog servers: Simbad, VizieR, All VizieR, Surveys, Missions

VizieR catalog service

Specify a target, and a catalog name or identification...

Target... Grab coord

Catalog... Radius...

All columns Whole catalog

... don't know which catalog? Select the potentially interesting ones with words/keywords!

Author, free text...

211 catalog(s) found

Name	Category	Density	Description
III/238	IR	0	Synthetic spectra in the near-IR (Munari+, 2000-20...
VI/76	optical	0	Simulation Atlas of Tidal Features in Galaxies (Ho...
VI/102	IR	0	Geneva stellar evolution tracks and isochrones (Le...
VI/109	UV	0	Population Synthesis Models at very low metallicit...
VI/120	IR	0	High-resolution synthetic stellar library (Coelho+...
VI/125	IR	0	Theoretical spectra of red giants and supergiants...
VIII/42	Radio	0	Texas Survey of radio sources at 365MHz (Douglas+...
J/ApJ/427/125	Radio	0	QSOs orientation modeling (Lister+ 1994)
J/ApJ/490/328	optical	0	"Mass Discrepancy" for Massive Stars (Burkholder+...
J/ApJ/613/200	optical	0	Hubble Higher z Supernova Search, HHZSS (Strolger+...
J/ApJ/619/755	IR	0	Modeling starburst SEDs (Dopita+, 2005)
J/ApJ/640/1018	IR	0	Differential photometry of V1061 Cyg (Torres+, 200...
J/ApJ/653/127	optical	0	9.7um silicate features in AGNs (Shi+, 2006)
J/ApJ/661/250	Radio	0	Molecular line survey of CRL 618 (Pardo+, 2007)
J/ApJ/664/458	X-ray	0	Spectral fit of ULX sources (Devi+, 2007)
J/ApJS/80/479	optical	0	Nearby galaxy flows (Tully+, 1992)
J/ApJS/142/1	optical	0	DEEP Groth Strip Survey. II. (Simard+, 2002)
J/ApJS/156/69	optical	0	MGGPOD Monte Carlo suite (Weidenspointner+, 2005)
J/ApJS/171/146	optical	0	Population synthesis in the blue. IV (Schiavon+, 2...
J/ApJS/172/615	optical	0	GALFIT result for GEMS galaxies (Haussler+, 2007)
J/ApJS/176/19	optical	0	COSMOS: strong lens systems (Faure+, 2008)

Buttons: Get info, SUBMIT, Reset, Close

V0 applications (Indirect use): VizieR

The screenshot shows the VizieR web interface. On the left, a 'Server selector' window is open, displaying a search for 'infrared' in the 'Author, free text...' field. The 'Catalogs' table below it lists various catalogs, with 'III/238' selected. The main browser window shows the 'Detailed Description of III/238' page, which includes a brief summary and a full description of the synthetic spectra library.

Server selector search results:

Name	Category	Density	Description
II/298	IR	0	AKARI/FIS
III/45	IR	0	Infrared
III/114	IR	0	Spectra
III/153	IR	0	An Atlas
III/156	optical	0	This c
III/181	IR	0	Near Inf
III/196	IR	0	Near-IR
III/197	IR	0	IRAS Lo
III/217	IR	0	Atlas of
III/219	optical	0	Spectral
III/237A	IR	0	Revised
<input checked="" type="checkbox"/> III/238	IR	0	Synthe
III/242	IR	0	ISO Ast
III/246	IR	0	First B
III/250	IR	0	The VIM
III/258	UV	0	Revised
V/18	Radio	0	Catalog
V/98	IR	0	MSX Inf
V/107	IR	0	This c

Detailed Description of III/238

Brief summary [ReadMe](#)

III/238 Synthetic spectra in the near-IR (Munari+, 2000-2001)

High resolution spectroscopy over 8500-8750Å for GAIA.
 II. A library of synthetic spectra for T(eff)≤7500K.
 III. A library of synthetic spectra for T(eff)≥7750K.
 Munari, U., Castelli, F.
 <Astron. Astrophys. Suppl. Ser. 141, 141 (2000);
 Astron. Astrophys. 366, 1003 (2001)>
 =2000A&AS..141..141M
 =2001A&A...366.1003C

ADC_Keywords: Spectroscopy ; Spectra, infrared ; Models

Keywords: atlases - stars: spectra - stars: general

Description:
 We present a library of 952 synthetic spectra characterized by $-2.5 \leq [Z/Z_{\text{sun}}] \leq +0.5$, $4.5 \leq \log g \leq -1.0$, $3500 \leq T(\text{eff}) \leq 50000\text{K}$, at a resolving power ($\lambda/\Delta\lambda$) of 20000 over the wavelength range 7650-8750Å. The wavelength range covers the near-IR Ca II triplet and the head of the hydrogen's Paschen series, the K I doublet (7664, 7699Å), the Na I doublet (8183, 8194Å) and the lines of Fe I multiplet N.60 at 8327 and 8388Å. The synthetic spectra are based on Kurucz's codes and line data.

