

Assigning UAT Keywords to Astronomy Literature in



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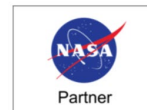
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CENTER FOR
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UNIFIED ASTRONOMY THESAURUS

a community supported, open source project from the American Astronomical Society

- **Simple Knowledge Organization System (SKOS) ontology for astronomy**
 - Combines and expands earlier systems, including IAU thesaurus (1993)
 - Owned and freely licensed by the American Astronomical Society (AAS)
 - Open, community-contributed resource
 - Primarily astronomy concepts, increasing heliophysics & planetary science content
- **Keyword system for**
 - AAS journals
 - *Publications of the Astronomical Society of the Pacific* (PASP)
 - *Icarus*
 - International Virtual Observatory Alliance (IVOA)
 - Space Telescope Science Institute (STScI)
 - Strasbourg astronomical Data Center (CDS)



<https://astrothesaurus.org/>



<https://github.com/astrothesaurus/UAT>



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Intergalactic medium

<https://astrothesaurus.org/uat/813>

Broader Concepts:

Extragalactic astronomy

Narrower Concepts:

Missing mass

Quasar absorption line spectroscopy

Dark matter

Intergalactic clouds

Intergalactic filaments

Intergalactic gas

Intergalactic medium phases

Voids

Related Concepts:

Astrophysical dust processes

Intracluster medium

Alternate Terms:

IGM

Intergalactic matter

Definition:

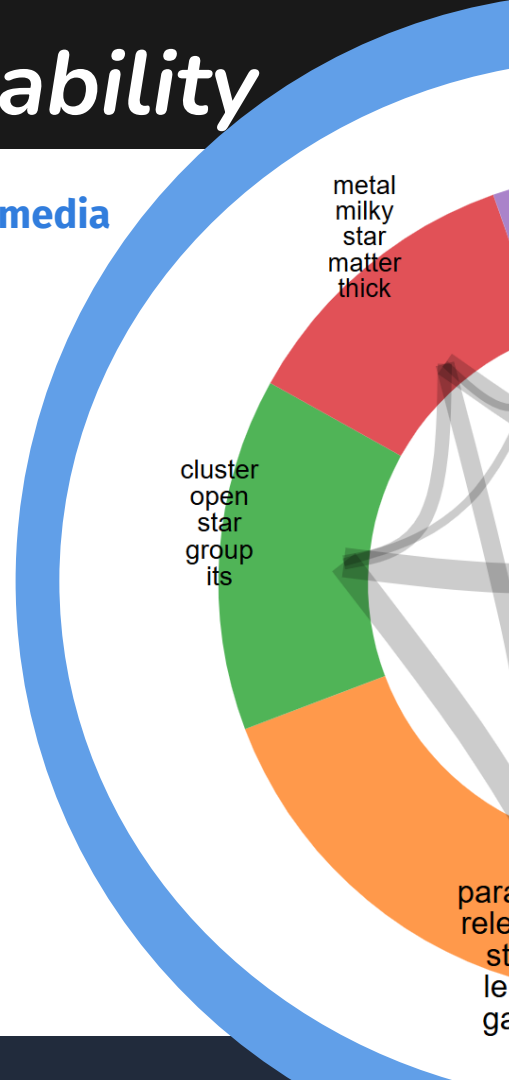
The matter or environment between the galaxies of a cluster.

- *An Etymological Dictionary of Astronomy and Astrophysics, by M. Heydari-Malayeri*



