



AstroConcepts

Paris Observatory etymological dictionary

Franck Le Petit, Nicolas Moreau
& Mohammad Heydari



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

AstroConcept

<http://dictionary.obspm.fr>

- Development from 2005
- Goal / Content

Provide an extensive list of concepts for astrophysics with definitions & etymology

- Number of concepts : ~ 10 000
- Languages
 - English, french, persian for names
 - English for definitions
- Frequent updates

Team of astronomers experts in various domains

P.I. : - Mohammad Heydari,
- Francoise Combes, James Lequeux, Pierre Lena, Grazina Stasinska, ...

~ 2 updates per months

~ 500 visits par month

An Etymological Dictionary of Astronomy and Astrophysics

English-French-Persian

فرهنگ ریشه شناختی اخترشناسی-اخترفیزیک

M. Heydari-Malayeri - Paris Observatory

[Homepage](#)

SEARCH

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

<< < [A](#) [s](#) [bor](#) [eve](#) [Gar](#) [mag](#) [PG](#) [rad](#) [sta](#) [sti](#) [var](#) > >>

Number of Results: 193 Search : star

A star

ستاره‌ی A setâre-ye A

Fr.: étoile de type A

A star whose spectrum shows strong hydrogen → *Balmer lines* accompanied by many faint to moderately strong metallic lines. In contrast to B and O stars, the lines of He I and He II are absent. Their surface temperature ranges from 7,500 to 10,000 K. The main metallic lines seen in A-type stars are those of Fe I and Fe II, Cr I and II, Ti I and II, and account for about two-thirds of all lines. Some famous examples of A star are: → *Sirius*; → *Deneb*, → *Altair*, and → *Vega*. Also known as *A-type star*.

A, letter of alphabet used in the → *Harvard classification*; → *type*; → *star*.

A-type star

ستاره‌ی گونه‌ی A setâre-ye gune-ye A

Fr.: étoile de type A

Same as → *A star*.

A, letter of alphabet used in the → *Harvard classification*; → *type*; → *star*.

aberration of starlight

بیراهش نور ستاره birâheš-e nur-e setâre

Fr.: aberration de la lumière d'étoile

Mostly **astrophysics** concepts but also **physics** ones

angular momentum

جنباکِ زاویه‌ای jonbâk-e zâviye-yi

Fr.: *moment angulaire, moment cinétique*

The product of \rightarrow moment of inertia and \rightarrow angular velocity; synonymous with *moment of momentum* about an axis. Angular momentum is a vector quantity; it is conserved in an isolated system.

\rightarrow angular; \rightarrow momentum.

Alfven speed

تندایِ آلفون tondâ-ye Alfvén

Fr.: *vitesse d'Alfvén*

The speed at which \rightarrow Alfven waves are propagated along the magnetic field. It is a characteristic velocity at which perturbations of the lines of force travel. Alfvén speed is given by: $v_A = B/(\mu_0 \cdot \rho)^{1/2}$, where B is the \rightarrow magnetic field strength, μ_0 is the \rightarrow magnetic permeability, and ρ is the density of the plasma. Alfvén speed plays a role analogous to the sound speed in non-magnetized fluid dynamics. Same as *Alfvén velocity*.

\rightarrow Alfvén wave; \rightarrow speed.

and also **grammatical** concepts

-al 1) -i (#), -var (#), -mand (#); 2) -âl (#), various solutions (۱) -ای، -ور، -مند؛ (۲) -آل، و دیگرها

Fr.: *-al*

1) Adjective suffix denoting "of, relating to, or characterized by;" e.g. astronomical, material, equal, final, general, directional, fictional, etc. This suffix takes the form of *-el* in Fr., e.g. materiel, directionnel, etc.

2) Noun suffix, used with verbs (refusal, rehearsal, etc.) or nouns (canal, etc.).

