MIP: 2DCC at Penn State University, DMR-1539916

Data Management - 2018

Lifetime Sample Tracking (LiST) Database

LiST is a web-based data management software tool developed by the 2DCC to capture, organize and curate experimental and theory/simulation data produced by the facility and external users.

K. Hilse, K. Dressler, V. Crespi, J. Redwing (Penn State)

Under LiST, data follow the sample from substrate preparation to synthesis protocol, integrated UHV characterization, ex situ characterization, modeling, delivery, and publication, with fine-grained access control and community-accessible tools and data.
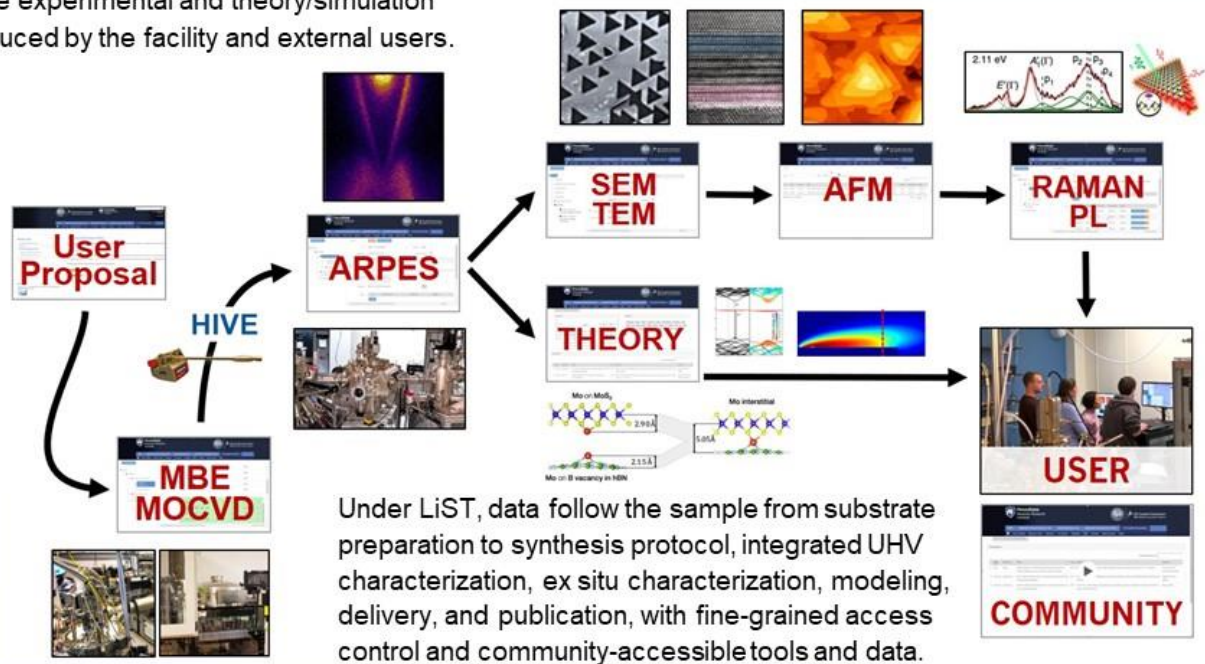
What Has Been Achieved: An integrated system for acquiring and tracking synthesis and characterization data (and publications, reporting) associated with all samples produced at the 2DCC-MIP (both locally and, through web access, remotely at user institutions), in an extensible framework with differing levels of access to staff, users, and the wider community.

Importance of Achievement: Capturing this data in a unified framework will facilitate and enable new data-centric research approaches in 2D materials.

Unique Features of the MIP That Enabled Project: Ability to support professional IT staff who work closely coupled with 2DCC researchers in a trans-disciplinary setting; orientation towards user support and overall scale of effort, highly integrated vacuum environment enabling sample transfer between tools without breaking UHV. Platform mission. Next steps would include development of automated data acquisition from high-throughput instruments (e.g. hyperspectral Raman/PL) and the design and implementation of computational tools and user interface to access and analyze the data at scale.