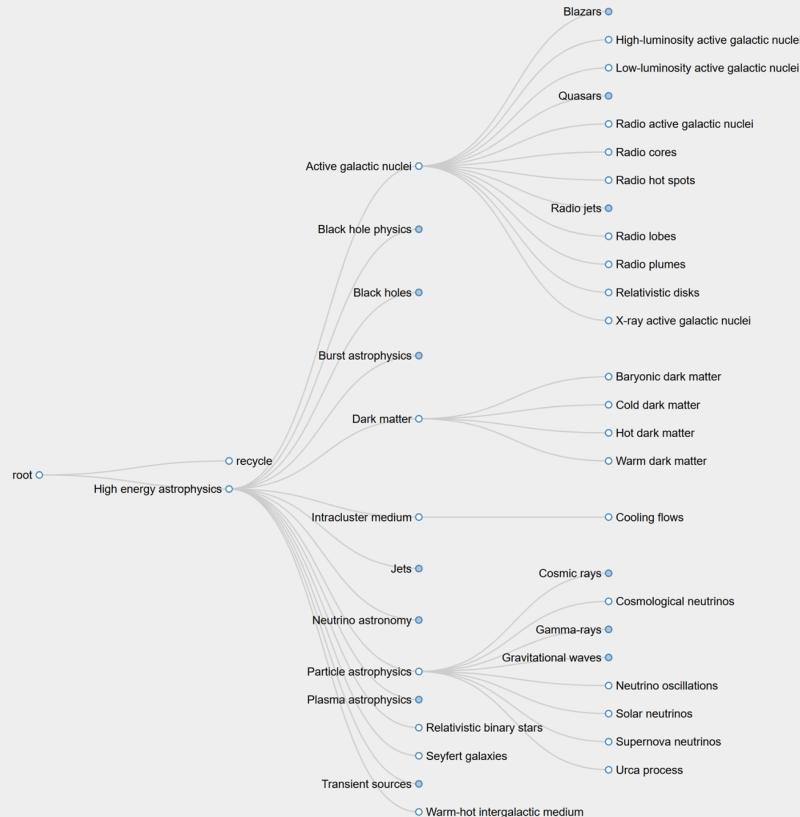
UAT for Enhanced Discoverability

- **Potential to be single keyword system for space sciences regardless of media**
 - Consistent, controlled vocabulary for searching
 - Describes literature, datasets, and software
 - Relates concepts to one another in hierarchy for exploration
- **Potential to connect to other ontologies for cross-disciplinary search**
 - Exploratory work begun for tagging Earth science records with Global Change Master Directory (GCMD) keywords
 - Future crosswalk between UAT and GCMD keywords to connect space & Earth sciences
- **Rich, consistent concept set could improve ADS paper network**





Future UAT Exploratory Menu?



