

FORUM VO 2014

ACCES AUX DONNEES DE PHYSIQUE ATOMIQUE ET
MOLECULAIRE



Laboratoire d'Étude du Rayonnement et de la Matière en Astrophysique



Utiliser les données de physique A & M

- Les données des différents services sont stockées dans des bases relationnelles (amélioration des fonctions de recherche, intégration à VAMDC)
- Elles sont accessibles de 2 façons :
 - Site web classique
 - Service VAMDC-TAP lorsqu'il a été implémenté
- Utiliser les accès VAMDC de ces bases de données permet de profiter des outils développés spécifiquement
- Les services disponibles sont listés dans le registry VAMDC (registry.vamdc.eu)
- C'est le point d'accès central qu'utilisent les éléments de l'infrastructure VAMDC :
 - Le portail : site web permettant d'interroger toutes les bases simultanément avec une requête identique
 - Specview : application dédiée à la visualisation de spectres 1D, développée au STSCI étendue avec fonctionnalités VAMDC pour l'identification de raies
 - Spectcol : application permettant d'extraire et de combiner des taux de collisions et des coefficients d'Einstein provenant de diverses sources

Le portail VAMDC (portal.vamdc.eu)

- Accès unifié aux bases de données de physique atomique et moléculaire
- Principales fonctionnalités :
 - Liste les bases de données disponibles (actuellement 27 dont 5 de l'Observatoire de Paris et les principales bases de spectroscopie : CDMS, JPL, VALD)

[Home](#)
[VAMDC databases](#)
[Query](#)
[Saved queries](#)
 |
 [Info](#)
[Known issues](#)
[Feedback](#)

[Login](#)
[Register](#)

Name	Description	Maintainer	Status	Available species
Chianti	Chianti consists of a critically evaluated set of up-to-date atomic data, together with user-friendly programs written in Interactive Data Language (IDL), to analyse the spectra from astrophysical plasmas. The VAMDC interface presents just the data from the Chianti-v7 release.	gtr@ast.cam.ac.uk	OK	Show
GSMA Reims S&MPO	Calculated line lists for ozone (16O3, 16O18O16O and 18O3). The data on methane contain the vibration-rotation energy levels, line positions and line strengths in the range from 0 to 8000 cm-1.	ylb@iao.ru, vladimir.tyuterev@univ-reims.fr	OK	Show
ECaSDa - Ethene Calculated Spectroscopic Database	Calculated data of ethylene (12C2H4). The data on ethylene contain the vibration-rotation energy levels, line positions and line intensities in the range from 500 to 7500 cm-1	ludovic.daumont@univ-reims.fr, maud.rotger@univ-reims.fr	OK	Show
GhoSST	The GhoSST database ("Grenoble Astrophysics and Planetology Solid Spectroscopy and Thermodynamics" database service) provides laboratory data on spectra (from UV to FIR) of natural and synthetic solids (ices, molecular solids, minerals, salts, inorganic materials, organic materials, meteorites, adsorbed molecules, hydrated solids,?) of space sciences, Earth sciences and astrophysical interest. It is completed with band list data (NIR to FIR) on molecular solids and adsorbed/hydratation molecules. The GhoSST data come from laboratory experiments performed since 1989 at IPAG (and formerly at LGGE and LPG) with different spectroscopy techniques (transmission, bidirectional reflection, micro-spectroscopy, ATR, Raman, Fluorescence, ...).	damien.albert@obs.ujf-grenoble.fr	OK	Show
Stark-b	Database for "Stark" broadening of isolated lines of atoms and ions in the impact approximation	sylvie.sahal-brechot@obspm.fr	OK	Show
JPL database: VAMDC-TAP service	The JPL database contains a catalog of radio frequency and microwave to far-infrared spectral lines of atomic and molecular species that (may) occur in the interstellar or circumstellar medium or in planetary atmospheres. The catalog is continuously updated. THIS IS JUST FOR DEVELOPMENT	endres@ph1.uni-koeln.de	OK	Show

Le portail VAMDC (portal.vamdc.eu)

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- Principales fonctionnalités :
 - Liste les bases de données disponibles (actuellement 27 dont 5 de l'Observatoire de Paris et les principales bases de spectroscopie : CDMS, JPL, VALD)
 - **Liste les espèces disponibles dans chaque base de données**

[Home](#) [VAMDC databases](#) [Query](#) [Saved queries](#) | [Info](#) [Known issues](#) [Feedback](#)

CDMS species

[Go to molecules](#)

Atoms				
Element symbol	Nuclear charge	Ion charge	InChI	InChIKey
Al	13	0	1/Al	XAGFODPZIPBFFR-UHFFFAOYNA-N (Search in NIST database)
C	6	0	1S/C	OKTJSMMVPCPJKN-UHFFFAOYSA-N (Search in NIST database)
C	6	0	1S/C/i1+1	OKTJSMMVPCPJKN-OUBTZVSYSA-N (Search in NIST database)
C	6	1	1S/C/q+1	GKDCRJWYAGBLFY-UHFFFAOYSA-N (Search in NIST database)
C	6	1	1S/C/q+1/i1+1	GKDCRJWYAGBLFY-OUBTZVSYSA-N (Search in NIST database)
Fe	26	0	1/Fe	XEEYBQQBJWHFJM-UHFFFAOYNA-N (Search in NIST database)
Fe	26	1	1/Fe/q+1	WZGNVVUXVXNNOX-UHFFFAOYNA-N (Search in NIST database)
N	7	1	1S/N/q+1	DELRCXTYJVVNEW-UHFFFAOYSA-N (Search in NIST database)
O	8	0	1S/O	QVGXLLKOCUKJST-UHFFFAOYSA-N (Search in NIST database)
S	16	0	1S/S	NINIDFKCEFEMDL-UHFFFAOYSA-N (Search in NIST database)
Si	14	0	1S/Si	XUIMIQQOPSSXEZ-UHFFFAOYSA-N (Search in NIST database)
Si	14	1	1S/Si/q+1	FSLGCYNKXXIWGJ-UHFFFAOYSA-N (Search in NIST database)

