

## Facility collaboration type XAFS database (MDR XAFS DB)

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XAFS is highly valuable to create a database because cross-referencing across multiple disciplines enhances the understanding of experimental results. Against the recent informatics activation, the National Institute for Materials Science (NIMS) is constructing the MDR XAFS DB [1] from 2021, which is a facility collaboration type database that integrates and releases spectral data from various institutions that conduct XAFS experiments. “MDR” here refers to the Materials Data Repository created at NIMS, which is an information infrastructure that registers and publishes not only XAFS data but also many other materials research data. In other words, though the MDR XAFS DB, one of the "collections" of the MDR, is a database, it can be linked to various data in the MDR, as well.

The MDR XAFS DB is based on the FAIR principle [2], which is the policy of MDR. It is open to anyone, and the data can be freely downloaded and used under a defined license (CC BY-NC-SA [3]). Each piece of data is also assigned a DOI, making it accessible from anywhere. It is also possible to download data in bulk using the machine accessible API (Application Programming Interface).

Currently, the registration of data from SPring-8, Japan Synchrotron Radiation Research Institute has been completed, and the registration of data from Photon Factory, Ritsumeikan University, and Hokkaido University is in progress. In this talk, we will discuss the problems of collaboration (Metadata issues, IDing of material names for data integration, etc.) as well as the future prospects of XAFS DB.

[1] M. Ishii, et al., <https://doi.org/10.48505/nims.1447>

[2] <https://www.force11.org/group/fairgroup/fairprinciples>

[3] <https://creativecommons.org/licenses/by-nc-sa/4.0/>

Masashi Ishii received his PhD from Osaka University in 1995. He worked at RIKEN, Japan Synchrotron Radiation Research Institute, and the University of Manchester before joining the National Institute for Materials Science. Currently, he belongs to the Materials Data Platform Center (DPFC) in NIMS and is responsible for the NIMS materials database MatNavi (<https://mits.nims.go.jp/en/>).