

Abstract Submitted
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Giant Magnetoresistance in Nanogranular Magnets ANDREAS GLATZ, Argonne National Laboratory, IGOR BELOBORODOV, University of Chicago, VALERII VINOKUR, Argonne National Laboratory — I discuss the giant magnetoresistance of nanogranular magnets in the presence of an external magnetic field and finite temperature. It is shown that the magnetization of arrays of nanogranular magnets has hysteretic behavior at low temperatures leading to a double peak in the magnetoresistance which coalesces at high temperatures into a single peak. The magnetization of magnetic domains and the motion of domain walls in this system is calculated numerically using a combined mean-field approach and a model for an elastic membrane moving in a random medium, respectively. From the obtained results, the electric resistivity as a function of magnetic field and temperature is obtained. The findings show excellent agreement with various experimental data.

Andreas Glatz
Argonne National Laboratory

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