Le portail VAMDC (portal.vamdc.eu)

- Accès unifié aux bases de données de physique atomique et moléculaire
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 - Liste les espèces disponibles dans chaque base de données
 - **Permet de contruire et d'exécuter des requêtes au format VAMDC**

The screenshot displays the VAMDC portal interface. At the top, there is a navigation bar with links: Home, VAMDC databases, Query, Saved queries, Info, Known issues, and Feedback. On the left, a 'Query by...' sidebar lists categories: Species, Processes, Environment, and Advanced. The main search area is divided into two sections: 'Molecule 1' and 'Radiative'. The 'Molecule 1' section has fields for Chemical name (Dihydrogen), Stoichiometric formula (H2), Structural formula (H2), Spin isomer, and Standard InChIKey (UFHFLCQGNIYNRP - UHFFFAOYSA - N). The 'Radiative' section includes a 'Wavelength' dropdown set to 'A' with a range of 1075 to 1080, and fields for 'Upper state energy', 'Lower state energy', and 'Probability, A'. On the right, a 'Legend' box explains color coding: green for 'available, can answer', grey for 'available, don't support query', and red for 'unsupported keyword'. Below the legend is a list of 27 databases, each with a folder icon and a status indicator (green or red).

Home VAMDC databases Query Saved queries | Info Known issues Feedback

Query by...
Species
Processes
Environment
Advanced

Molecule 1 Clear Remove «
Chemical name Dihydrogen
Stoichiometric formula H2
Structural formula H2
Spin isomer
Standard InChIKey UFHFLCQGNIYNRP - UHFFFAOYSA - N

Radiative Clear Remove «
Wavelength 1075 to 1080 A
Equivalent Wavelength Wavelength from 1075.0 to 1080.0A
Upper state energy to 1/cm
Equivalent to 1/cm
Lower state energy to 1/cm
Equivalent to 1/cm
Probability, A to 1/s

Find data Save query

Legend
available, can answer
available, don't support query
unsupported keyword

- Chianti
- GSMA Reims S&MPO
- ECaSDa - Ethene Calculated Spectroscopic Database
- GhoSST
- Stark-b
- JPL database: VAMDC-TAP service
- HITRAN-UCL resource
- VALD sub-set in Moscow (obs)
- RADAM - Ion Interactions
- ALADDIN2
- MeCaSDa - Methane Calculated Spectroscopic Database
- VALD (atoms)
- VAMDC species-DB
- OACT - LASP Database
- TOPbase : VAMDC-TAP interface
- DESIRE database (Moscow mirror)
- BASECOL: VAMDC-TAP interface
- UMIST Database for Astrochemistry
- IDEADB - Innsbruck Dissociative Electron Attachment Database
- TIPbase : VAMDC-TAP interface
- CDMS

Utilisation du portail : construire la requête 1/4

The image shows a navigation bar with the following links: Home, VAMDC databases, Query, Saved queries, Info, Known issues, and Feedback. Below the navigation bar is a dropdown menu titled "Query by...". The menu contains four main categories: Species, Processes, Environment, and Advanced. The "Processes" category is expanded, showing three sub-options: Atom, Molecule, and Particle. The "Molecule" option is highlighted with an orange background.

Query by...	
Species	Atom
Processes	Molecule
Environment	Particle
Advanced	

Utilisation du portail : construire la requête 2/4

Home VAMDC databases Query Saved queries | Info Known issues Feedback

Query by...

- Species
- Processes
- Environment
- Advanced

Molecule 1 Clear Remove «

Chemical name

Stoichiometric formula

Structural formula

Spin isomer

Standard InChIKey

Utilisation du portail : construire la requête 3/4

Home VAMDC databases Query Saved queries | Info Known issues Feedback

Query by...

- Species
- Processes**
- Environment
- Advanced

Radiative
Collision

Molecule 1 Clear Remove «

Chemical name

Empirical formula

Structural formula

Spin isomer

Standard InChIKey

Utilisation du portail : construire la requête 4/4

Home VAMDC databases Query Saved queries | Info Known issues Feedback

Query by...
Species
Processes
Environment
Advanced

Molecule 1 Clear Remove «

Chemical name Dihydrogen

Stoichiometric formula H2

Structural formula H2

Spin isomer

Standard InChIKey UFHFLCQGNIYNRP-UHFFFAOYSA-N

Radiative Clear Remove «

Wavelength 1075 to 1080 A
Equivalent Wavelength Wavelength from 1075.0 to 1080.0A

Upper state energy to 1/cm

Equivalent to 1/cm

Lower state energy to 1/cm

Equivalent to 1/cm

Probability, A to 1/s

Utilisation du portail : résultats 1/4

1 : Query Execution

Done

Modify query

Stop waiting

Save query

select * where (RadTransWavelength >= 1075.0 AND RadTransWavelength <= 1080.0) AND ((InchiKey = 'UFHFLCQGNIYNRP-UHFFFAOYSA-N'))

Comments

3 : Results Conversion (select in table below)

- BibTeX from XSAMS
- Table views of XSAMS
- Xsams2SME
- Atomicxsams2HTML
- Molecular Spectroscopy XSAMS to HTML
- XSAMS multiplexor

