**XAFS Database in Japan**

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There is always a strong demand for XAFS database just because one wants to compare one’s XAFS spectra with the standard data to confirm the spectra validity or to obtain spectra interpretation. Institute for Catalysis(ICAT) has started to collect XAFS data in collaboration with XAFS Society of Japan(JXS) since 2012. [[1]](#endnote-1) In this talk I will describe the structure and the principle of the database briefly and propose the international collaborations to construct the international rule of the (meta) data format and the utilization of the data in the database. I propose the international collaboration to collect the XAFS data from all SR facilities and to construct the database.

**XAFS database in Japan[[2]](#endnote-2)**

We adopted a simple data format that contains head parts such as sample name, facility, beam lines , corresponding person name and so on and following data parts. Data are composed of photon energy and t. Not only sample data but also standard data measured at the same conditions are deposited in order to calibration photon energy.

**Problems in the International XAFS database**

1. *How to confirm the reliability of the data.* It requires a lot of efforts and human resources to confirm the reliability of the data. It is an exhausted process. I propose a majority rule. We deposit many data on the same substance. The users will judge the data reliability based on the head part information and the data comparison of the same substrate. We will develop a computer program to put the reliability factor on all data using a deep learning method automatically.
2. *How to keep the data ownership.*  –Data must belong to a person who deposits it to the database. I propose each data file has its own characteristic datanumber like DOI which can identify the data ownership and allows to relate the XAFS data with other physical and chemical properties. In the paper we publish, we should indicate each spectra of their unique DOI-like datanumber in database. Others can use all XAFS spectra in the database indicating the datanumber.

**For future discussion**

1 Automatic storage of the data in all beamlines in the SR facilities shall be started.

2 All data shall be open for all. In order to keep the security of the data and guarantee of the data owner credit, we have to pay attention to the time when we open the data. My proposal is that the data should be open when the paper is accepted or patent is established.

1. We construct one unique database. We have to think of security of database Therefore the everyday control by the specialist must be necessary. It means we should think of the cost. The database should be controlled by academic societies such IXAS and IUCr XAFS commission but not company or government just because knowledge from the database is the power.

It is really the time to start the discussion about the database construction.

**References**

1. I. Ascone, K. Asakura, G. N. George, S. Wakatsuki, J.Synchro.Rad 2012, 19, 349-350. [↑](#endnote-ref-1)
2. https://www.cat.hokudai.ac.jp/catdb/index.php?action=xafs\_login\_form&opnid=2 [↑](#endnote-ref-2)