National Host: Hungarian VO

The screenshot shows a web browser window with the URL <http://hvo.elte.hu/en/article.aspx?GUID=eaaa3a1f-8ed0-4406-a935-aadc29ec430c>. The browser's address bar and tabs are visible at the top. The website header includes the HVO logo and the text "Hungarian Virtual Observatory" and "Magyar Virtuális Obszervatórium". A navigation menu at the top right contains links for "home", "site-map", "contact us", "e-mail", and "magyar változat".

The main content area is titled "Photometric Redshift" and contains the following text:

Photometric Redshift

Photometric redshift estimation (photoz) service: The main limiting factor of astronomical observations is time. Instruments have to accumulate the sufficient number of photons to get usable signals. It is especially true for redshift estimation. Redshifts, which are used as the third coordinate – the distance from us – in cosmology are measured from spectrums. Measuring a spectrum is more time consuming than make a picture (photometry) of an astronomical object, for example SDSS will spend 80% of its observing time to get spectrum for 1 million objects, while in the remaining 20% it gets photometry for 100 million of them. In the last couple of years with other researchers we have developed a method, which is capable to estimate redshift from photometry. In this way we could increase with two orders of magnitude the number of objects with known distance. This method involves the connection of a spectrum template database (like the spectrum services above) and a photometry catalog (like the TB sized science archive of SDSS). We would like to run the estimation code on our servers, and provide the redshift estimation as a web service.

Utóljára módosítva: 2010. 05. 15. 12:56

The left sidebar contains a navigation menu with the following sections:

- about hvo**
- Hungarian Virtual Observatory
- projects**
- Spectrum Service for VO
- Synthetic Spectrum Service
- Photometric Redshift
- Linking WebServices to GRID clusters
- More VO ready databases
- Electronic journals in the VO
- Solar observations in the VO
- publications**
- Actual
- Archive
- people**
- Contact us

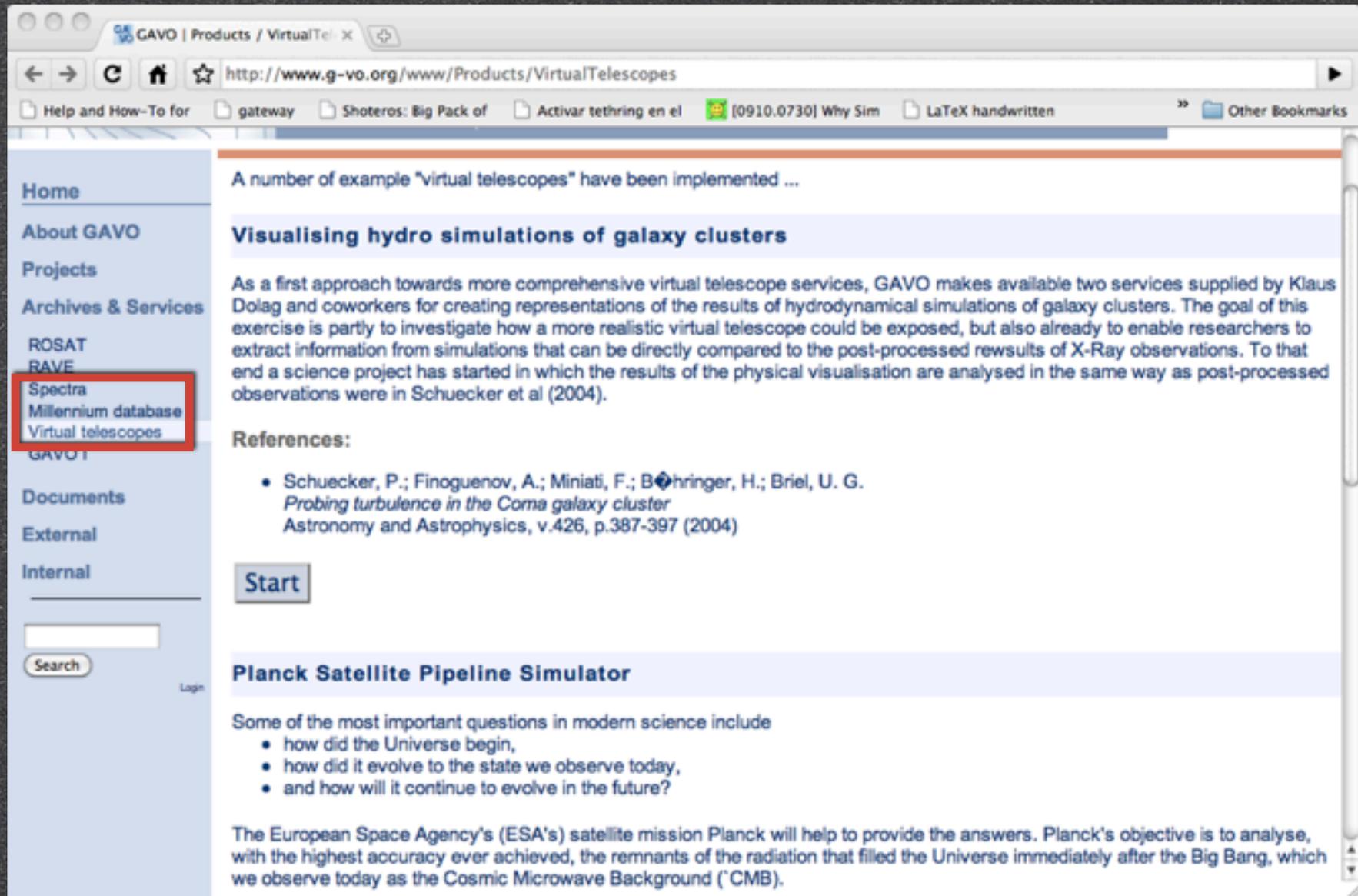
At the bottom of the page, there are links for "page top" and "printer friendly version".