Process

2 : Results by node

Name	Convert	Response	Download	Species	States	Processes	Radiative	Collisions	Non Radiative
SpEctroScopy of Atoms and Molecules	<input type="checkbox"/>	OK	XSAMS	1	426	311	311	0	0
GhoSST	<input type="checkbox"/>	OK	XSAMS	0	0	0	0	0	0
Water internet Accessible Distributed Information System	<input type="checkbox"/>	OK (06/12/2012 18:00)	XSAMS	0	0	0	0	0	0
JPL database: VAMDC-TAP service	<input type="checkbox"/>	TRUNCATED (02/07/2014 11:19) (1%)	XSAMS	0	0	0	0	0	0
CDMS	<input type="checkbox"/>	TRUNCATED (02/07/2014 11:19) (1%)	XSAMS	0	0	0	0	0	0
DESIRE database (Moscow mirror)		EMPTY		0	0	0	0	0	0
TOPbase : VAMDC-TAP interface		EMPTY		0	0	0	0	0	0
Carbon Dioxide Spectroscopic Databank 1000K (VAMDC-TAP)		EMPTY		0	0	0	0	0	0
Carbon Dioxide Spectroscopic Databank 296K (VAMDC-TAP)		EMPTY		0	0	0	0	0	0

Utilisation du portail : résultats 2/4

- On transforme les résultats en utilisant un processeur

1 : Query Execution

Done

select * where (RadTransWavelength >= 1075.0 AND RadTransWavelength <= 1080.0) AND ((InchiKey = 'UFHFLCQGNIYNRP-UHFFFAOYSA-N')

Comments

3 : Results Conversion (select in table below)

- BibTeX from XSAMS
- Table views of XSAMS
- Xsams2SME
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- Molecular Spectroscopy XSAMS to HTML
- XSAMS multiplexor

XSAMS processor converting a XSAMS file containing molecular spectroscopy data into a HTML file

2 : Results by node

Name	Convert	Response	Download	Species	States	Processes	Radiative	Collisions	Non Radiative
SpEctroScopy of Atoms and Molecules	<input checked="" type="checkbox"/>	OK	XSAMS	1	426	311	311	0	0
GhoSST	<input type="checkbox"/>	OK	XSAMS	0	0	0	0	0	0
Water internet Accessible Distributed Information System	<input type="checkbox"/>	OK (06/12/2012 18:00)	XSAMS	0	0	0	0	0	0
JPL database: VAMDC-TAP service	<input type="checkbox"/>	TRUNCATED (02/07/2014 11:19) (1%)	XSAMS	0	0	0	0	0	0
CDMS	<input type="checkbox"/>	TRUNCATED (02/07/2014 11:19) (1%)	XSAMS	0	0	0	0	0	0
DESIRE database (Moscow mirror)		EMPTY		0	0	0	0	0	0
TOPbase : VAMDC-TAP interface		EMPTY		0	0	0	0	0	0
Carbon Dioxide Spectroscopic Databank 1000K (VAMDC-TAP)		EMPTY		0	0	0	0	0	0
Carbon Dioxide Spectroscopic Databank 296K (VAMDC-TAP)		EMPTY		0	0	0	0	0	0
MeCaSDa - Methane Calculated Spectroscopic Database		EMPTY		0	0	0	0	0	0
HITRAN-UCL resource		EMPTY		0	0	0	0	0	0

Les processeurs XSAMS

- Ce sont des services web qui transforment un ou plusieurs fichiers XSAMS en entrée en un unique fichier de sortie (qui aura un format quelconque, XML, HTML, texte ...)
- Ils sont enregistrés dans le registry VAMDC
- Ils ont deux objectifs :
 - Simplifier l'utilisation des fichiers XSAMS en les rendant plus faciles à lire
 - Combiner / Comparer des fichiers (rechercher des transitions identiques dans des bases de données différentes par exemple)
- Ils sont accessibles depuis le portail VAMDC ou via une adresse qui leur est propre

Utilisation du portail : résultats 3/4

- Conversion de données moléculaires en page HTML

Sources

Id	Title	Origin	Authors	Year	Link
Bsesam-3		journal (Vol : 72)	Abgrall, H.; Roueff, E.; Launay, F.; Roncin, J.-Y;	1994	

Results from sesam VAMDC node

Unselect all	Stoichiometric formula X	Wavelength(A) X	Transition reference X	Wavenumber X	Oscillator Strength X	Lower energy(1/cm) X	Lower QNs X	Upper energy(1/cm) X	Upper QNs X
<input checked="" type="checkbox"/>	H2	1075.0100	Bsesam-3	93022.2600	0000.0028	14493.5400	case:ElecStateLabel=X case:v=2 case:J=11	107515.8000	case:ElecStateLabel=C case:elecInv=u case:elecRefl=+ case:Lambda=1 case:S=0 case:v=2 case:J=12 case:kronigParity=e
<input checked="" type="checkbox"/>	H2	1075.0300	Bsesam-3	93020.9200	0000.0007	8722.7000	case:ElecStateLabel=X case:v=2 case:J=3	101743.6200	case:ElecStateLabel=C case:elecInv=u case:elecRefl=- case:Lambda=1 case:S=0 case:v=1 case:J=3 case:kronigParity=f
<input checked="" type="checkbox"/>	H2	1075.0900	Bsesam-3	93015.2100	0000.0001	23750.8500	case:ElecStateLabel=X case:v=6 case:J=7	116766.0600	case:ElecStateLabel=B case:elecInv=u case:elecRefl=+ case:Lambda=0 case:S=0 case:v=30 case:J=6 case:kronigParity=e
<input checked="" type="checkbox"/>	H2	1075.1200	Bsesam-3	93012.5000	0000.0056	12584.7200	case:ElecStateLabel=X case:v=2 case:J=9	105597.2200	case:ElecStateLabel=B case:elecInv=u case:elecRefl=+ case:Lambda=0 case:S=0 case:v=13 case:J=8 case:kronigParity=e

