

Semantics WG status

IVOA June-2025



- **WG chairs:** B Cecconi & S Derriere
UCD management: Mireille Louys
Local session chair: M Demleitner (thanks!)

- **Roadmap 2024B:**

- Finalize UCDlist 1.6 EN
 - update related tools
 - start work on UCDlist 1.7
- Work on vocabularies:
 - URIs and versioning of vocabularies
 - better management : source as rdf?
 - Vocabularies API
- OPAL : Ontology Portal for Astronomy Linked-data
 - Based on ontoportal.org
 - Starting: January 1st 2025, for 2 years

=> endorsed

=> Vocabularies UCDs (ongoing work)

=> See OPAL

□ Endorsed UCDFList 1.6

International Virtual
Observatory Alliance

IVOA Documents



UCD1+ controlled vocabulary - Updated List of Terms
Version 1.6

IVOA Endorsed Note 18 December 2024

Interest/Working Group:

<http://www.ivoa.net/twiki/bin/view/IVOA/IvoaSemantics>

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- Endorsed by TCG , December 2024.
- This version includes :
 - *ambient parameters* at the telescope (for instance ESO VLT telescope). (A. Micol)
 - *gravitational waves features* for LIGO/Virgo data sets (P. Chaniel)
 - Minor changes
- Next version of the list in preparation 1.7
 - Request for Modification page :
 - https://wiki.ivoa.net/twiki/bin/view/IVOA/UCDFList_1-7_RFM
- Each proposed term is described in its context and in a VEP-UCD document available at [VEP-UCD Gitlab](#) holding all the terms discussed in the Request For Modification process.
- Discussed in the Semantics group and UCD Board.



□ UCD resources

- On Github : <https://github.com/ivoa-std/UCDList>
 - Check the new release with the new UCDList and the deprecated list.
 - Link
- Tools for UCDs checking need updates to include all new terms
 - under development at CDS : <https://cds.unistra.fr/ucd-finder/>



UCD as a Vocabulary

A few propositions drafted

- UCDs are a special beast in IVOA Vocabularies.
- The UCD list is a set of words with descriptions, with composing rules. Some words can be “primary” (P) words, other “secondary” (S), and some both (Q).
- UCDs can be composed to adjust the description of an object, but it is not a formal structured representation.
- Examples of UCD:
 - “stat.error;phot.mag;em.opt.B” means “an error on the photometric magnitude B”
 - “phys.mass;phys.particle” means “a mass of a particle”
- Building a vocabulary for the words is easy, with several solutions (see next slide) Selecting a solution that can support the composite UCDs is more tricky.

UCD as a Vocabulary

Three propositions drafted

- Proposal 1 (Markus):

UCDs are Classes

Each UCD has a property *ivoasem:SyntaxCode* to set the P/S/Q flag.

Easy to fit in the current “Vocabularies in the VO”.

- Proposal 2 (Baptiste):

UCDs are Entities

UCDs are instances of one of the P, S, Q classes.

Need to add a new type of vocabulary in “Voc. in VO”

- Proposal 3 (Elsa):

UCDs are SKOS Concepts

P, S, Q are Collections of concepts

Need support for SKOS Collection in “Voc. in VO”

Now, we need to evaluate the three solutions.

A discriminating elements could be: which option can help best on the composite UCDs?

OPAL - OntologyPortal for Astronomy

New project funded by OSCARS.

- OntoPortal-Astro: <http://ontoportal-astro.eu>
Based on ontoportal.org
- Soon: new portal based on enhanced version by INRAE (France): <https://agroportal.lirmm.fr/>
NB: already in use for EarthPortal.org
- New version will include:
 - ontology FAIR evaluation
 - recommender / annotator
 - browse ontologies and mappings
 - advanced APIs (e.g., API search on each ontology)
- Advisory and User Group:
we will contact some of you soon



