

Abstract Submitted
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A New Spin on Barium Cobalt Phosphate JESSE BROWN, Colorado State University — We have successfully synthesized a metastable phase of Barium Cobalt Phosphate $\text{Ba}_2\text{Co}_2(\text{PO}_4)_2$ (i.e. BCPO) via hydrothermal reactions. BCPO hosts magnetic cobalt ions arranged in a quasi 2-D honeycomb lattice. In the past this material has been suggested as an example of a 2-D XY Universality class, which theoretically exhibits a spin vortex binding transition, called the Kosterlitz-Thouless transition. By measuring the magnetization and heat capacity of BCPO as a function of temperature we are investigating this transition in detail. In the future we plan to use neutron scattering to investigate any anisotropic magnetic interactions on this honeycomb lattice. Our work may reveal that BCPO hosts a new phase of matter called a "quantum spin liquid".

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