Still brainstorming what would be useful to explore the hierarchy



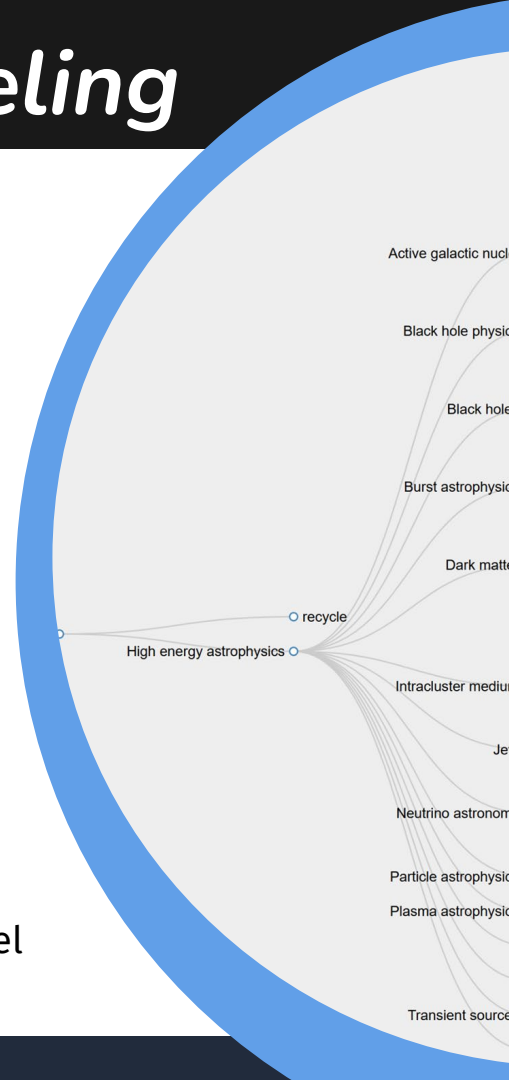
KAILAS for UAT Labeling

- **SciX (ADS) has promoted UAT use since 2013**

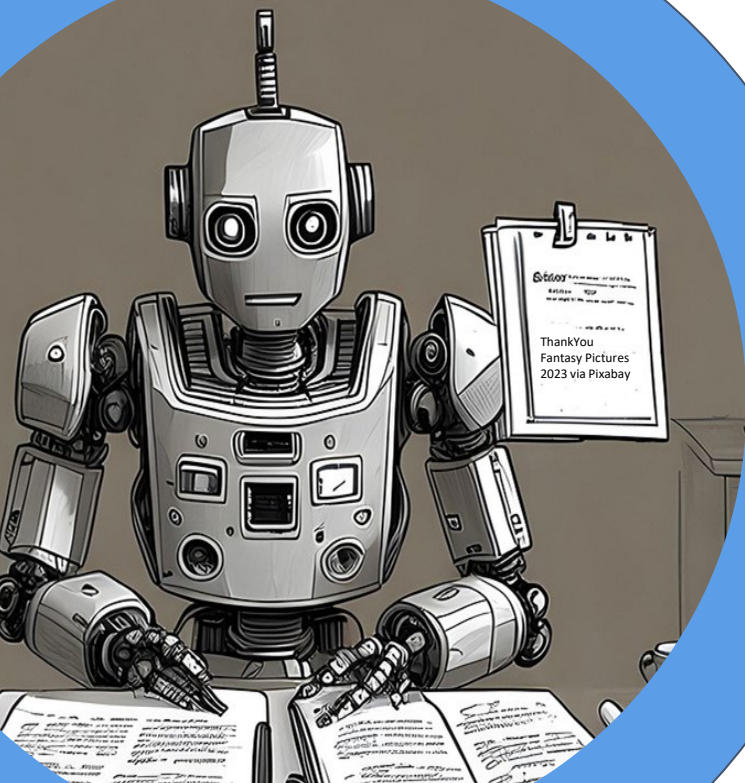
- Goal: assign UAT keywords to all astronomy records,
 - Older pre-UAT articles
 - Articles in journals that have not adopted the system
 - Articles whose authors are parsimonious
 - Software
 - Datasets
 - Proposals
- Supplement, not supplant, existing keywords
- SciX is developing Keyword AI Labeler At Scix (KAILAS), more details in Session 4

- **Community interest**

- Current adopting organizations
- UAT & KAILAS had positive reception at Astrophysics Data Centers Executive Council (ADEC) in September
- IOP aspires to proprietary KAILAS-like algorithm, still at categorizer level



Full Text & AI Aren't Solution



- Do not have full-text for everything
- Expensive, slow to run AI on large corpus
- Publisher agreements prohibit users from downloading everything and running AI themselves
- **Keywords, NER tagging**
 - assists with search
 - boosts relevancy
 - Increases interoperability
 - provides pre-processing for current, future AI tools

