

Abstract Submitted
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Electronic Properties of the Prussian Blue Analog $\text{Co}_3[\text{Os}(\text{CN}_6)]_2$ at Low Temperatures¹ T. WELLINGTON, A. FORD, W. TEIZER, M. HILFIGER, C. AVENDANO, K. DUNBAR, Department of Physics, Texas A&M University, College Station, TX 77843 — The Prussian blue analog $\text{Co}_3[\text{Os}(\text{CN}_6)]_2$ exhibits photoinduced changes of magnetic behavior as well as charge transfer induced spin transitions at low temperatures (5-10K). Magnetic measurements on the bulk material show an increased magnetic susceptibility after illumination with red light, as the analog exhibits an abrupt spin transition due to enhanced cooperativity. We are studying the electronic interactions between this Prussian blue analog and gold films of varying thickness at temperature $2\text{K} < T < 300\text{K}$, in order to analyze the effect of the introduction of new materials into the Prussian Blue vacancies. We show that the bilayer of the Prussian Blue analog $\text{Co}_3[\text{Os}(\text{CN}_6)]_2$ and gold exhibits a decrease by an approximate factor of three in the resistance when compared to a thin film gold sample. The exact decrease varies from sample to sample, due to the disordered nature of Prussian blue analogs and the existence of water in the interstices of the lattice. However, for each sample the observed decrease is reproducible for up to two weeks.

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Winfried Teizer
Texas A&M University

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