SuperCDMS SNOLAB Pre-operations and Commissioning Data Management Plan

The SuperCDMS data management plan is provided at the following link and is briefly summarized below.

http://cdms.berkeley.edu/data_releases/Data_Management_Plan_SuperCDMS_Soudan_and_SNOLAB-v3.pdf

Data Types, Processing, and Management

The raw data produced by the SuperCDMS data acquisition systems consist of ionization and phonon waveform traces, various veto signals, as well as environmental data such as cryogenic-system data and run-time data (e.g., trigger rates and detector state). The raw data are stored in binary files and SQL databases. Real-time processing with a limited number of algorithms and preliminary calibrations is first done at the experimental facility. These data are used to monitor the stability of the experiment and check the quality of the incoming data in real time. The raw data is then transferred to FNAL or SLAC for longer-term storage and for processing.

After analysis of DM search data and publication of the results, three types of data are produced:

- Candidate data: Information (e.g., charge and phonon energy) about the events passing all the selection criteria
- Exposures and efficiencies: Final WIMP efficiency for each detector as a function of total phonon energy, after applying all selection criteria, and exposures for each detector
- Nuclear recoil energy scale: parameters used to calculate the recoil energy of the events

Data Products and Releases

The data used in SuperCDMS Science publications are made publicly available at the time of publication or shortly thereafter. A document with instructions and detailed descriptions of the data release (including any quality cuts applied, efficiencies, exposures and nuclear energy scale) is provided for each data release. An email address at which the collaboration can be contacted regarding any questions about the release is also provided in the documentation.

All data releases are publicly available on the collaboration website: http://cdms.berkeley.edu/data_releases.html

Serving Data to the Community

While the SuperCDMS collaboration is not planning to release raw or processed data to the community, SuperCDMS Soudan and SuperCDMS SNOLAB will provide data from all finished analyses alongside the specific publication. The final datasets

used in publications are typically much smaller in size and will not require special software tools provided by the CDMS collaboration to analyze. The decision to not provide all data to the community was made due to cost benefit considerations. SuperCDMS does not have the resources within the collaboration to provide an easy-to-use dataset, along with analysis tools. Additional resources would need to be invested to accomplish this task, which the collaboration feels would be better spent elsewhere. The SuperCDMS Soudan and SNOLAB collaborations are committed to providing data from all publications to the wider community. SuperCDMS strives to make data relevant to a given publication available at the same time as the publication, but may not achieve that goal in all cases. If the collaboration is not able to provide the data from a given publication at the same time as the publication becomes public the collaboration will append the publication with the relevant data as soon as possible. Along with the data, SuperCDMS Soudan and SNOLAB are committed to providing scripts that will show how the data can be used and visualized. Data will be provided in a standard format (.mat, .txt and/or .ROOT) and any scripts provided will be written in a widely used programming language (MATLAB, Python etc.). The exact data format and script language will be left to the lead analyzers' own discretion.

Data Archival

Data collected at the experimental facility are stored at 2 separate facilities (underground science data: SLAC and FNAL, surface test facility data: Berkeley and Stanford) on RAID disk arrays to ensure safe archival.