1) M.E., from O.Fr., from L. *-alis*

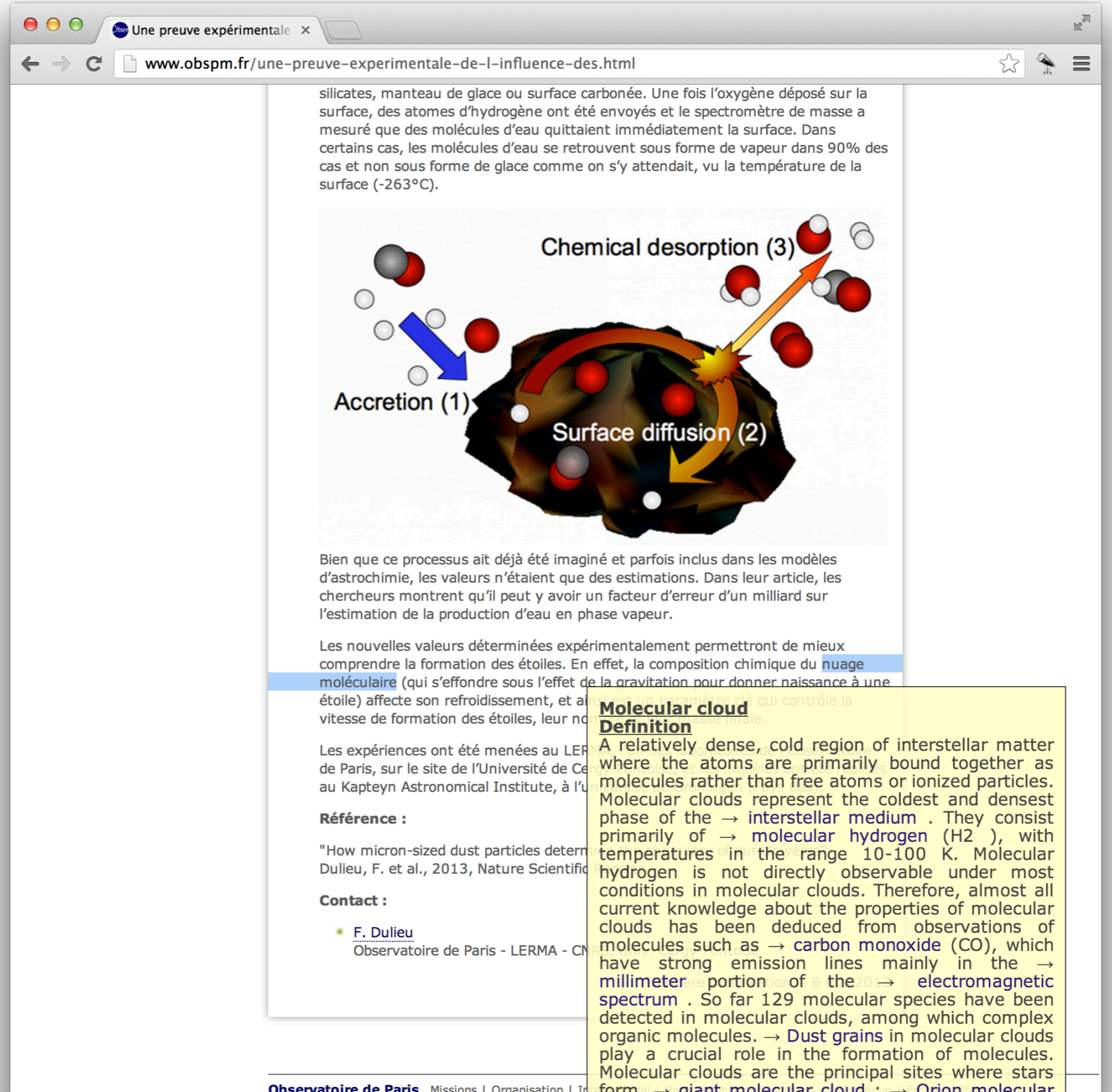
2) M.E. *-aille*, from O.Fr., from L. *-alia*, from neuter pl. of *-alis*.

Technology

- PHP / MySQL
- SKOS version developed by N. Moreau
 - without relationships between concepts
 - need small re-organization of the MySQL DB to separate physics & astrophysics
 - need more work to have SKOS relationships

AstroConcept in Chrome

- Plugin in chrome
- Give definitions of underlined concepts
- Links in the definition with redirection towards the dictionary



silicates, manteau de glace ou surface carbonée. Une fois l'oxygène déposé sur la surface, des atomes d'hydrogène ont été envoyés et le spectromètre de masse a mesuré que des molécules d'eau quittaient immédiatement la surface. Dans certains cas, les molécules d'eau se retrouvent sous forme de vapeur dans 90% des cas et non sous forme de glace comme on s'y attendait, vu la température de la surface (-263°C).

Chemical desorption (3)

Accretion (1)

Surface diffusion (2)

Bien que ce processus ait déjà été imaginé et parfois inclus dans les modèles d'astrochimie, les valeurs n'étaient que des estimations. Dans leur article, les chercheurs montrent qu'il peut y avoir un facteur d'erreur d'un milliard sur l'estimation de la production d'eau en phase vapeur.

Les nouvelles valeurs déterminées expérimentalement permettront de mieux comprendre la formation des étoiles. En effet, la composition chimique du nuage moléculaire (qui s'effondre sous l'effet de la gravitation pour donner naissance à une étoile) affecte son refroidissement, et ainsi la vitesse de formation des étoiles, leur nombre et leur masse.

Molecular cloud
Definition
A relatively dense, cold region of interstellar matter where the atoms are primarily bound together as molecules rather than free atoms or ionized particles. Molecular clouds represent the coldest and densest phase of the → [interstellar medium](#) . They consist primarily of → [molecular hydrogen \(H2 \)](#) , with temperatures in the range 10-100 K. Molecular hydrogen is not directly observable under most conditions in molecular clouds. Therefore, almost all current knowledge about the properties of molecular clouds has been deduced from observations of molecules such as → [carbon monoxide \(CO\)](#) , which have strong emission lines mainly in the → [millimeter](#) portion of the → [electromagnetic spectrum](#) . So far 129 molecular species have been detected in molecular clouds, among which complex organic molecules. → [Dust grains](#) in molecular clouds play a crucial role in the formation of molecules. Molecular clouds are the principal sites where stars form. → [giant molecular cloud](#) : → [Orion molecular](#)

Les expériences ont été menées au LERMA de Paris, sur le site de l'Université de Cergy-Pontoise, au Kapteyn Astronomical Institute, à l'Université d'Amsterdam et au Laboratoire d'Astrophysique de l'Université de Bordeaux.

Référence :

"How micron-sized dust particles determine the chemistry of interstellar ice mantles", Dulieu, F. et al., 2013, Nature Scientific Data

Contact :

- [F. Dulieu](#)
Observatoire de Paris - LERMA - CNRS

Observatoire de Paris Missions | Organisation | Informations

Paris Observatory dictionary and UAT

- share concepts / definitions with UAT
- exchange format : SKOS ?

Work to do :

- need work to separate astrophysics, physics, grammatical concepts
- lack of manpower
- define licence terms

Benefits :

- an UAT with definitions maintained by professional astronomers
- ~ two update per month
- ~ 10 000 concepts