National Host: Brazilian VO

The screenshot shows a web browser window with the address bar displaying <http://www.lna.br/bravo/bravoiag.html>. The browser's tab bar contains several open tabs, including 'BRA', 'Can', 'GAV', 'HVC', 'JVO', 'Kori', 'Web', 'www', 'RUS', 'VO', 'Virt', 'Arm', and 'Astr'. The website's main header features the text 'BRAVO-Brazilian Virtual Observatory' in a large, bold, white font against a dark blue background with abstract light patterns. Below the header is a navigation menu with buttons for 'Home', 'Projects', 'News', 'Links', and 'Documents'. The main content area is titled 'BRAVO@IAG' and lists several projects with brief descriptions: 'StarLight: This is a mirror of the Starlight webservice hosted at www.starlight.ufsc.br', 'GALExtin: galactic extinction tool. This tool allows for the determination of the extinction along a line of sight based in 2D and 3D extinction maps and/or models, given a list of coordinates (and distances, in the case of 3D data) provided by the user.', 'ZPhot: Photometric Redshift tool. This webservice allows for searching and comparing between independent determinations of photometric redshifts based on the SDSS data.', 'RedSpec: reddening an derreddening tool. This webservice reddens or derreddens a user-provided spectrum using several published extinction law.', and 'Be Atlas: Synthetic Spectral of Be Stars. This tool makes available to the community 70,000 synthetic spectra of Be stars. The atlas covers a wide range of parameters of the star and circumstellar disk. The webservice allows for searching the atlas, plotting different quantities and analysing user-provided data.' On the right side of the page, there is a vertical sidebar with a list of links: 'BRAVO@IAG', 'BRAVO@INPE', 'BRAVO@LNA', 'BRAVO@UFSC', and 'CYCLOPS'. The browser's address bar also shows several bookmarks, including 'Help and How-To for', 'gateway', 'Shoteross: Big Pack of', 'Activar tethring en el', '[0910.0730] Why Sim', 'LaTeX handwritten', and 'Other Bookmarks'.



National Host: German V0



The screenshot shows a web browser window with the URL <http://www.g-vo.org/www/Products/VirtualTelescopes>. The left sidebar contains a navigation menu with the following items: Home, About GAVO, Projects, Archives & Services, ROSAT, RAVE, Spectra, Millennium database, Virtual telescopes (highlighted with a red box), GAVO I, Documents, External, and Internal. Below the menu is a search box and a 'Login' link. The main content area features a heading 'Visualising hydro simulations of galaxy clusters' and a paragraph describing GAVO's services. A 'References:' section lists a paper by Schuecker et al. (2004). Below this is a 'Start' button and a section titled 'Planck Satellite Pipeline Simulator' with a list of questions about the universe's evolution.