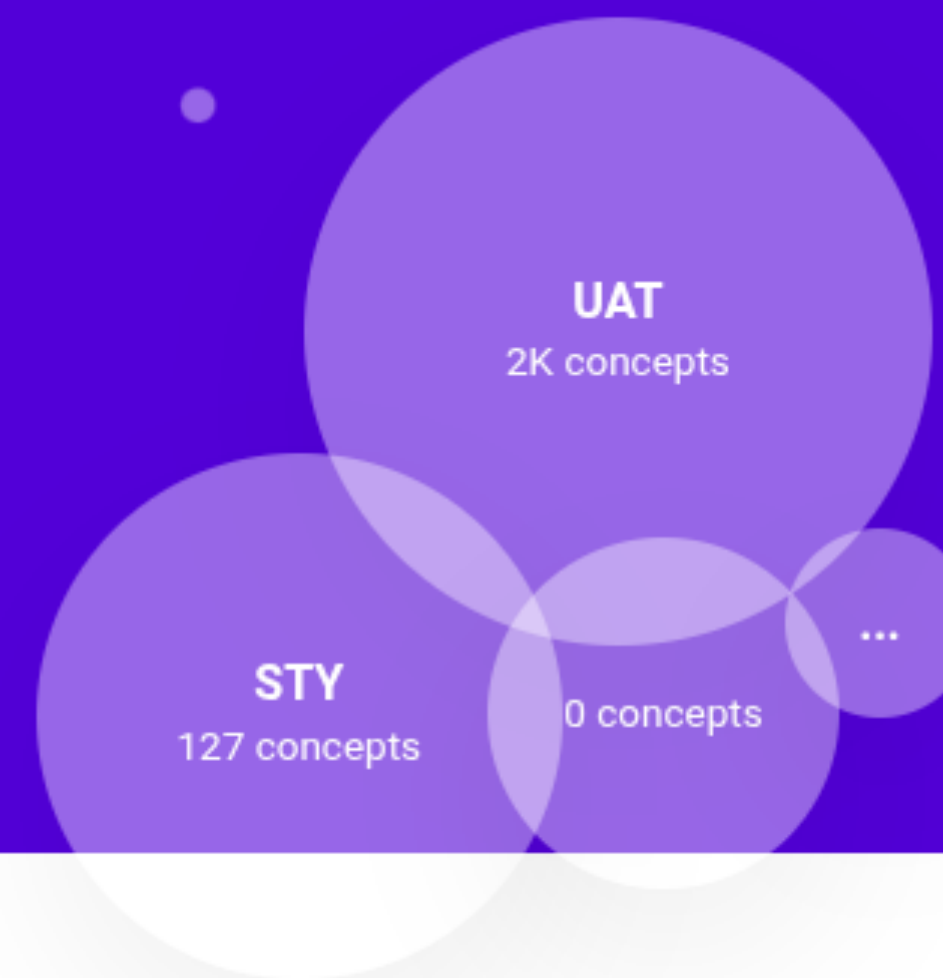
OSCARS
Open Science Clusters' Action
for Research & Society



Welcome to Ontoport-Astro,

The home of ontologies and semantic artefacts in astronomy and related domains.

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- ✓ Map your ontology to other relevant ones in the domain and collaborate with other users.
- ✓ Precisely describe your ontology with relevant metadata and get a FAIR score for your ontology.
- ✓ Contribute to knowledge sharing and semantic interoperability in your domain.
- ✓ Get feedback and suggestions from other users who can use and comment on your ontology.

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2

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129

Classes

2K

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0

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0

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4

Users

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Filters

Show ontology views ☐Show retired ontologies ☐

Categories ⓘ ▼

Groups ⓘ ▼

Natural languages ▼

Formality levels ▼

Ontology types ▼

Results from external portals ▼

EcoPortal

EarthPortal

BiodivPortal

Filter ontologies, e.g., AGROVOC, plant

All formats ▼

Sort by popularity ▼

Showing 2 of 2 from [Ontoportal-Astro \(2\)](#) in 0.06s

UMLS Semantic Network (STY)

The Semantic Network consists of (1) a set of broad subject categories, or Semantic Types, that provide a consistent categorization of all concepts...

[+ Show more ...](#)FAIR score 258.0 [FAIR details...](#)

Submitted 5 months ago by Admin

2025

UMLS

127
classes

Unified Astronomy Thesaurus (UAT)

This Unified Astronomy Thesaurus (UAT) is an open, interoperable and community-supported thesaurus which unifies the existing divergent and...

[+ Show more ...](#)FAIR score 208.0 [FAIR details...](#)

Submitted 27 days ago by Admin

2025

SKOS

2,373
concepts2
classes

[Ontologies](#) > [UAT](#)

Unified Astronomy Thesaurus (UAT)

SKOS

No license

[Watch \(0\)](#)[Last submission date May 7, 2025](#)[Summary](#)[Concepts](#)[Properties](#)[Schemes](#)[Collections](#)[Notes](#)[Mappings](#)[Widgets](#)[SPARQL](#)

General information

This Unified Astronomy Thesaurus (UAT) is an open, interoperable and community-supported thesaurus which unifies the existing divergent and isolated Astronomy & Astrophysics thesauri into a single high-quality, freely-available open thesaurus formalizing astronomical concepts and their inter-relationships. The UAT builds upon the existing IAU Thesaurus with major contributions from the Astronomy portions of the...

[See more...](#)

Initial created on **May 7, 2025**. For additional information, contact **Admin** (admin@no-domain.com).

