Measurement of Vortex Bragg Glass Structure Factor in Nb using Neutron Reflectometry

HELEN HANSON, XI WANG, XINSHEHNG LING, Brown University, BRIAN MARANVILLE, NIST — One of the key predictions in the Bragg Glass model of weakly pinned vortex lattices is a power-law structure factor similar to that of a 2D solid. Previous attempts using SANS in Nb and HTSC have provided results that are consistent with the Bragg Glass model. Here we report the first experiment using neutron reflectometry to resolve $S(Q)$ in a Nb single crystal. This work was supported by a grant from DOE-BES. The experiments were carried out at NG-1- Advanced Neutron Diffractometer facility at NIST NCNR.