GOOD RESEARCH NEEDS GOOD METADATA

WHY WE SET OUT TO COLLECT, CONNECT, AND CORRECT METADATA FOR PHYSICS

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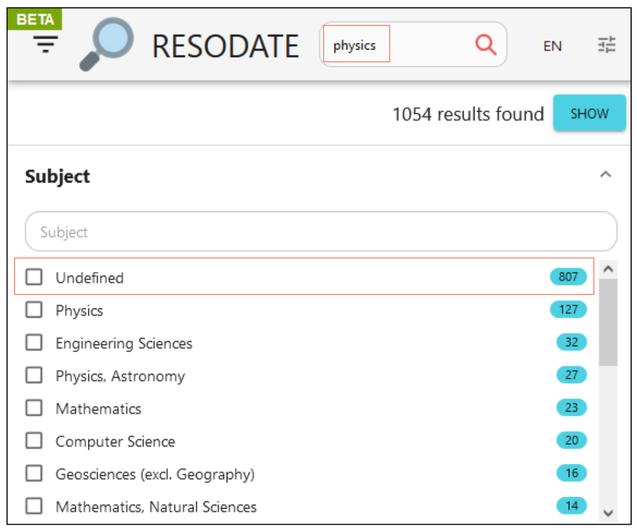
STATUS QUO

Poor or missing metadata prevent the discoverability of scientific information in physics

→ Low FAIRness levels limit semantic technologies

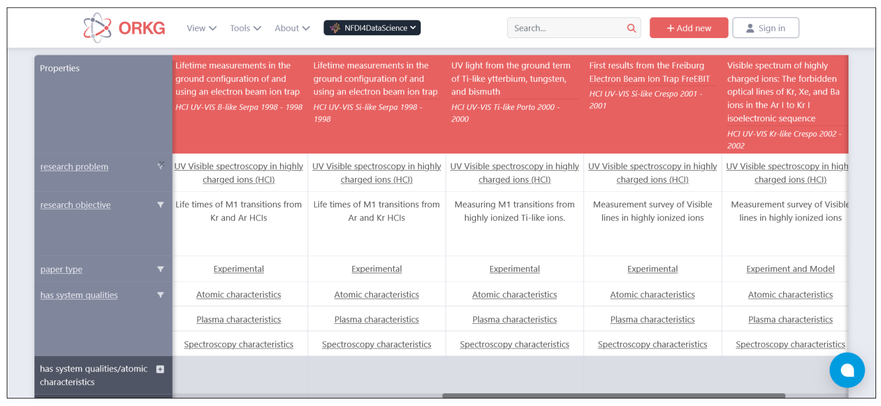
→ Researchers miss out on the state-of-the-art in information discovery



Example of insufficient metadata using the example of Resodate meta-search engine for research software, data, and terminologies: Out of the results in the physics section(!), ~80% miss a “subject” label.

THAT'S WHERE WE WANT TO GO

Physicists should be able to find the information they need to solve their problems – easily, accurately, and precisely.



Partial view of a comparison of physics publications in the Open Research Knowledge Graph (https://orkg.org), an example of metadata-driven infrastructure. *(Contributor: Enrique Iglesias)*

HOW DO WE WANT TO ACHIEVE OUR GOAL? – WITH A SPECIALISED INFORMATION SERVICE!

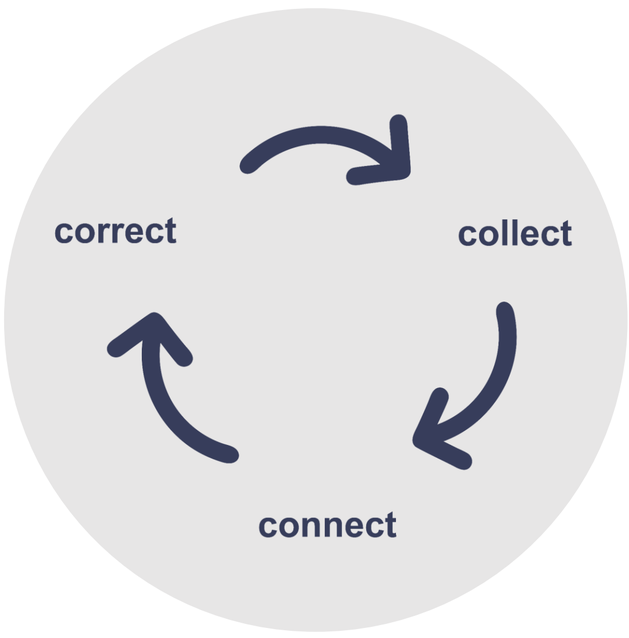
What is a Specialised Information Service?