[Export all metadata](#)

Identifiers



URI

<http://astrothesaurus.org/uat>

Ontoportal-Astro URI

<https://ontoportal-astro.eu/ontologies/UAT>[Dates](#)[Persons and organizations](#)[Other links](#)[Projects and usage information](#)[Methodology and provenance](#)[Community](#)

Metrics

**2**[Classes](#)**2373**[Individuals](#)**0**[Properties](#)

FAIR score

Beta

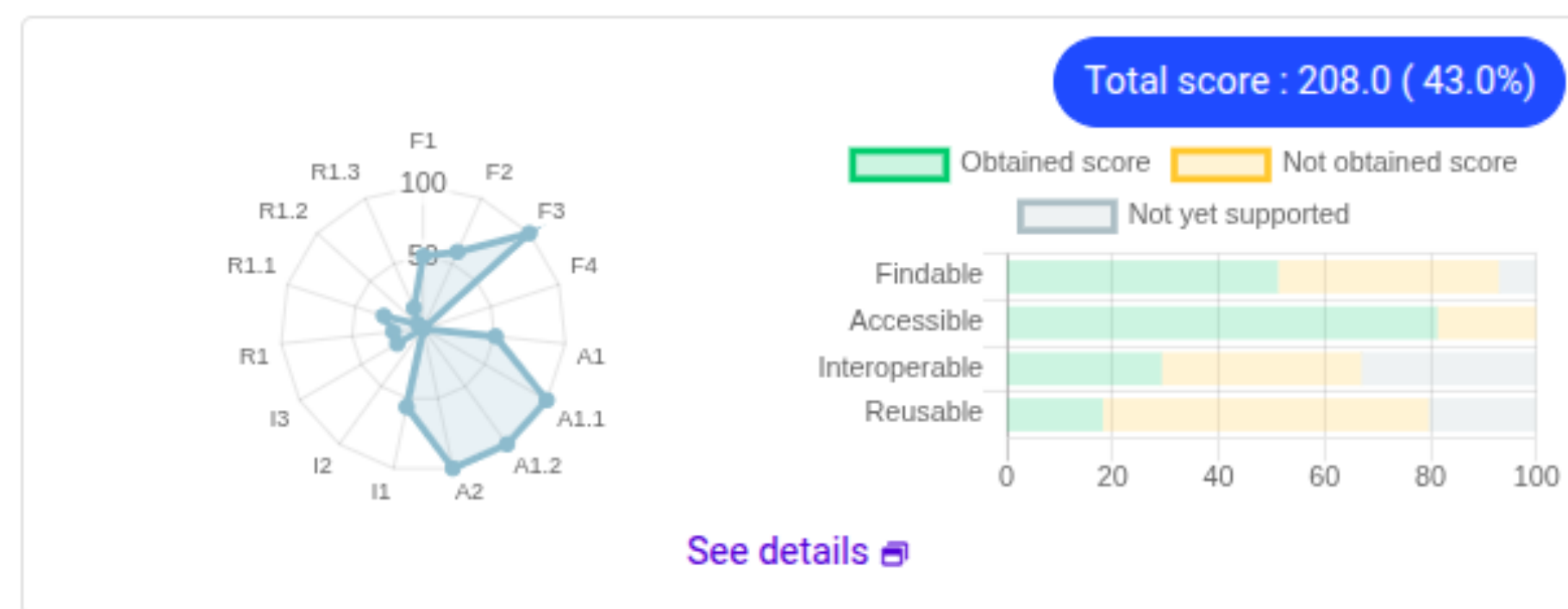


FAIR score

Beta

i

{ }



Submissions

i

{ }

Version	Modified	Submitted	Actions
unknown		May 7, 2025	Download

Methodology and provenance

i

▼

Community

i

▼

Content

i

▼

Visits

We are still collecting data for UAT

Views of UAT

+

No views available for UAT.

[Ontologies](#) > [UAT](#)

Unified Astronomy Thesaurus (UAT)

SKOS

No license

Last submission date May 7, 2025



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English ▼



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- > High energy astrophysics
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- > Observational astronomy
- > Solar physics
- > Solar system astronomy
- > Stellar astronomy

[Details](#)[Visualization](#)[Notes \(0\)](#)[Mappings \(0 \)](#)

ID	http://astrothesaurus.org/uat/104
Preferred name	Astrophysical processes
Type	http://www.w3.org/2004/02/skos/core#Concept

Raw data

rdf:type	http://www.w3.org/2002/07/owl#NamedIndividual
	http://www.w3.org/2004/02/skos/core#Concept
dct:modified	March 29, 2022
skos:prefLabel	Astrophysical processes
dct:contributor	http://editor.vocabs.andis.org.au/user/AAS_Frey.Katie
skos:topConceptOf	http://astrothesaurus.org/uat/1 >



Semantics WG

IVOA June-2025



- NASA Heliophysics: IHDEA is willing to tighten relationship with IVOA, specifically through Semantics
 - **Units** (2nd talk of session)
 - **Reference Frames** (3rd talk of this session); possible extension to OGC (planetary geology).
- **Observation Facilities**: interdisciplinary (IVOA-IPDA-IHDEA). Started also to work with new RDA group in “PID for Facilities” (not fully setup yet, though), as a follow up of the "PID for instrument" RDA WG.