

Abstract Submitted
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Disorder and field-induced dynamics in artificial spin ice ZOE BUDRIKIS, The University of Western Australia, Perth, Australia, PAOLO POLITI, Istituto dei Sistemi Complessi CNR, Sesto Fiorentino, Italy, ROBERT STAMPS, The University of Western Australia, Perth, Australia — Artificial spin ices are athermal systems for which dynamics are induced by a time varying applied field. The field induced dynamics have received a lot of attention, both experimental and theoretical (see, e.g., [1,2]), but these studies have not dealt explicitly with the effects of disorder. We show, through numerical simulations and studies of the phase space of the system, that disorder in fact has a strong and fundamental effect on the field-induced dynamics. This highlights the fact that an understanding of the dynamics of artificial spin ice must take into account both the sequence of applied fields and the spin ice lattice.

[1] X. Ke, J. Li, C. Nisoli, P. E. Lammert, W. McConville, R. F. Wang, V. H. Crespi, and P. Schiffer, Phys. Rev. Lett. 101, 037205 (2008).

[2] Z. Budrikis, P. Politi, and R. L. Stamps, Phys. Rev. Lett. 105, 017201 (2010).

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