

ELN-DIY-Meta: Creating Interoperability for ELNs

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Electronic lab notebooks (ELNs) are essential for gathering analog metadata, including challenging-to-digitize experimental parameters. However, interdisciplinary research institutions often employ various systems, creating barriers to metadata exchange. Addressing this interoperability gap, we're developing an API-based data exchange to enhance interoperability between the ELNs Herbie and Chemotion. Here, the project partners contribute their experience from the NFDI4Ing and NFDI4Chem consortia.

Initiating this effort with a particular use case in membrane research, we defined discipline-specific metadata in both ELNs and mapped corresponding data fields, resolving conflicts by expanding each ELNs' frontend and backend. The communication between the ELNs is implemented through an adapter that can handle both RESTful APIs. To maintain development efficiency and expandability, we decided not to implement the communication directly in the individual ELNs. This decision is largely justified by the fact that extending the communication tool to other ELNs or new data structures can be easily achieved.

The communication tool, developed in Python, is a server-based browser application that utilizes Python API packages from the respective ELNs. These API packages of Chemotion and Herbie were developed in the course of this project and can be seen as simple wrappers for the RESTful APIs of the ELNs. An administrator has to define a synchronization key – a key used to determine pairs of elements in both ELNs to be synchronized. Another noteworthy feature is that the administrator can then establish the data field mapping for the synchronized elements through a user-friendly click-and-point interface.

Thus, we have taken another step towards linked ELNs and breaking obstacles between disciplines. This effort will facilitate coherent experimental research datasets in the future.

Please assign your contribution to one of the following topics

Data interoperability through harmonised metadata and interoperable semantics

Please specify "other" (stakeholder)

In addition please add keywords.

Electronic Laboratory Notebook, Interoperability, Membrane, Chemotion, Herbie

Please assign yourself (presenting author) to one of the stakeholders.

Researchers

Primary authors: Mr KIRCHNER, Fabian (Helmholtz-Zentrum Hereon); Mr STARMAN, Martin (KIT); Mr SAHIM, Sayed Ahmad (Helmholtz-Zentrum Hereon); ESCHKE, Catriona (Helmholtz-Zentrum Hereon); HELD, Martin (Hereon); Dr JUNG, Nicole (KIT)

Presenters: Mr KIRCHNER, Fabian (Helmholtz-Zentrum Hereon); Mr STARMAN, Martin (KIT)

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