

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Overlap distributions in two-dimensional spin glasses¹ A. ALAN MIDDLETON, Syracuse University — Numerical results are presented for overlaps of configurations of two-dimensional Ising spin glasses. At low temperatures, the correlation length greatly exceeds the system size, so that spin-spin correlations are relatively long range and domain wall energies exhibit sensitive dependence to temperature, as seen in the low temperature phase of three-dimensional spin glasses. Exact sampling algorithms are used so that there is no doubt of equilibration. High statistics runs are carried out, with tens of thousands of samples of size $L^2 = 256^2$ simulated. The results of the size-dependent spin overlap distribution $P(q)$ are evaluated using statistics recently developed by Yucesoy, Katzgraber and Machta. The statistics for two-dimensional models at low temperature are found to be quite similar to those of three-dimensional spin glasses at finite temperatures below the spin-glass transition.

¹Support includes NSF Grant DMR-1006731 (CMMT)

A. Alan Middleton
Syracuse University

Date submitted: 09 Nov 2012

Electronic form version 1.4