National High Magnetic Field Laboratory

Data Management Policy

Effective August 22, 2011

The National High Magnetic Field Laboratory (NHMFL) user facilities serve a multi- and inter-disciplinary scientific research community. Users of NHMFL facilities are expected to promptly analyze and submit their data for publication, with authorship that accurately reflects the contributions of those involved, and including all scientific findings from experiments performed at the NHMFL.

The NHMFL Data Management Plan accommodates the specific environments and natures of data generated at each of its six user facilities: DC Magnets, Pulsed Magnets, High B/T, Ion Cyclotron Resonance, Electron Magnetic Resonance, and the Nuclear Magnetic Resonance/Magnetic Resonance Imaging (NMR/MRI) User Facilities located at three campuses: Florida State University, University of Florida and Los Alamos National Laboratory. The data management policy is driven by the needs of our user community and the standards of the relevant funding agencies. The policy is reviewed annually to stay current with user demands and changes in technology.

Data Types:

NHMFL user data consists primarily of electronic records of measurements taken during a scheduled experiment. Data from a facility can be generated on either a facility computer system, a visiting user's laptop, or special data acquisition systems provided by a user. These electronic records may or may not exist on a facility computer during the course of an experiment.

All samples are considered to be under the control of the Principal Investigator (PI) and conforming to the requirements and standards under which the sample was generated. The NHMFL is able to temporarily store samples for experimenters at an NHMFL user facility as one of the services provided to the PI during an experimental project or for a period of time up to one year after the completion of an experiment. User samples are ultimately either returned to the PI or discarded with approval from the PI.

Data Standards:

Standards for data vary as required by the experimental methods and equipment used: The most open standard for the DC Magnet facility is for ASCII text files in column format. High data rate experiments such as the Pulsed Field Facility necessitate the use of open-vendor-specified binary formats or custom file formats developed by NHMFL personnel. The ICR facility also stores data in an NHMFL-defined format as it develops new experimental protocols. For NMR experiments, data formats are dictated by the research equipment used, such as the vendor-specific format for NMR data collected by Bruker spectrometers. Data for the NMR/MRI imaging facility is in DICOM images for OSIRIX viewer. Data is made available to researchers through the use of the current picture archiving and communication systems (PACS) with dedicated computers on a local high speed network.

All NHMFL-developed formats are open. Specifications and software to read and analyze data in these formats is available to the scientific community for free or at nominal reproduction costs. These software tools are provided on laboratory web sites and software storage areas.

Meta data can be recorded with the raw data files at the option of the researchers. Other meta data is recorded in the users written notebooks, lap top files, or other media at the option of the PI. Management of the meta data associated with standard data files is exclusively the purview of the PI.

Data Access Policies:

The laboratory will ensure that the NHMFL Data Management and Sharing Policy continues to be aligned with the policy applied to NSF single investigator grants, as the NHMFL user community consists primarily of researchers supported by traditional single investigator grants.

The control of raw data files and rights to the data are retained by the PI for the experiment. The PI has full control of the use of the data, including its publication in the refereed literature. The PI is responsible for adhering to the policies and procedures of their funding agency.

Data Archiving:

Data collected and stored on an NHMFL facility computer system are backed-up to local hard drives, tape storage or other common backup media. Data archiving is primarily the responsibility of the PI at their home institutions, but archived user data are retained at the NHMFL facility for a period ranging from six months to two years after collection at the NHMFL. This retention policy is reviewed annually and may be revised at the request of our user community, or in response to the continually evolving capabilities and reduction in costs of data storage. Archived data will only be made available to individuals at the request of the PI of the project.

Data will be archived on CDs or other similarly permanent media and provided to the user. User data can be further transferred to any portable drive or computer deemed appropriate by the user. Users my request data transfer consistent local facility administration policies, e.g. via a hard copy, secure FTP or standard network protocols for copying files over a TCP-based network.

Data Re-use Policies:

The NHMFL requires all NHMFL users to submit a one-page annual research report on each project for inclusion in the NHMFL Annual Report. These reports are available on the NHMFL web site and serve to illustrate the quantity, quality and breadth of research activities at the lab. Each year, thirty to forty of these reports are chosen as highlights to be published in a Special Issue of MagLab Reports, the NHMFL's quarterly magazine that is widely distributed to scientists, students, and granting agencies.

Data will not be reused nor any data-mining operations performed on past user data without permission of the PI. Once data are collected and provided to the user, it is solely the property of the PI. Any reuse of the data by the PI external to NHMFL is strictly at their discretion.