

# **Data Management Plan**

## **1) Products of the Research**

Samples from the proposed research will consist mainly of various multi-modular push-pull systems. These samples will be stored in the dark within the PI Group laboratories in individual drawers, refrigerators, and other appropriate areas; as determined by the properties, stabilities, compatibilities, and other attributes of the chemicals and materials, to keep them away from room lights to avoid slow photodecomposition. Metadata will be compiled and stored in the group S-Drive (UNT's storage server) to ensure that information pertaining to the data format, contents, conditions of data generation, and software compatibility is documented. Software and standard operating procedures are stored in the main student office. A lab member is responsible for keeping the group software up-to-date; while a different lab member is in charge of lab safety, which includes keeping standard operating procedures up-to-date and signed by all people who perform research in the PI Laboratories. Analog and digital electrochemical, spectroscopic, and other basic characterization data will also be generated and stored on computers located in the PI's experimental laboratories. These data will be prepared and published promptly in the form of peer-reviewed journal articles, dissertations, book chapters, white papers, and other print or electronic publishing formats. Only aggregate data will be reported to NSF or as part of any presentation or publication at a national conference or journal. The researchers are required to summarize all the data weekly and to produce an electronic document (most often PowerPoint) containing all the data for discussions and weekly group meeting presentations.

## **2) Data Format**

The data will be stored in various electronic formats depending on how and where the data were collected (ASCII, html, origin, pdf, or jpeg formats including Microsoft Office suite of programs, ppt, xls, and doc). PI's Group members actively record by hand in a bound and signed lab notebook all observations, synthetic procedures, and experimental results. These data formats will facilitate data sharing between and among collaborators. Signed laboratory notebooks, data, and intellectual property are considered confidential and are shared in print as peer-reviewed (journal) publications and orally at conferences.

## **3) Access to Data and Data Sharing Practices and Policies**

Data will be shared, as appropriate, via publication in peer-reviewed journal articles, conference presentations, and metadata formally available to other researchers through direct email contact with the PI. Requests to the PI to share data and/or results will be handled case-by-case and will be discussed with the persons involved. The PI will oversee and work with campus resources as necessary to ensure that all data has the protection of privacy, confidentiality, intellectual property, or other rights or requirements. Participating investigators and students will have unrestricted access to data. The data acquired and preserved in the context of this proposal will be further governed by UNT's policies pertaining to intellectual property and data management. Occasionally, very exciting preliminary data will be posted as figures on the PI's Group public website. Also, data in the form of tables, graphs, and computer code may be shared in the supplementary materials sections of peer-reviewed journal articles.

## **4) Policies for Reuse, Redistribution, and Production of Derivatives**

Individual journal reproduction permission is required before reproducing any content (e.g., images, text, figures) that has been published in journals. Data and images on the PI's Group website are considered public and therefore may be used by the public without cost, and without a disclaimer. The PI will work with UNT's Research Office to promptly file records of inventions and provisional patents as needed to protect intellectual property and to reduce any delays/impediments to the dissemination of research data while retaining the intellectual property rights of the University, investigators, and students.

## **5) Archiving of Data**

All laboratory computers are connected to a secondary hard drive that backs up files biweekly and that contains one level of backup redundancy. A computer with backup files is located in a student office, away from the laboratory space, to preserve the data in case of a major laboratory incident. Published data will be available in print from publishers or electronically in pdf format. All data and resources will be retained for a minimum of three years following the end of NSF funding or three years after public release, whichever is later. When a student leaves the group, he/she stores his/her data on the computers, backs up his/her entire body of data to the backup drive (including raw data), and places his/her samples in a box labeled with his/her name in a refrigerator dedicated for samples (no regents or other chemicals). The data and samples are kept indefinitely in the PI's Laboratory, along with the departing student's signed lab notebooks. By storing samples in the dark and away from other samples, chances for catastrophic loss of data will be minimized. All public data will be deposited in the UNT's S-drive Repository Service which has capabilities to manage, archive, and share digital content.