

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Magnetic Behavior in Cobalt and Nickel Dibromide Hydrates<sup>1</sup>**

G.C. DEFOTIS, C.M. DAVIS, C.L. DESANTO, College of William and Mary —  
The magnetism of 3d transition metal dibromide hydrates has been examined far less than for corresponding chlorides. Continued here is a program of examining the especially neglected monohydrate systems, by extending earlier studies of Co and Ni dichloride monohydrates to bromide counterparts. For comparison purposes the only lightly examined Co and Ni dibromide dihydrate systems are also studied. Both Ni materials, dihydrate and monohydrate, show an antiferromagnetic susceptibility maximum at, surprisingly, virtually the same 6.0 K location. The maximum is broader and of lesser magnitude in the monohydrate, perhaps indicating lower dimensional character. Marked differences in magnetization isotherms as a function of temperature also distinguish these two materials. In Co dibromide dihydrate a susceptibility maximum occurs at 9.5 K, only about half the temperature of a similar feature in the corresponding chloride. Yet in the monohydrate an enhanced susceptibility maximum appears at 15.5 K, remarkably close to such a feature in the corresponding chloride. And as in that system, nonequilibrium magnetic properties appear, suggesting that a significant degree of frustration is present.

<sup>1</sup>Acknowledgment is made to the Donors of the American Chemical Society Petroleum Research Fund for support of this research.

G.C. DeFotis  
College of William and Mary

Date submitted: 27 Nov 2007

Electronic form version 1.4