

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Simulation of the magnetism of the 2D XY spin system in finite magnetic field¹ CHUNTAI SHI, SUNGHO HAN, CLARE YU, University of California Irvine — Experiments implicate surface spins as the source of flux and inductance noise in SQUIDs. There is experimental evidence that interactions between these surface spins cannot be ignored. We investigate the effect of applying an external magnetic field on an interacting surface spin system. As a candidate model of the surface spins, we present Monte Carlo simulations of the classical 2D XY spin model on a square lattice. We monitor the time evolution of the susceptibility of the system after an external magnetic field is applied. We also look at the local magnetic field at a site produced by the neighboring spins. We monitor how the distribution of local fields changes after the external field is applied.

¹This work is supported by Army Research Office Grant No. W911NF-10-1-0494

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Date submitted: 14 Nov 2013

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