

Abstract Submitted
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Composition Dependent Properties in Disordered, Lower Dimensional Co/Ni Dichloride Monohydrate¹ G.C. DEFOTIS, E.S. VOS, A.H. HOPKINSON, W.M. MAY, T.M. OWENS, C.M. DAVIS, C.L. DESANTO, College of William and Mary — This new mixed magnet is composed of the lower dimensional insulators Co dichloride monohydrate and Ni dichloride monohydrate, both studied previously by us. The Co system is an antiferromagnetic spin glass with an antiferromagnetic transition at 15.0 K and a spin glass transition at 8.4 K. The antiferromagnetic Ni system orders at 5.6 K. Both materials are characterized by ferromagnetic intrachain interactions and antiferromagnetic interchain interactions; an element of randomness is present in the Co system but not the Ni. Mixtures of these two components have been prepared and studied over a wide composition range. The variation in magnetic behavior with composition is not anticipated on the basis of pure component properties, e.g., the location of a susceptibility maximum and of a field induced transition. Irreversibility effects are present over a broad composition range. It seems likely that admixture of the two components enhances effects of disorder and frustration already present in the Co system, so that nonequilibrium behavior occurs even for Ni rich mixtures.

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