



Beitrag ID: 18 Beitragskennung: W11

Typ: Workshop (Extended)

Semantic x-Lab: Bridging Laboratory Metadata and Semantic Knowledge Discovery

The Semantic x-Lab project addresses a fundamental challenge in modern research data ecosystems: the fragmentation of laboratory metadata across heterogeneous systems and disciplinary silos. Funded within the Helmholtz Metadata Collaboration (HMC) and co-led by HZDR, GFZ, and GSI, the project aims to interlink ontology-based descriptions of workflows, instruments, resources, and experimental data to make them discoverable, interoperable, and semantically rich. By building a distributed knowledge graph through a user-centered co-design process with laboratory partners and large-scale facility stakeholders, Semantic x-Lab fosters cross-domain insights that were previously inaccessible due to isolated metadata landscapes.

Building on our 2025 Kick-Off Workshop where we introduced the project scope, collaborative use cases, and the foundational vision for FAIR semantic integration of lab information, this workshop will advance hands-on discussions on concrete integration strategies and community engagement practices. Participants will explore how semantic search interfaces, ontology alignment, and co-design methodologies can support FAIR metadata workflows across research domains.

The workshop aligns with key HMC Conference 2026 track topics, by showcasing ontology-based harmonisation efforts, Human-Machine Collaboration in (Meta)data Acquisition through discussions on digital tools and workflows and Domain and Application-specific Ontologies via real use cases from laboratory contexts. Based on this, we will develop and discuss exemplary knowledge graphs in groups during the workshop in order to introduce researchers to the field, but also to show infrastructure providers and central data stewards how knowledge graphs can support their work and the scientists they serve. We will also take these insights into account as our project progresses and incorporate them into further work.

This workshop invites researchers, data stewards, and infrastructure developers to contribute to shaping Semantic x-Lab's next phases and to collectively envision semantic metadata as a cornerstone for future-ready, cross-disciplinary research discovery.

ONLY WORKSHOPS - Proposed interaction format

Hack session

Alternative Track

1. Harmonisation of Metadata: Closing Semantic Gaps

ONLY WORKSHOPS - Tentative audience

researchers, knowledge graph developers, data stewards, research infrastructure provider

ONLY WORKSHOPS - Maximum number of participants

24

ONLY WORKSHOPS - Special technical requirements

beamer, whiteboard, tables for maximal 4 groups with 6 persons each

Autoren: PAPE, David (Helmholtz-Zentrum Dresden - Rossendorf (HZDR)); Dr. MÜHLBAUER, Felix (GFZ); Dr. LUZI-HELBING, Manja (GFZ); VOIGT, Martin (HZDR); KNODEL, Oliver

Vortragende: PAPE, David (Helmholtz-Zentrum Dresden - Rossendorf (HZDR)); Dr. MÜHLBAUER, Felix (GFZ); Dr. LUZI-HELBING, Manja (GFZ); VOIGT, Martin (HZDR); KNODEL, Oliver

Sitzung Einordnung: WORKSHOPS

Track Klassifizierung: HMC Conference 2026 - Pre-Conference Workshop: Pre-Conference Workshops