Utilisation du portail : résultats 4/4

- Possibilité d'export en format texte des données sélectionnées
- Possibilité d'envoyer les données vers d'autres applications grâce au protocole SAMP (protocole de l'IVOA pour l'echange de données entre applications)

Actions

Reset pa

File Views Graphics Joins Windows VO Interop Help

Table List

1: table_1

Current Table Properties

Label: table_1
 Location: Xsams processor:table_1
 Name: table_1
 Rows: 311
 Columns: 13
 Sort Order: ↑
 Row Subset: All
 Activation Action: (no acti

SAMP

Messages:

90 / 1750 M

Source

Id

Bsesam

Results from sesa

Unselect all

Stoichiometric formula

Ordinary structural formula

Wavelength(A)

X

X

X

H2

H2

1075.0100

TOPCAT(1): Table Browser

File Subsets Help

Table Browser for 1: table_1

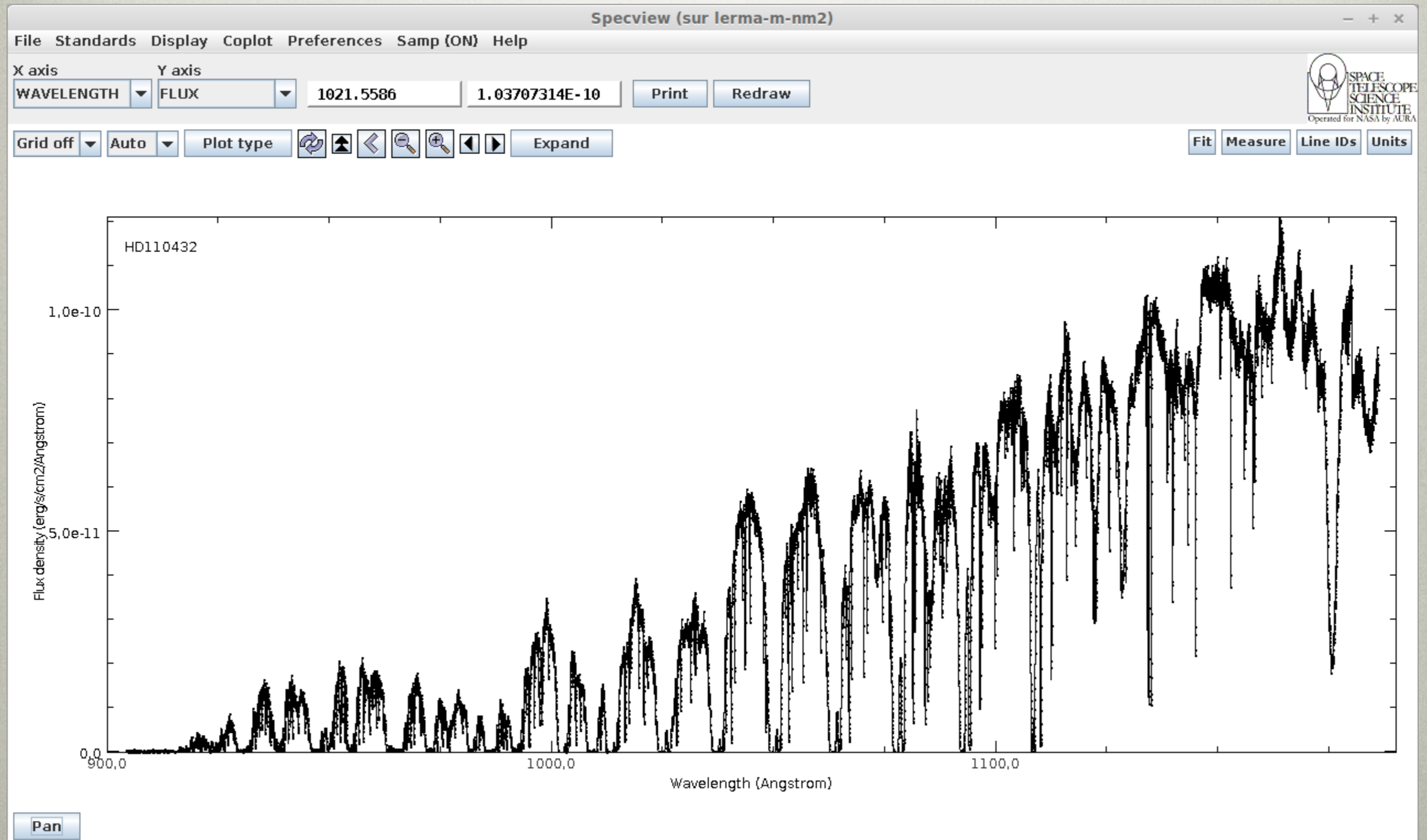
	Stoichi...	Ordina...	Wavelength(A)	Transition...	Wavenumber	A	Oscillator...	Lower energy...	Lower total ...	Lower QNs
1	H2	H2	1075,01	Bsesam-3	93022,26	1,490790E7	0,0028	14493,54	69,	case:ElecStateLabel=X case:v=2 case:j=11
2	H2	H2	1075,03	Bsesam-3	93020,92	4,068510E6	0,0007	8722,7	21,	case:ElecStateLabel=X case:v=2 case:j=3
3	H2	H2	1075,09	Bsesam-3	93015,21	3,863070E5	0,0001	23750,85	45,	case:ElecStateLabel=X case:v=6 case:j=7
4	H2	H2	1075,12	Bsesam-3	93012,5	3,640190E7	0,0056	12584,72	57,	case:ElecStateLabel=X case:v=2 case:j=9
5	H2	H2	1075,15	Bsesam-3	93009,85	2,972650E7	0,0042	19807,	33,	case:ElecStateLabel=X case:v=5 case:j=5
6	H2	H2	1075,17	Bsesam-3	93008,61	2,355100E7	0,0032	12778,82	9,	case:ElecStateLabel=X case:v=3 case:j=4
7	H2	H2	1075,19	Bsesam-3	93006,79	7,246450E6	0,0014	20894,89	45,	case:ElecStateLabel=X case:v=5 case:j=7
8	H2	H2	1075,21	Bsesam-3	93005,44	6,156200E5	0,0001	23209,76	13,	case:ElecStateLabel=X case:v=6 case:j=6
9	H2	H2	1075,24	Bsesam-3	93002,38	4,530680E7	0,0093	1740,19	33,	case:ElecStateLabel=X case:v=0 case:j=5
10	H2	H2	1075,29	Bsesam-3	92998,53	7,712890E7	0,0141	16304,81	37,	case:ElecStateLabel=X case:v=0 case:j=18
11	H2	H2	1075,29	Bsesam-3	92998,52	1,442510E7	0,0027	22834,47	81,	case:ElecStateLabel=X case:v=4 case:j=13
12	H2	H2	1075,29	Bsesam-3	92998,34	5,116990E7	0,0085	23719,89	129,	case:ElecStateLabel=X case:v=1 case:j=21
13	H2	H2	1075,31	Bsesam-3	92996,06	7,858520E6	0,0013	22170,5	45,	case:ElecStateLabel=X case:v=0 case:j=22
14	H2	H2	1075,32	Bsesam-3	92995,69	3,329490E6	0,0005	25013,57	57,	case:ElecStateLabel=X case:v=6 case:j=9
15	H2	H2	1075,34	Bsesam-3	92994,17	2,223780E7	0,0116	11782,39	1,	case:ElecStateLabel=X case:v=3 case:j=0
16	H2	H2	1075,37	Bsesam-3	92991,03	6,398340E6	0,001	20161,71	33,	case:ElecStateLabel=X case:v=2 case:j=16
17	H2	H2	1075,4	Bsesam-3	92988,78	32994,6	0,	22332,86	9,	case:ElecStateLabel=X case:v=6 case:j=4
18	H2	H2	1075,41	Bsesam-3	92987,54	2,949660E7	0,0051	24320,91	105,	case:ElecStateLabel=X case:v=3 case:j=17
19	H2	H2	1075,42	Bsesam-3	92986,52	94793,2	0,	24691,6	25,	case:ElecStateLabel=X case:v=5 case:j=12
20	H2	H2	1075,43	Bsesam-3	92985,73	1,904720E7	0,0037	21542,12	17,	case:ElecStateLabel=X case:v=5 case:j=8
21	H2	H2	1075,44	Bsesam-3	92985,49	1,778790E7	0,0034	8007,58	17,	case:ElecStateLabel=X case:v=1 case:j=8
22	H2	H2	1075,45	Bsesam-3	92984,33	5,711650E5	0,0001	25228,55	41,	case:ElecStateLabel=X case:v=2 case:j=20
23	H2	H2	1075,47	Bsesam-3	92982,9	1,295220E7	0,002	19256,38	57,	case:ElecStateLabel=X case:v=4 case:j=9