- An infrastructure to support research by

  → facilitating researchers’ access to **specialised literature und research-specific information**

  → providing services incl. **scholarly publishing, e-research** and other information infrastructures – all of which depend on high quality metadata!

- Funding line in the DFG Scientific Library Services and Information Systems programme
- There is no Specialised Information Service (Fachinformationsdienst) for physics yet – but we are working on a proposal.



What is our goal?

In short: to collect and connect the correct, i.e. **quality-assured**, **metadata for physics research**.

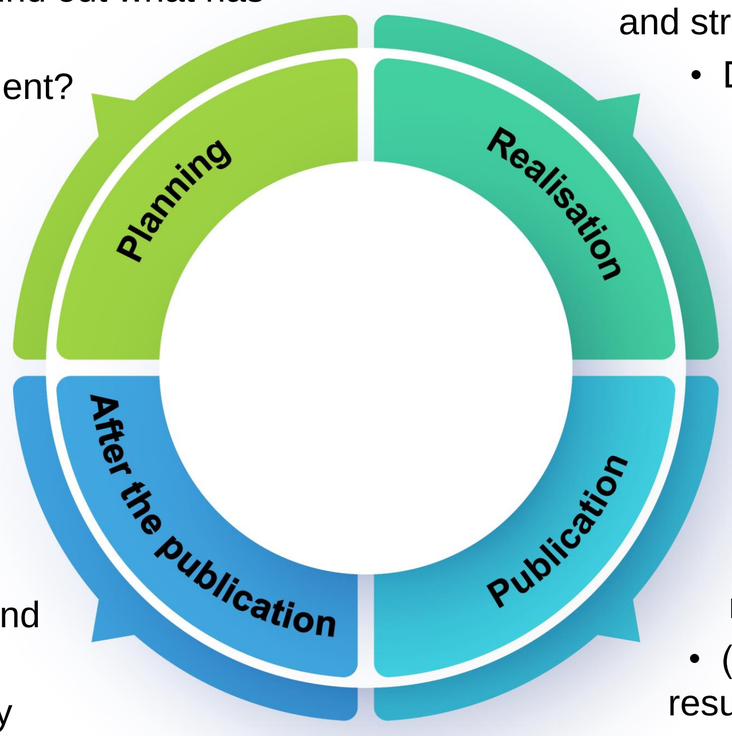
- Addressing the relevant stakeholders inter-nationally, and taking into account all relevant media.
- Building crosswalks between the different community terminologies, we plan to develop a **controlled metadata vocabulary**
- Making links explicit via persistent identifiers
- Improving and maintaining metadata quality via curation and quality assurance.

HOW CAN GOOD METADATA HELP PHYSICISTS?

- **Pervasive metadata** make it quick and easy to find out what has – or has not – been tried in the literature.
  → Which **instruments** were used in this experiment?
  → What were the **parameter settings** in that simulation?

→ Improved **reproducibility** and **reliability**

- Researchers can find devices they can use as a guest via our PID-based platform



- Use an **Electronic Lab Notebook** (ELN) to document and structure your experiments.
  - Document PIDs of measuring instruments
    - **Version control** your research software

→ Generate high quality metadata that help you, and later others, to trace your steps.

- Publications are found more often and by a better-matching readership
- Authors gain **higher visibility**, **more citations**, and **greater impact** in the scientific world
- Scientific results can be related to other results by semantic tools, e.g. the Open Research Knowledge Graph

- Authors are able to write a publication more efficiently with structured data from the ELN, e.g. metadata of devices and experiments
- (Automated) annotation from a controlled vocabulary results in **more and better fitting keywords**

→ Lists of references become more accurate and more concise

Who are we?

As Germany‘s national library for science and technology as well as a Leibniz research centre, TIB is coordinating the proposal for a Specialised Information Service in Physics in collaboration with our partners at Physikalisch-Techische Bundesanstalt (PTB) and INP – Leibniz Institute for Plasma Science and Technology.

Do you have any questions or comments? Please feel free to contact us!

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