Data Management Plan

Types of data to be produced: Data acquired during this project will include digitized signals from Langmuir probes, magnetic probes, emissive probes, interferometers, spectrometers and other diagnostics as well as fast-framing camera movies of visible light emission. Data will be organized by experimental run, typically centered around obtaining a 1D or 2D spatial profile of plasma parameters (or turbulence parameters) by moving a single probe shot-to-shot.

Standards used for data/metadata format and content: Data from individual experimental runs are stored in HDF5 format, including metadata describing instrument gains/conversion factors, plasma conditions (e.g. discharge current, magnetic field strength, fill pressure, Residual Gas Analysis, etc), position of probes at each shot during a particular run and other relevant information (e.g. Notes by the machine operator/lead experimenter).

Policies for access and sharing: Currently, the leader/PI of an experimental campaign on LAPD receives all data and has exclusive use of the data for analysis and publication. Specific policy for data access and sharing need to be developed for the Basic Plasma Science Facility and the PI will work with BAPSF leadership and the BAPSF User Group to establish a policy. One possibility to be explored is the use of the San Diego Super Computer center's cloud-based storage and archiving service, which provides a web interface for data sharing (compliant with NSF data sharing rules).

Policies and provision for re-use: Currently, re-use of data from the BAPSF is at the discretion of the leader/PI of the experimental campaign. A policy for data re-use for the BAPSF facility should likely be developed and the PI will work with BAPSF leadership and BAPSF User Group to establish a policy.

Plans for archiving: Currently, data is stored on RAID arrays with disk-to-disk backup and tape backup. The data should optimally exist for a few years beyond the end of a project such as this proposal; the current setup has allowed this to happen. However, a more robust archiving strategy should be developed, and could make use of the SDSC cloud service; this service will be tested as an archiving solution during the proposed work. Details on the service can be found here: `https://cloud.sdsc.edu/hp/index.php`.