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The topology of gyroscopic metamaterials LISA M. NASH, University of Chicago, DUSTIN KLECKNER, University of California, Merced, ALISMARI READ, University of Chicago, VINCENZO VITELLI, Instituut-Lorentz, Leiden University, ARI M. TURNER, Johns Hopkins University, WILLIAM T.M. IRVINE, University of Chicago — Mechanical metamaterials can have topologically protected states, much like their electronic and optical counterparts. We recently demonstrated this in experiment by building a meta-material composed of coupled gyroscopes on a honeycomb lattice. This system breaks time-reversal symmetry and exhibits topologically protected one-way edge modes. In this talk we will explore the relationship between the topology of the band structure and the geometry of the lattice.

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