HMC — HELMHOLTZ Metadata Collaboration

The EM Glossary: a community effort towards harmonized terminology in electron microscopy
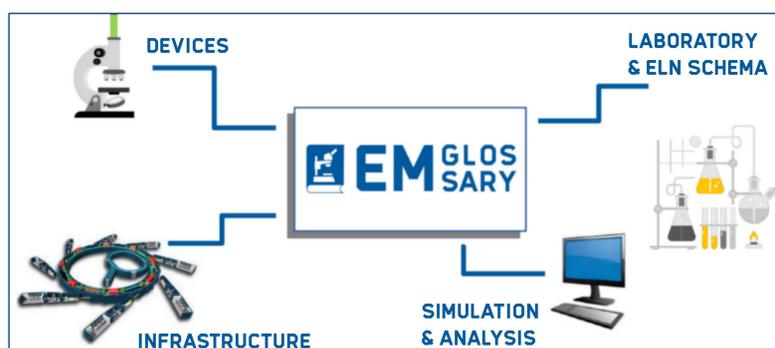
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The challenge

Ambiguous and misaligned terminology impairs scientific collaboration and data interoperability which is a major obstacle towards FAIR[1] (meta)data. Currently, numerous projects develop application level semantics for **EM metadata** in parallel. To avoid siloing, the EM Glossary group – a community driven effort – harmonises terminology and implements this as a semantic artefact. The glossary acts as a **semantic glue technology** and **increases interoperability** by allowing metadata from different projects to connect.
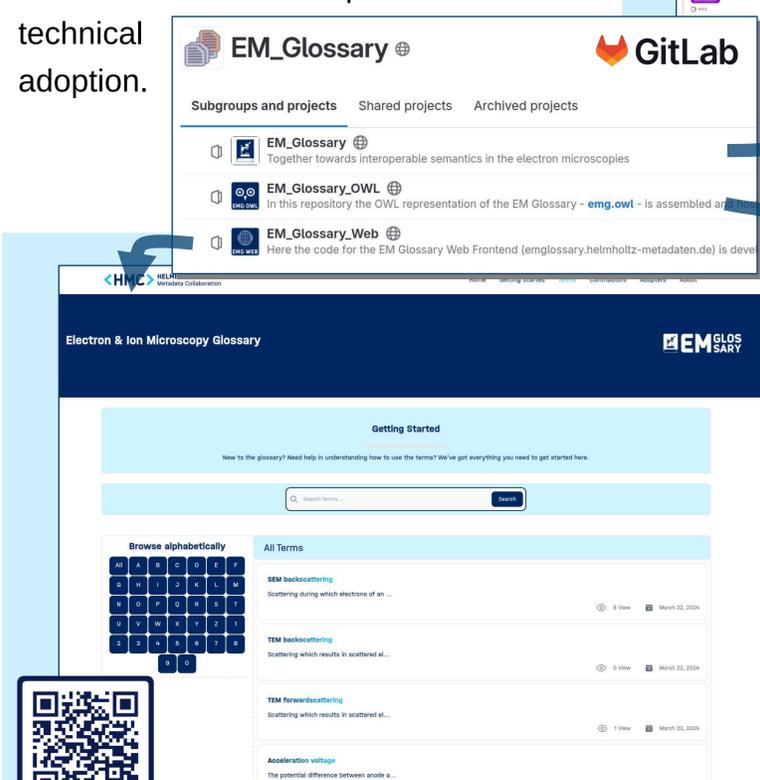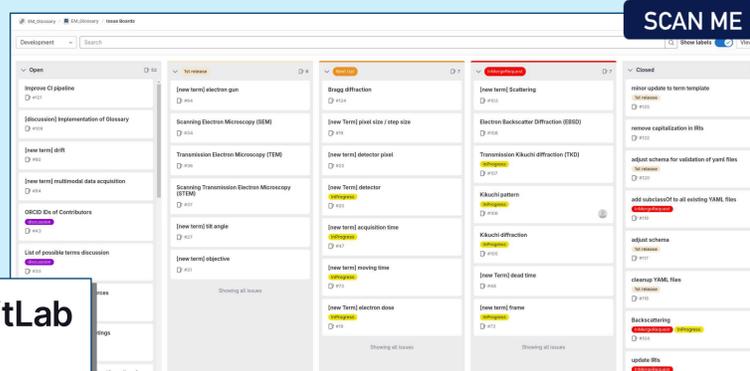

The implementation

The EM glossary is developed in a collaboration between electron microscopy domain experts, knowledge engineers, and metadata experts. Development is an open and inclusive community process that is fully documented. As a result, we provide a web frontend for interactive exploration and a semantic implementation for technical adoption.

EM Glossary - Web Explorer
To allow easy exploration of the EM Glossary and provide additional information on contributors, semantic implementation and adoption cases, we provide a web frontend to humans.

Community process
Developers and domain experts meet bi-weekly to discuss and harmonise definitions and further properties. We capture the full provenance of the process and discussions using our GitLab community repository.

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Machine readable representation
To provide a machine readable version of the EM Glossay, we provide an implementation in the web ontology language (OWL[2]). Content developed with the community is mapped into class hierarchy and annotation properties. "emg.owl" base URI: *purls.helmholtz-metadaten.de/emg.*

SCAN ME

[1] Wilkinson, M., Dumontier, M., Aalbergsberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). https://doi.org/10.1038/sdata.2016.18

[2] https://www.w3.org/OWL/

The community

Moderated by HMC, we have regular communication with **researchers** from various institutions **across Austria, the Netherlands, Switzerland, and Germany.**

The adoption

First implementations of the glossary will be in place by the end of 2024. We are currently in contact with four initiatives planning to technically implement our results:

- MDMC Schemas for electron microscopy
- NXem application definition for NeXus developed by FAIRmat
- NexusLIMS system developed by NIST
- Microscopy ontology (MO) developed by Platform Material digital

Join in!

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