



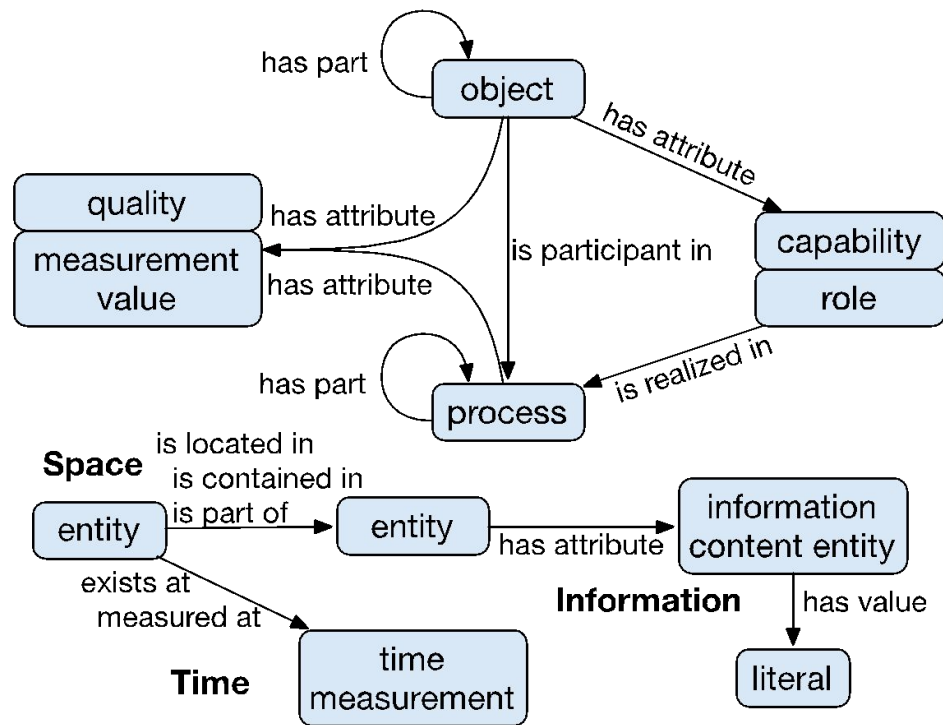
# SciKG Part 2: Scientific and Biomedical Ontologies

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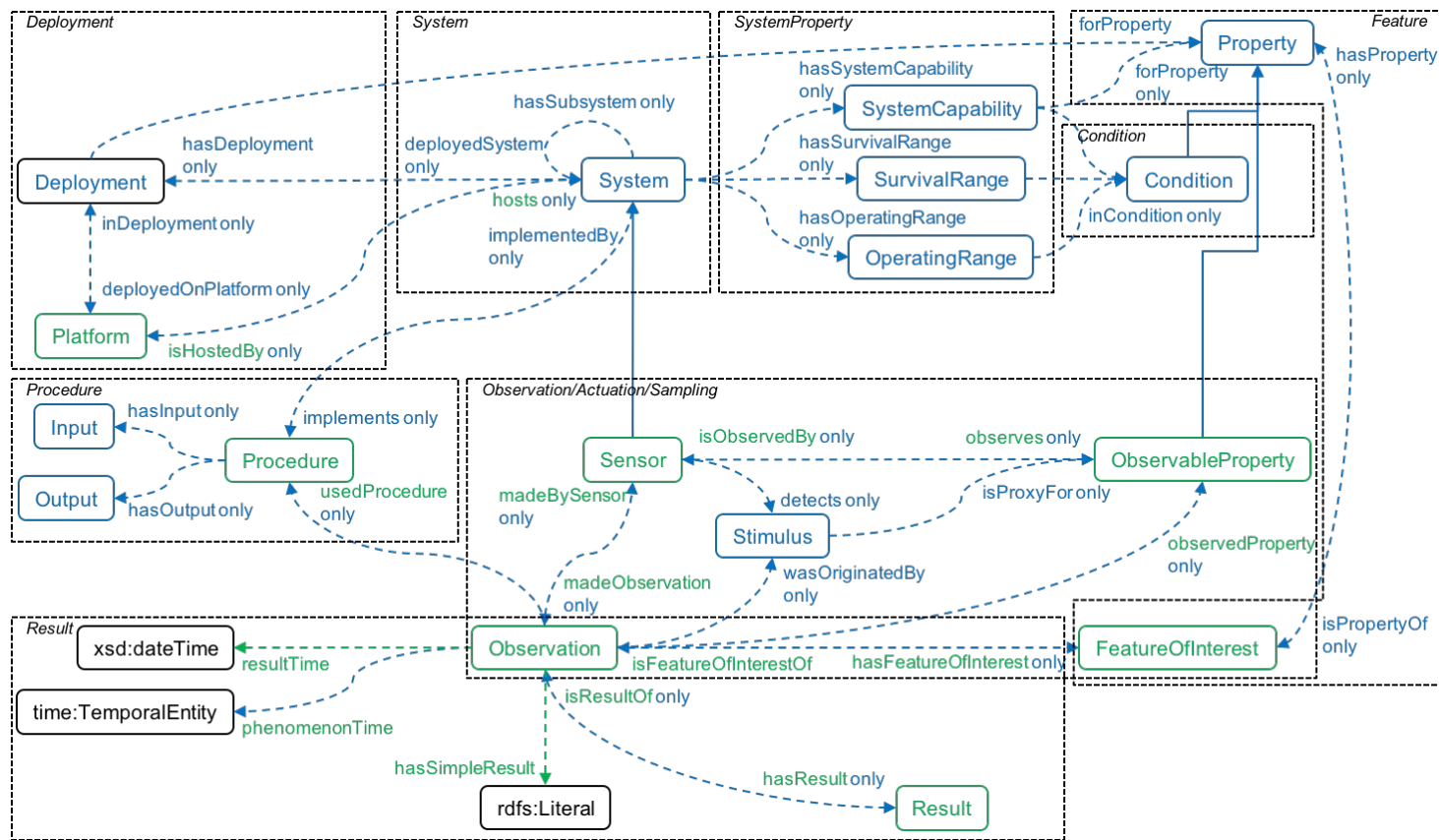
- The role of standardized terminology in science
- SemanticScience Integrated Ontology (SIO)
- Human-Aware Science Ontology (HAScO)
- Disease Ontology (DOID)
- Chemical Elements of Biological Interest (ChEBI)