National Host: Italian VO (dedicated page)

The screenshot shows a web browser window with the URL http://vobs.astro.it/index.php?option=com_content&task=view&id=20&Itemid=53. The page content includes:

evolutionary model data obtained running the FRANEC code. We show the possibility of visualizing theoretical results with VO-enabled astronomical tools, of comparing the results with astronomical observations.

The ITVO spread archive is part of a joint collaboration between Italian Institute for Astrophysics (INAF) and CINECA supercomputing center, developed inside the EURO-VO project as VO-TECH, VO-DCA and VO-AIDA.

ITVO theoretical data server

At the moment there are four servers available for request of data and services on that, they are:

- ▶ **ITVO@Trieste** (Trieste Astronomical Observatory);
- ▶ **ITVO@Catania** (Catania Astronomical Observatory);
- ▶ **ITVO@CINECA** (Bologna);
- ▶ **BaSTI** (Teramo Astronomical Observatory).

The data archive presently in the first three consists of the outcome of a set of high and cosmological simulations run with the three popular codes:

- ▶ **Gadget-2**, N-body + SPH code;
- ▶ **Enzo**, N-body AMR code;
- ▶ **FLY**, N-body code;

and in the BaSTI server there is the output of evolutionary stellar model produced with code:

- ▶ **FRANEC** (Frascati Raphson Newton Evolutionary Code).

ITVO theoretical data services

- ▶ Download,
- ▶ Preview, perform using VisIVO and Aladin that are VO tools;
- ▶ Cutout, select and perform by VisIVO tool;
- ▶ Graphics, produced using STILTS a VO tool;
- ▶ VOTable, creation of this VO standard data format.
- ▶ VisIVOWeb reachable at:
 1. ▶ <http://itvo.oact.inaf.it/vistvoserver2/> of ITVO@Catania;
 2. ▶ <http://palantir7.oats.inaf.it/vistvoweb/> of ITVO@Trieste;
 3. ▶ soon at ITVO@CINECA.

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National Host: French V0 (dedicated page)

http://www.france-ov.org/twiki/bin/view/GROUPEstravail/ObsVTheorie#TvoProjets

Projets en cours

- [GalMer \(Galaxy mergers\) database of HORIZON Project](#) (PI F. Combes)
- [GallCS database of HORIZON Project](#) (PI J. Blaizot)
- [PhotoDissociationRegion \(PDR\) simulations](#) (PI F. LePetit)
- [Besancon model of the Galaxy](#) (PI A. Robin)
- [GallCS \(old version\)](#) (PI B. Guiderdoni)
- [HORIZON](#) (PI R. Teyssier)
- [Atomic and molecular databases](#) (PI M.-L. Dubernet)
- [Paris Observatory Theory portal](#) (PI F. LePetit)

Exposés

- [Session parallèle Ecole d'Obervial 7-9 nov 2005](#), compte-rendu de H. Wozniak
- [Forum ASSNA 15 dec 2003](#), exposé de H. Wozniak
- [tvoPNG18Jun2004.pdf](#): Exposé [SF2A/PNG](#) sur le TVO 18 Juin 2004

