

Abstract Submitted  
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**Magnetic properties of a mechanically alloyed metastable  $\text{Cu}_{1-x}\text{Co}_x$  system**<sup>1</sup> P. PRIETO, Excellence Center for Novel Materials, CENM, Cali - Colombia, D. REYES, A. CORTES, M. E. GOMEZ, W. LOPERA, Thin Film Group, Department of Physics, Universidad del Valle, AA. 25360, Cali - Colombia, M. LOPEZ, Departamento Ing. de Materiales, Universidad de Concepcion, Chile — We report a detailed study of the magnetic properties of  $\text{Cu}_{1-x}\text{Co}_x$  with Co concentrations between 7 and 10 at% produced by mechanical alloying, through a reactive milling process by using a Retsch PM 400 planetary ball mill under argon atmosphere. We have magnetically characterized our samples by using a Vibrating Sample magnetometer, VSM, from Quantum Design<sup>TM</sup>. We conducted magnetization hysteresis loops at different temperatures from 5 to 300 K. We also measured magnetization as a function of temperature for samples with different milling times. We analyzed the dependence of the coercive field on temperature and found that when milling time increases from 80 to 100h, it reflects an increase in the coercive field from 425 to 525 Oe at 30K; that is the maximum coercive field. We can explain these results by using a dipolar interaction model according to the Co precipitate size in the copper matrix.

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