Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Correlation of magnetic properties, morphology and structural parameters in $Mn_{0.5}Zn_{0.5}Fe_2O_4$ nanoparticles[1] P. PRIETO, Excellence Center for Novel Materials, J. PRADO, J. LOPEZ, M.E. GOMEZ, Department of Physics, Universidad del Valle, A.A. 25360 Cali, Colombia, G.A. MENDOZA, Department of Physics, Universidad Nacional, Bogota, Colombia — The effect of structural and morphology parameters on the magnetic behavior of $Mn_{0.5}Zn_{0.5}Fe_2O_4$ Nanoparticles is presented. The samples were prepared by chemical co-precipitation method on mica substrates at temperatures between 60-90 $^\circ$C. The particle sizes were obtained using AFM ($\sim$ 3-15 nm) and MFM. Magnetization measurements have been adjusted for a system of non-interacting nanoparticles with a volume distribution according to: $M(T,H,t) = \frac{m_o^2 H}{2T} \int_0^{V_C} dV f(V) V^2$ Where m_o is magnetization of the single particle, V_c is critical volume and $f(V)$ is distribution size function. Blocking temperature T_B, magnetization of the single particle, anisotropy energy density and size distribution were obtained as function of the average particle size. The dependence of parameters such as M_s and H_c has been determines as function of the temperature and correlated with the particle sizes.

[1]Acknowledgments: This work was partially supported by Excellence Center for Novel Materials, ECNM, under contract No 043-2005.

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Date submitted: 17 Dec 2009 Electronic form version 1.4