## Realist Ontology with:

- Existence Qualities
- Simple quantitative and qualitative attributes
- Easy integration of experimental data and findings (knowledge)
- Single ontology for science basics
- Easily integrates classes from OBO Foundry ontologies



# W3C's Semantic Sensor Network Ontology (SSN/SOSA)



- *"...an ontology for describing sensors and their observations, the involved procedures, the studied features of interest, the samples used to do so, and the observed properties, as well as actuators."*

- (See contents in the sub slide deck)

## OBO Foundry ontology with:

- Deep Hierarchy: starts with Disease.
- Class-wise Linked Data
- Formal definitions with property restrictions.
- Detailed definitions and provenance.

Classes (18,221) Properties (181) Individuals (0)

Tree

List

disease (11,223)

- autoimmune interstitial lung, joint, and kidney disease
- carbamoyl phosphate synthetase I deficiency disease
- Crouzon syndrome-acanthosis nigricans syndrome
- disease by infectious agent (522)
  - bacterial infectious disease (196)
  - fungus infectious disease (73)
  - parasitic infectious disease (114)
  - prion disease (8)
  - viral infectious disease (131)
- disease of anatomical entity (8,525)
- disease of cellular proliferation (2,802)
  - benign neoplasm (643)
  - cancer (2,119)
  - pre-malignant neoplasm (37)
- disease of mental health (489)
- disease of metabolism (777)
  - acquired metabolic disease (57)
  - amyloidosis (20)
  - inherited metabolic disorder (718)
- exocrine pancreatic insufficiency
- genetic disease (4,213)
  - chromosomal disease (100)
  - inherited metabolic disorder (718)
  - monogenic disease (3,771)
  - polygenic disease (12)
- infantile cerebellar-retinal degeneration
- Marfan syndrome
- multiple cutaneous and mucosal venous malformations
- pancreatic agenesis
- pancreatic mucinous ductal ectasia
- pancreatic steatorrhea
- persistent Mullerian duct syndrome
- physical disorder (540)
- syndrome (916)
- X-linked ichthyosis

☒ Preferred roots

☐ All classes

☒ Show counts

☐ Show obsolete terms

▼ Ontology Information

**Ontology IRI:**  
<http://purl.obolibrary.org/obo/doid.owl>

**Version IRI:**  
<http://purl.obolibrary.org/obo/doid/releases/2023-03-31/doid.owl>

**Last loaded:** Wed May 24 20:40:02 BST 2023

**date**  
31:03:2023 13:32

**default-namespace**  
disease\_ontology

**Description**  
The Disease Ontology has been developed as a standardized ontology for human disease with the purpose of providing the biomedical community with consistent, reusable and sustainable descriptions of human disease terms, phenotype characteristics and related medical vocabulary disease concepts.

**has\_obo\_format\_version**  
1.2

**License**  
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**saved-by**  
lschriml

**Title**  
Human Disease Ontology



## Chemical hierarchy with:

- Many identifiers: INCHI, IUPAC, XRefs
- Formulae, structures, descriptions, etc.
- Basic properties (mass, charge, etc.)

### CHEBI:53438 - iron(3+) sulfate

Main	ChEBI Ontology	Automatic Xrefs	Reactions	Pathways	Models
<div> </div>					
ChEBI Name		<b>iron(3+) sulfate</b>			
ChEBI ID		<b>CHEBI:53438</b>			
Definition		A compound of iron and sulfate in which the ratio of iron(3+) to sulfate ions is 3:2.			
Stars		★★★★ This entity has been manually annotated by the ChEBI Team.			
Supplier Information		<a href="#">ChemicalBook:CB3496798</a> , <a href="#">eMolecules:880937</a> , <a href="#">MolPort-006-107-514</a>			
Download		<a href="#">Molfile</a> <a href="#">XML</a> <a href="#">SDF</a>			
<ul style="list-style-type: none"> <li><a href="#">Find compounds which contain this structure</a></li> <li><a href="#">Find compounds which resemble this structure</a></li> <li><a href="#">Take structure to the Advanced Search</a></li> </ul>					

#### Wikipedia

#### License

Iron(III) sulfate (or ferric sulfate), is a family of [inorganic compounds](#) with the formula  $\text{Fe}_2(\text{SO}_4)_3 \cdot n\text{H}_2\text{O}$ . A variety of [hydrates](#) are known, including the most commonly encountered form of "ferric sulfate". Solutions are used in dyeing as a [mordant](#), and as a coagulant for industrial wastes. Solutions of ferric sulfate are also used in the processing of aluminum and steel.

[Read full article at Wikipedia](#)