



Simple Operation

The MPMS measures the moment of a sample by moving it through a liquid helium cooled, superconducting sensing coil. Sample temperature is normally held fixed for each individual measurement. The magnetic field is held fixed for each measurement in DC magnetization studies, and varied by a programmable waveform synthesizer for AC susceptibility analysis.



"No one has time to sit up all night babysitting an experiment, and with the MPMS you don't have to. Just tell it what tests to run and the rest is automatic."

DC Magnetization

This is the magnetic moment per unit volume (M) of a sample. If the sample doesn't have a permanent magnetic moment, a field is applied to induce one. The sample is then stepped through a superconducting detection array and the SQUID's output voltage is processed and the sample moment computed. Systems can be configured to measure hysteresis loops, relaxation times, magnetic field, and temperature dependence of the magnetic moment.

AC Susceptibility

This quantity is sometimes referred to as the differential susceptibility and is the amplitude of a fluctuating magnetic moment induced by a small fluctuating magnetic field - dM/dH . Values measured include real and imaginary susceptibility, which are used to determine frequency dependence and relaxation effects.

Easy Data Collection

The Execute Sequence Menu provides users with window-menu options to tailor each measurement to meet specific requirements—including measurement scan length, the number of SQUID measurements, and the number of scans desired to improve signal-to-noise ratios. Simply choosing "Start Measure" implements data collection, computation of moments, and storage of data for future processing.

Automated Measurements

The MPMS is the only system of its kind to offer automated measurement capability—a long series of unattended calculations can be programmed easily. All other systems require manual interaction. This unique capability virtually eliminates the need for late-night lab vigils. Instruction files of up to 1500 steps can be created quickly and easily for immediate use, or stored on disk for later access. Instruction files can be chained together so there is essentially no limit to the programming potential.