

Abstract Submitted  
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**Experimental Realization of Isotropic Ising Spins in Frustrated and Unfrustrated Artificial Spin Ice with Perpendicular Anisotropy<sup>1</sup>**

SHENG ZHANG, JIE LI, IAN GILBERT, YU PAN, PAUL LAMMERT, KRITI KOHLI, RAJIV MISRA, VINCENT CRESPI, NITIN SAMARTH, PETER SCHIFFER, Department of Physics and Materials Research Institute, Pennsylvania State University, University Park, PA 16802, USA , CRISTIANO NISOLI, Theoretical Division and Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, NM 87545, USA, MIKE ERICKSON, CHRIS LEIGHTON, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN 55455, USA — We have studied lithographically defined arrays of magnetostatically interacting single domain ferromagnetic islands with moments normal to the plane, leading to fully isotropic magnetostatic interactions. Probing both frustrated kagome and unfrustrated honeycomb array geometries, we find that the spin configurations can be reproduced with models based on only nearest-neighbor correlations. While the honeycomb geometry displays ordering of moments in well-defined domains, the kagome geometry has only short range correlations that show striking similarities to those of analogous in-plane systems and are closely comparable to expectations for a simple Ising system.

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