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Relating local correlations to interaction energies between neighboring ferromagnetic islands in a triangular-lattice geometry[1] SHENG ZHANG, JIE LI, JASON BARTELL, CRISTIANO NISOLI, PAUL LAMMERT, VINCENT CRESPI, PETER SCHIFFER, Department of Physics and Materials Research Institute, Pennsylvania State University, University Park, PA 16802 USA — We have studied geometrically frustrated arrays of single domain ferromagnetic islands in triangular lattices, in which the frustration comes from magnetostatic interactions between neighboring islands. The islands are elongated and aligned so that the magnetic moments are uniaxial. We fabricated several groups of these arrays with different lattice spacing, varying both the distance along the short-axis direction of islands and the distance along the long-axis direction. By analyzing the local correlations between neighboring islands, we observe effects of both direct pair-wise interactions and indirect interactions via a third island.

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