Specview (http://www.stsci.edu/institute/software_hardware/specview)

- Specview est un outil dédié à la visualisation de spectre 1D
- C'est une application Java développée au STSCI
- Elle a été étendue dans le cadre du projet VAMDC
- Elle a été choisie car elle proposait déjà une fonction d'identification de raies
 - Via des fichiers locaux de données
 - Via le protocole SLAP de l'IVOA (protocole dédié à la recherche de raies dans les bases de données mais peu usité)
- Specview peut accéder à la même liste de services que le portail

Visualisation d'un spectre

➤ On charge un spectre au format FITS, ici HD 110432



Visualisation d'un spectre

- Plusieurs moyens d'ouvrir un spectre :
 - Ouvrir directement le fichier
 - Via le protocole SAMP (par exemple depuis la base APIS)
 - Rechercher des spectres en utilisant le protocole SSA
 - Specview intègre une interface pour interroger les services SSA disponibles

Visualisation d'un spectre

- Plusieurs moyens d'ouvrir un spectre :
 - Ouvrir directement le fichier
 - Via le protocole SAMP (par exemple depuis la base APIS)
 - Rechercher des spectres en utilisant le protocole SSA
 - Specview intègre une interface pour interroger les services SSA disponibles

The screenshot shows the 'VO Download' application window. It features several sections for user input and a table of servers.

Object

Name: Resolve Resolver: SIMBAD Names via CADC ▼

Search region

R.A. (hour): Radius (arcmin): 10.0
Dec. (degree):

Additional parameters

Minimum wavelength (Angstroms): Minimum time:
Maximum wavelength (Angstroms): Maximum time:

