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【645】Ordering and Thermalization of an Artificial Spin Ice based on the aperiodic Einstein Tiling

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Artificial spin ices are nanomagnet arrays whose coupled behaviour can be tailored by modifying the nanomagnet arrangement. Recently the Einstein "hat"tiling has been discovered, which includes the first non-trivial aperiodic monotile and can be obtained by deleting certain links in the deltoidal trihexagonal tiling. We have fabricated such artificial spin ices, which span the continuum between the periodic tiling and the Einstein tiling. Using magnetic force microscopy and Monte Carlo techniques, we uncover a transition in magnetic order. While all systems develop some form of long-range order, we observe important differences in their magnetic ground states.

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