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Slow spin relaxation in dipolar spin ice.[1] MARTIN ORENDAC, LUCIA SEDLAKOVA, ALZBETA ORENDACOVA, PETER VRABEL, ALEXANDER FEHER, P. J. Safarik University and Inst. Exp. Physics SAS, Kosice, Slovakia, DANIEL M. PAJEROWSKI, JUSTIN D. COHEN, MARK W. MEISEL, Dept. Physics, Univ. Florida, MASAE SHIRAI, STEVEN T. BRAMWELL, Univ. College London, UK — Spin relaxation in dipolar spin ice $Dy_2Ti_2O_7$ and $Ho_2Ti_2O_7$ was investigated using the magnetocaloric effect and susceptibility. The magnetocaloric behavior of $Dy_2Ti_2O_7$at temperatures where the orientation of spins is governed by "ice rules" ($T < T_{ice}$) revealed thermally activated relaxation; however, the resulting temperature dependence of the relaxation time is more complicated than anticipated by a mere extrapolation of the corresponding high temperature data [1]. A susceptibility study of $Ho_2Ti_2O_7$ was performed at $T > T_{ice}$and in high magnetic fields, and the results suggest a slow relaxation of spins analogous to the behavior reported in a highly polarized cooperative paramagnet [2]. [1] J. Snyder et al., Phys. Rev. Lett. 91 (2003) 107201. [2] B. G. Ueland et al., Phys. Rev. Lett. 96 (2006) 027216.

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