Search

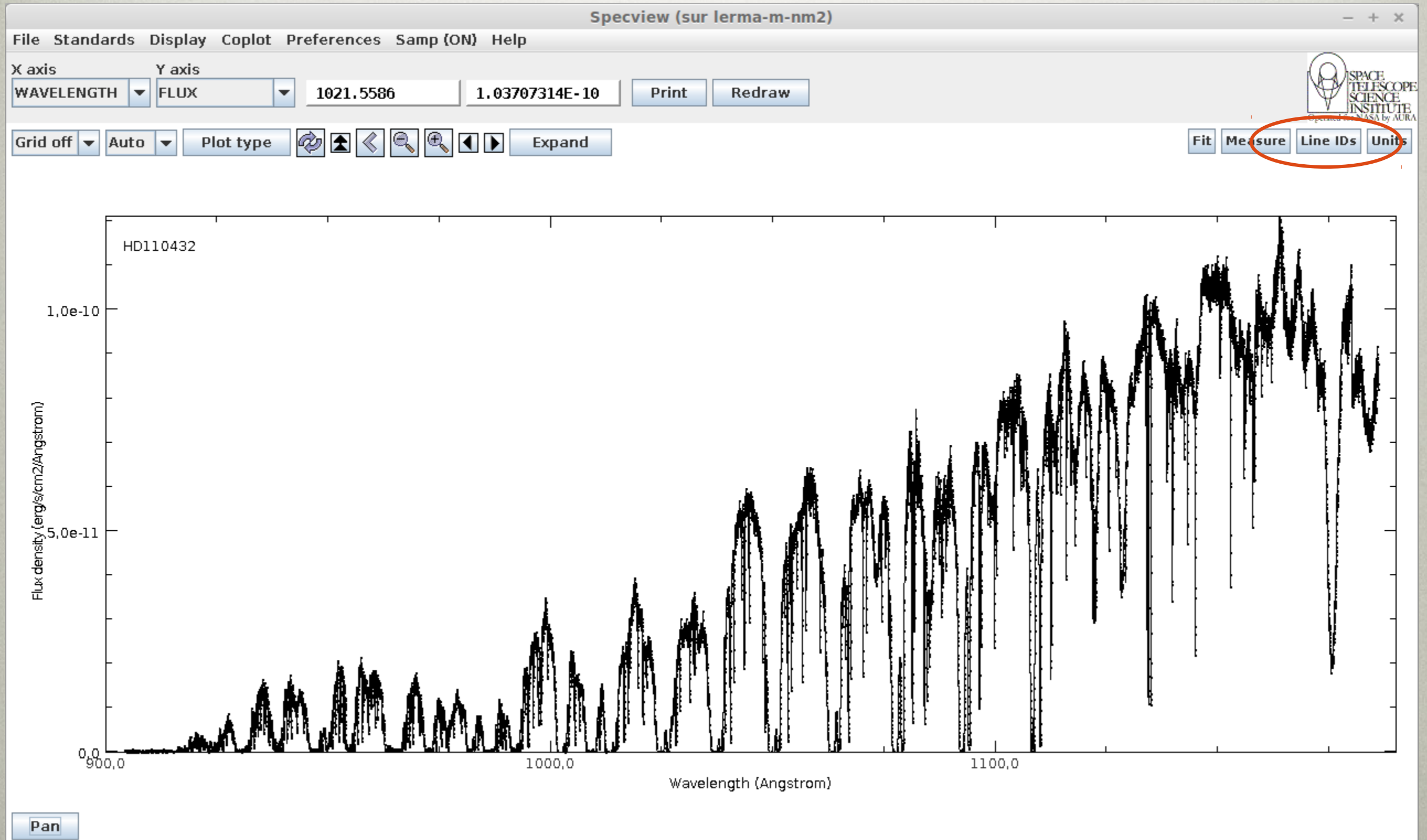
Servers

Name	Status	Description
6dF Spectra		6dF DR3 Simple Spectra Access (#Optica...
BeSS_SSAP		Be Star Spectra SSAP (#Radio#Millimete...
HST.FOS Spectra		Hubble Space Telescope Faint Object Sp...
ELODIEinterp		Spectrum interpolator for the ELODIE libr...
ELODIE		ELODIE archive
WUPPE		Wisconsin Ultraviolet Photo-Polarimeter E...
CENCOS-WDS_DEEP		CENCOS-WDS_DEEP SSA (WDS Deep s...
HST.GHR Spectra		Hubble Space Telescope Goddard High R...
HFA SSA		HyperLeda FITS Archive Simple Spectrum...
BeSS		Be Star Spectra (#Optical#UV#)