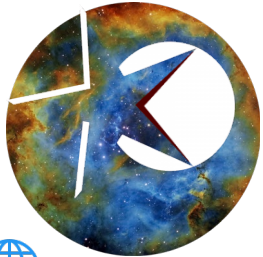
Yet



AAS Working Group on the UAT

5 years to initiate strategic plan for thesaurus

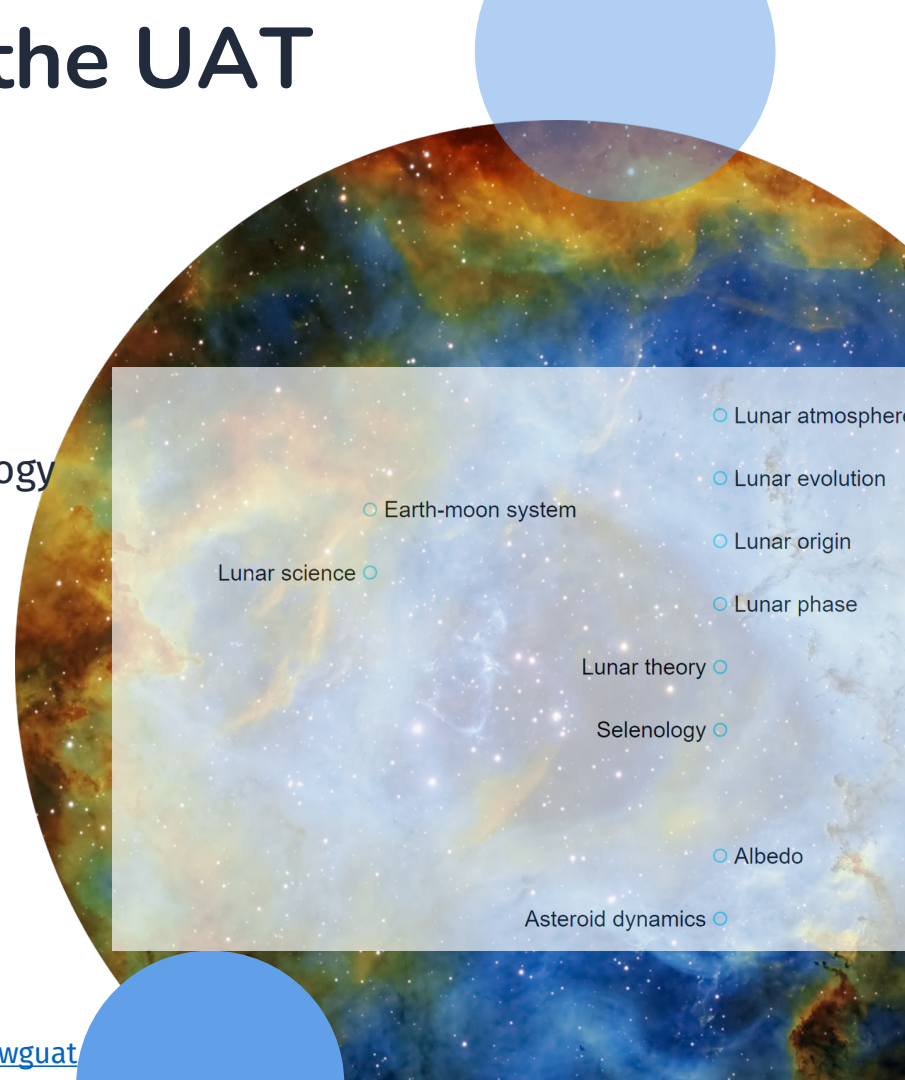
- v. 6.0, Dec. 2025, expands heliophysics coverage
- 2026 anticipate
 - Planetary science concept expansion
 - Improvement of definitions
- FSU iSchool Master's intern modernized technology infrastructure (2 semesters)
- 18-month prototype student curation project funded
- Seeking additional funding sources



Daniel Chivvis, member
Jennifer Lynn Bartlett, vice chair
Nominations open!



<https://aas.org/comms/working-group-unified-astronomy-thesaurus-wguat>

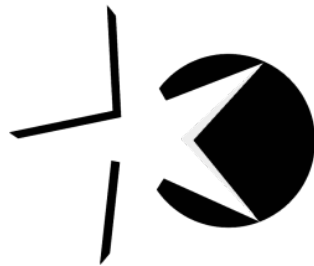
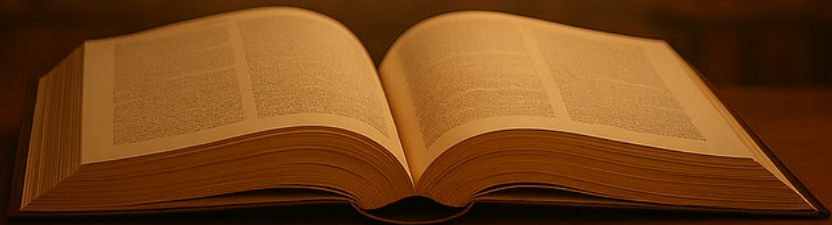


- Lunar atmosphere
- Lunar evolution
- Lunar origin
- Lunar phase
- Lunar theory
- Selenology
- Albedo
- Asteroid dynamics

Lunar science ○

Earth-moon system ○

question ask
examine inquire
interrogate investigate
challenge grill interview
quiz seek catechize
enquire probe pry



Questions?



SciX

[SciXplorer.org]