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Studies of Lithographically Defined Geometrical Frustrated Magnetic Networks RUIFANG WANG, K.C. KU, R. FREITAS, G. XIANG, O. MAK-SIMOV, N. SAMARTH, P. SCHIFFER, Department of Physics, Penn State University, M.S. LUND, C. LEIGHTON, Department of Chemical Engineering and Material Science, University of Minnesota — We used electron beam lithography to pattern Permalloy and MnAs thin films into honeycomb, triangular, and Kagome lattices of separated ferromagnetic nanodots. In these lattices, the dot size is around 100nm with varying separation. Micromagnetic simulation suggests that these lattices can experience magnetic frustration because of the incompatibility of the lattice symmetry and the dipole interaction among the ferromagnetic dots. These lattices have been studied by MFM, both under external field and in the remnant state. This research is supported by a grant from Army Research Office Grant (DAAD19-03-1-0236) and MRSEC at Penn State University.

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