Search results
6dF Spectra

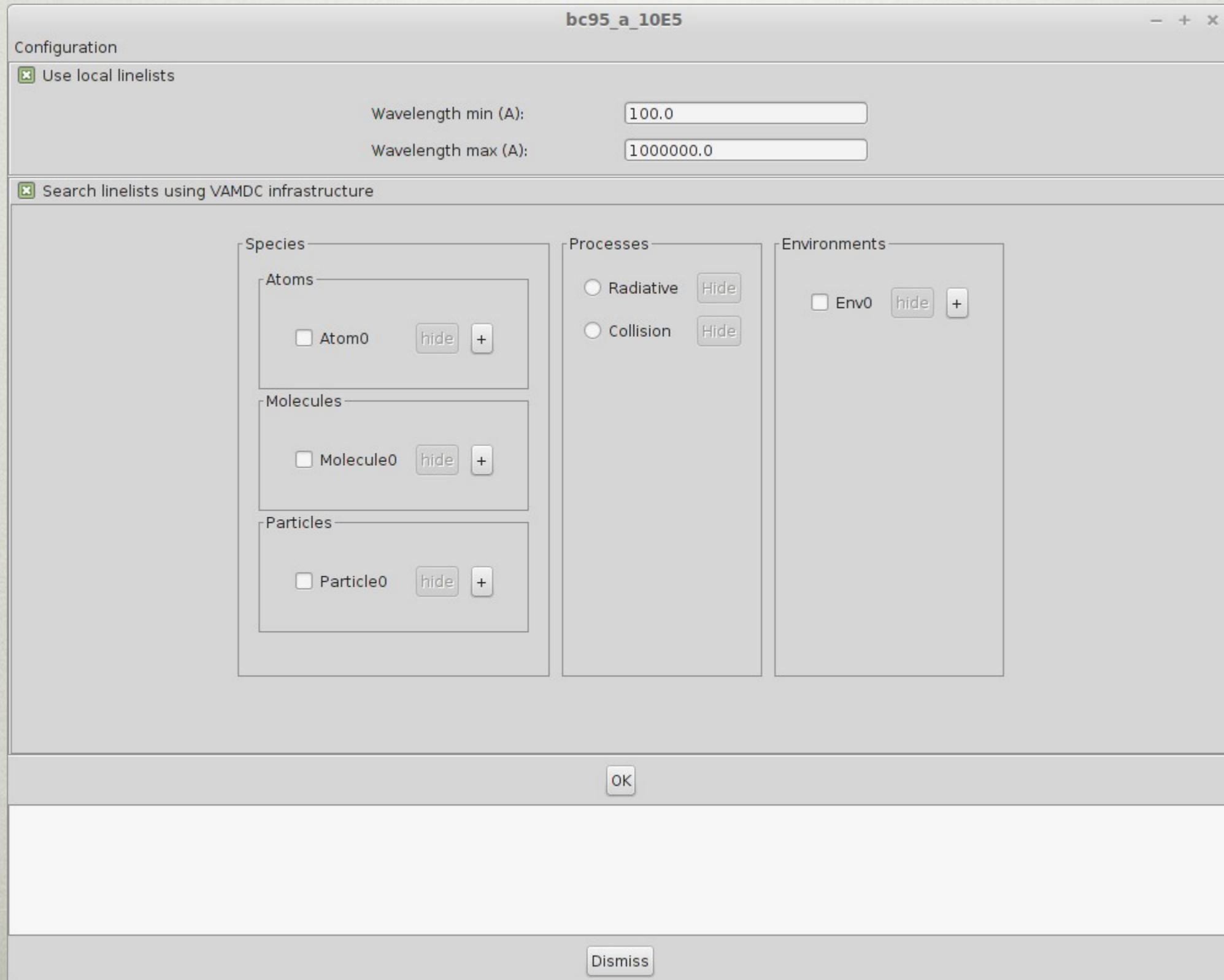
Visualisation d'un spectre

➤ On charge un spectre FITS d'un objet, ici HD 110432



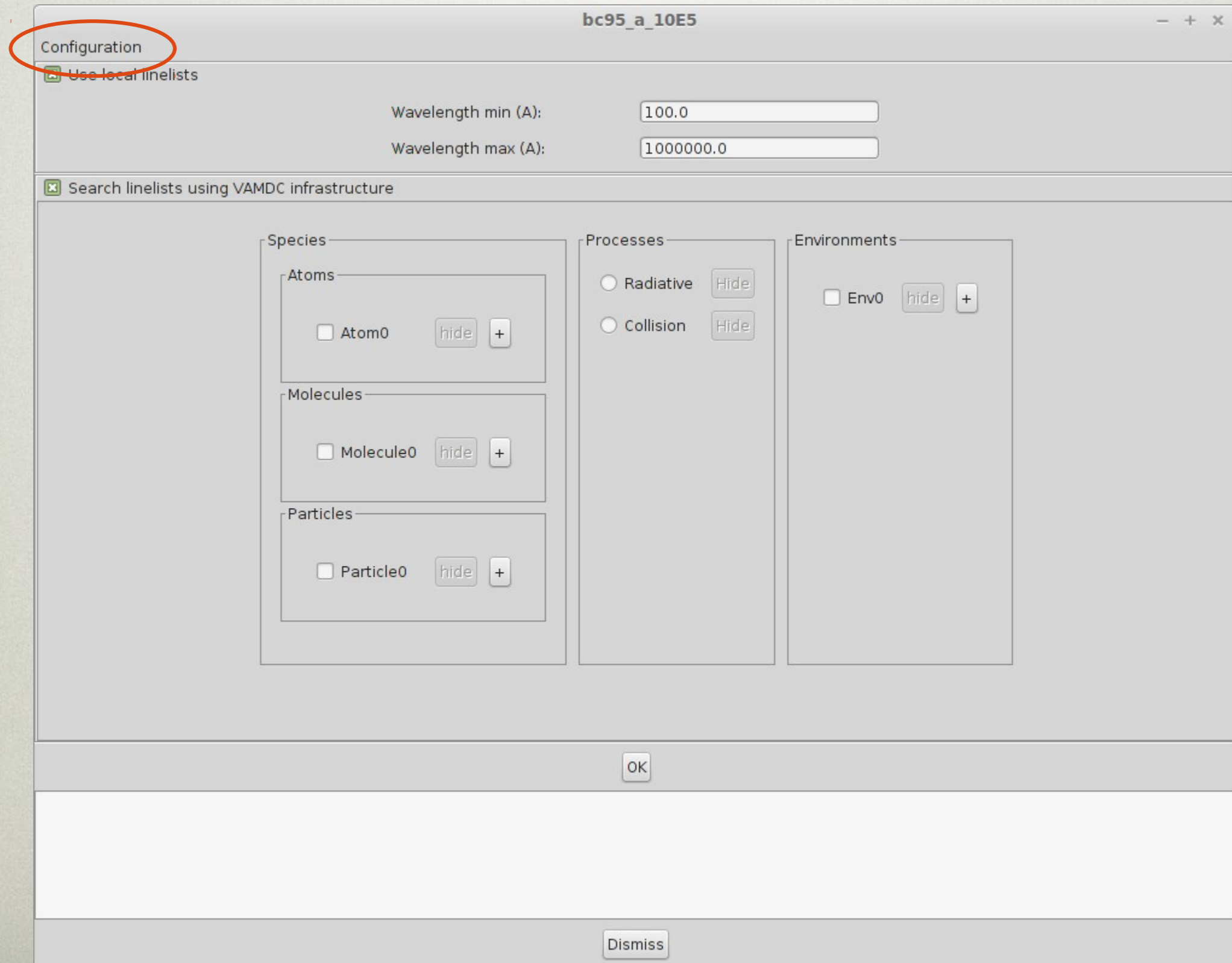
Identification de raies

- On ouvre l'interface d'identification de raies
- Cette interface est un composant Java qui peut être facilement intégrée ailleurs



