

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

A Comparison of Various Update Schemes Used in Monte Carlo Simulations of Stoner-Wohlfarth Particles¹ CHRISTOPHER RUSSELL, KARL UNRUH, University of Delaware — The hysteresis loops for non-interacting Stoner-Wohlfarth particles have been simulated by the Monte Carlo (MC) method as a function of the temperature, the magnitude of the angular aperture used to update the magnetization direction, and the total number of MC steps. Comparing the coercivity obtained from these hysteresis loops with those obtained from Néel's relaxation model has allowed two different sets of consistent MC parameters to be determined (in the sense that the simulated hysteresis loops will reproduce the temperature dependence of the Néel coercivity). The first set allows the use of a physical temperature but requires the magnitude of the update aperture to be temperature dependent (at a fixed number of MC steps). The second set allows the use of a constant update aperture but requires the introduction of an effective temperature (again at a fixed number of MC steps).

¹This work has been supported by ARO DEPCOR grant no. W911NF-04-1-0264

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Date submitted: 29 Nov 2005

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