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Intrinsic localized modes in antiferromagnetic sheets: the role of shape-dependent demagnetization fields BENJAMIN KIMOCK, LARS ENGLISH, Dickinson College — We investigate numerically the role of global demagnetization fields on the formation of energy-localized patterns in two-dimensional sheets of antiferromagnetically-coupled, easy-axis spins. These global fields depend on the macroscopic shape of the lattice, and three scenarios can be delineated depending on whether the uniform mode is above, below or coincident with the long-wavelength spin waves in frequency. Each scenario leads to a different localization pathway and pattern. In the context of spin sheets, we can now also consider lattice anisotropies and their effects on the properties and interactions of intrinsic localized modes.

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