Identification de raies

➤ On configure la liste des services à interroger



Identification de raies

➤ On configure la liste des services à interroger

Title	Description	Status	Selected
ALADDIN2	A subset of the IAEA ALADDIN...	active	<input type="checkbox"/>
BASECOL: VAMDC-TAP interface	This database, called BASEC...	active	<input type="checkbox"/>
Carbon Dioxide Spectroscopi...	Carbon Dioxide spectroscopi...	active	<input type="checkbox"/>
Carbon Dioxide Spectroscopi...	Carbon Dioxide spectroscopi...	active	<input type="checkbox"/>
CDMS	The Cologne Database for M...	active	<input type="checkbox"/>
Chianti	Chianti consists of a critically...	active	<input type="checkbox"/>
DESIRE database (Moscow mi...	The main purpose of D.E.S.I....	active	<input type="checkbox"/>
ECaSDa - Ethene Calculated ...	Calculated data of ethylene (...)	active	<input type="checkbox"/>
GhoSST	The GhoSST database ("Gren...	active	<input type="checkbox"/>
GSMA Reims S&MPO	Calculated line lists for ozone...	active	<input type="checkbox"/>
HITRAN-UCL resource	The HITRAN database - trunc...	active	<input type="checkbox"/>
IDEADB - Innsbruck Dissociati...	This database contains infor...	active	<input type="checkbox"/>
JPL database: VAMDC-TAP ser...	The JPL database contains a ...	active	<input type="checkbox"/>
KIDA: VAMDC-TAP interface	KIDA is a database of kinetic ...	active	<input type="checkbox"/>
MeCaSDa - Methane Calculat...	Calculated line lists for meth...	active	<input type="checkbox"/>
OACT - LASP Database	Laboratorio di Astrofisica Sp...	active	<input type="checkbox"/>
RADAM - Ion Interactions	Database for Radiation dama...	active	<input type="checkbox"/>
SpEctroScopy of Atoms and ...	Sesam is a joined project of L...	active	<input checked="" type="checkbox"/>
Spectr-W3	The information accumulated...	active	<input type="checkbox"/>
Stark-b	Database for "Stark" broade...	active	<input type="checkbox"/>
TIPbase : VAMDC-TAP interface	TIPbase lists fine-structure le...	active	<input type="checkbox"/>
TOPbase : VAMDC-TAP interfa...	TOPbase lists LS-coupling en...	active	<input type="checkbox"/>
UMIST Database for Astroche...	Reaction rate coefficients for...	active	<input type="checkbox"/>
VALD (atoms)	The Vienna Atomic Line Data...	active	<input type="checkbox"/>
VALD sub-set in Moscow (obs)	The part of Vienna Atomic Lin...	active	<input type="checkbox"/>
VAMDC species-DB	This Database contains all th...	active	<input type="checkbox"/>
Water internet Accessible Dis...	Database containing informa...	active	<input type="checkbox"/>

active

OK QUIT

Identification de raies

- Ecriture d'une requête équivalent à celle passée sur le portail précédemment :
 - H2, longueur d'onde entre 1075 et 1080 Å, énergie du niveau bas ≤ 4000 cm⁻¹

Configuration

Use local linelists

Search linelists using VAMDC infrastructure

Species

Atoms

Atom0 hide +

Molecules

Molecule0 hide +

Chemical name

Stoichiometric formula

Structural formula

Spin isomer

Standard InChIKey

Particles

Processes

Radiative

Wavelength to Å
Equivalent Wavelength Wavelength from 1075.0 to 1080.0

Upper state energy to 1/c
Equivalent to

Lower state energy to 1/c
Equivalent to Lower state energy from 0.0 to 4000.0

Probability, A to

Collision

OK

Number of SPECIES : 1
Number of STATES : 13
Number of RADIATIVE : 7

reading data from : sesam.obspm.fr
data from : sesam.obspm.fr have been read

Dismiss

Identification de raies

➤ Résultat de la requête

File


SpEctroScopy of Atoms and Molecules

Line list

SpEctroScopy of Atoms and Molecules

Set 1

Wavelength	All Wavelengths	Wavenumbers	Transition Probability A	Oscillator strength	Lower state energy	Upper state energy	Lower state quantum nu...	Upper state quantum nu...	ID
1075.24	1075.24 (A)	theory : 93002.38 (1/cm)	4.53068E7 (1/s)	0.009286	1740.19 (1/cm)	94742.57 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1077.14	1077.14 (A)	theory : 92838.78 (1/cm)	2.2357E7 (1/s)	0.01167	0.0 (1/cm)	92838.78 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1077.7	1077.7 (A)	theory : 92790.52 (1/cm)	2.65141E7 (1/s)	0.007699	118.49 (1/cm)	92909.01 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1078.26	1078.26 (A)	theory : 92741.84 (1/cm)	6.58081E7 (1/s)	0.009947	3187.47 (1/cm)	95929.31 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1078.92	1078.92 (A)	theory : 92685.0 (1/cm)	6.74254E7 (1/s)	0.003924	118.49 (1/cm)	92803.49 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1079.22	1079.22 (A)	theory : 92659.29 (1/cm)	2.78944E7 (1/s)	0.006823	354.37 (1/cm)	93013.66 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2
1079.4	1079.4 (A)	theory : 92644.31 (1/cm)	5.48224E7 (1/s)	0.007839	1740.19 (1/cm)	94384.5 (1/cm)	ElecStateLabel=X; v=0; J...	ElecStateLabel=B; elect...	H2

Select all Unselect all Constant height 

Add set

0 lines selected Draw Erase selection Erase all Dismiss

Identification de raies

➤ Superposition des raies sur le spectre