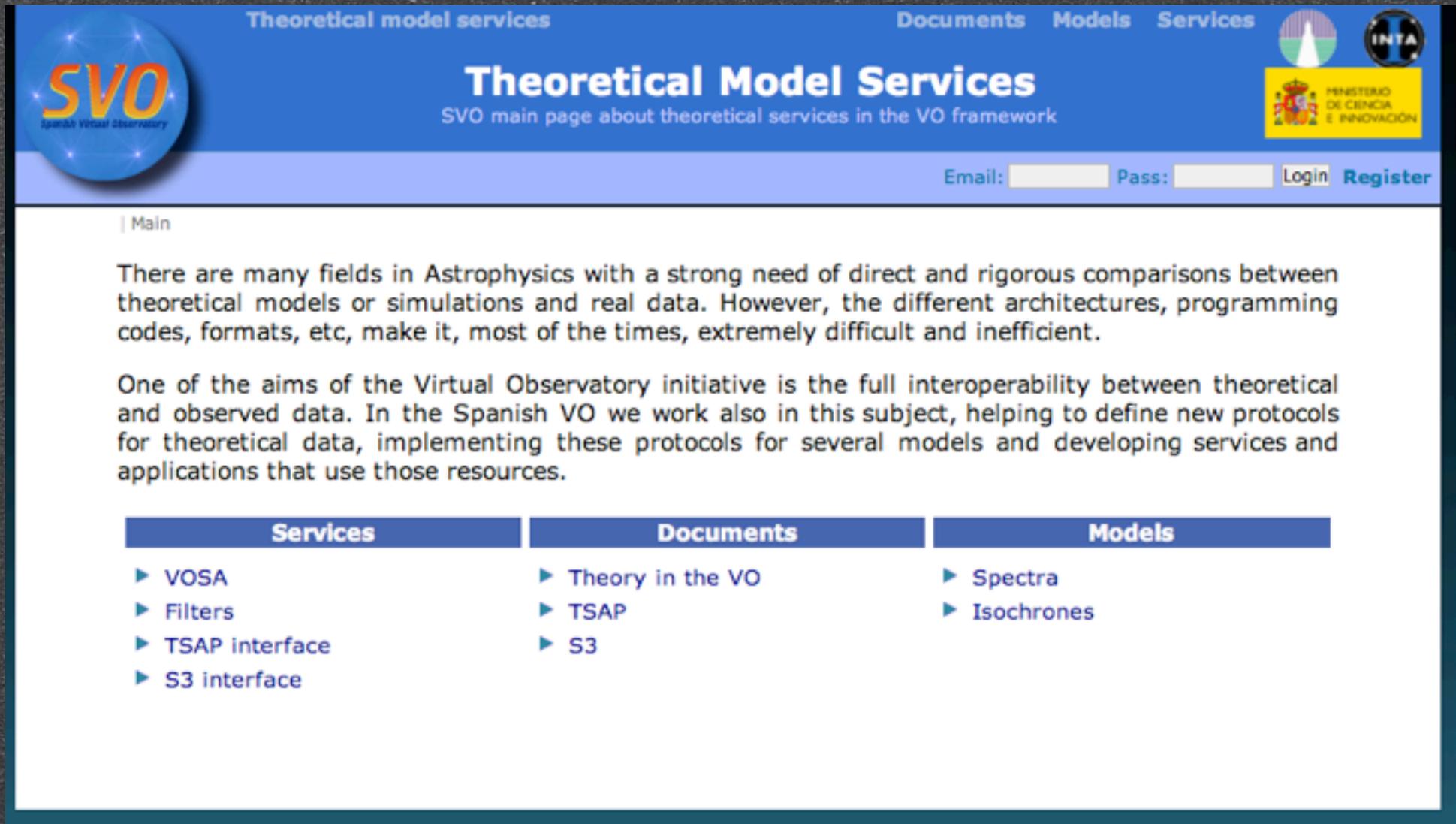
Articles

- [H. Wozniak, SF2A Scientific Highlights 2004](#), F. Combes et al. (eds.), Edp-Sciences, Conference Series, p.XXX."The Theoretical Virtual Observatory"

Activités Internationales

- [IVOA Theory Working Group](#)
- [Theory WorkPackage de Euro-VO DCA](#)

National Host: Spanish VO (dedicated page)



Theoretical model services Documents Models Services

Theoretical Model Services

SVO main page about theoretical services in the VO framework

Email: Pass: [Login](#) [Register](#)

| Main

There are many fields in Astrophysics with a strong need of direct and rigorous comparisons between theoretical models or simulations and real data. However, the different architectures, programming codes, formats, etc, make it, most of the times, extremely difficult and inefficient.

One of the aims of the Virtual Observatory initiative is the full interoperability between theoretical and observed data. In the Spanish VO we work also in this subject, helping to define new protocols for theoretical data, implementing these protocols for several models and developing services and applications that use those resources.

Services	Documents	Models
<ul style="list-style-type: none">▶ VOSA▶ Filters▶ TSAP interface▶ S3 interface	<ul style="list-style-type: none">▶ Theory in the VO▶ TSAP▶ S3	<ul style="list-style-type: none">▶ Spectra▶ Isochrones

Some conclusions

- There is more theoretical data available than its supposed (although no V0 complain except as V0Table)...
- ... but they are not visible as V0
 - Just few applications use a few of the available services (VOSpec, TopCat), but there is also non-trivial access using other ones (VizieR using Aladin and TopCat)
 - There is much more services looking in National host V0 projects, although just few Web services states that the a V0 ones explicitly
- V0 must be transparent to users, ok, but users must know that they use the V0 (if we want to evaluate any V0 impact in the astronomical community). **Any suggestion about how to solve this?**