



TACO TANGO



Workshop at the ESRF, Grenoble

14-15 November 2001

NeXus data collection and OpenDaVE, a graphical tool for analysis

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NeXus is a structured, self-describing data format, which was designed with neutron and X-ray scattering in mind. The development was done by leading institutes like APS, IPNS; ISIS, PSI and NIST. Access to the data within NeXus files is provided by means of an API which is available for Fortran77, Fortran90, C and Java. A C++ version of the NeXus-API is under construction. The NeXus file structure contains certain groups representing the actual setup of the instrument. Some data groups are mandatory, other are optional and the user is free to add own data groups. To allow software to make assumptions the file structure standard definitions for common instrument types are constructed in the moment. In this contribution NeXus is presented as the standard file format for the instruments at the new research reactor FRM-II in Munich.

To enable the instrument scientists to benefit from the advanced features, certain tools are necessary. Two of them are presented here, namely the NeXus-Taco-Server and OpenDaVE, a framework for data analysis and visualization. Each instrument contains a large amount of data sources like counter electronics, sample environment and databases. The job of the NeXus-Taco-Server is to collect these data and write them to a single NeXus file, which is stored on a central file server afterwards. The retrieval of data files from the file server is also done by the NeXus-Taco-Server, which gives instrument users a single view on their data, regardless of the type of instrument they using.

Of imminent importance in the whole process is the data analysis. Although there are several tools which support HDF, which is the internal file structure NeXus is based on, most of them are either part of a commercial package or depend on certain prerequisites like operation systems. To support users a platform-independent flexible and open-source software is needed. At FRM-II OpenDaVE was created as a data analysis and manipulation framework. It is written in C++ and consists of a kernel, modules and a frontend. The modules contain the logic while the frontend presents the data to the user. A frontend could either be graphical, text- or web-based. Users are able to add their code as own modules by using a wizard, which is part of the framework. The functionality of OpenDaVE is presented in an example using a LakeShore temperature controller.