



TOPIC: Magnetic Force Bending PPMS Probe Causes Temperature Control Problems

Problem: Below about 10 K, temperature control may be affected by a horizontal force on the PPMS probe due to magnet forces. The problem is manifested by a helium gas flow rate that depends on magnetic field. A slight bending of the probe may bend the helium flow impedance slightly, causing this flow change. The magnetic force responsible for the bending occurs only when there is significant field (> 1 T) in the magnet and there is a ferromagnetic object nearby.

Solution: The PPMS should be operated on a level floor and at least 1 meter away from large ferromagnetic objects. Note that many cement walls contain iron reinforcing bars (rebar) which are ferromagnetic. The PPMS should therefore be placed at least 1 m from any walls.