

Abstract Submitted
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Photoinduced Magnetism of Ternary Transition Metal Prussian Blue Analogs¹ D.M. PAJEROWSKI, M.W. MEISEL, Dept. Phys., Univ. Florida, J.E. GARDNER, D.R. TALHAM, Dept. Chem., Univ. Florida — The magnetism of Prussian blue analog materials (PBAs) can be tuned with external stimuli such as temperature, pressure, and light. Recently, novel effects have been seen in PBAs with substitutionally mixed ternary and quaternary transition metals, rather than the usual binary analogs. One noteworthy material we have studied is a $\text{Na}_a\text{Ni}_{1-x}\text{Co}_x[\text{Fe}(\text{CN})_6]_b \cdot n\text{H}_2\text{O}$ powder, which can show either a photoinduced increase or *decrease* in magnetization depending upon the Ni substitution, the applied magnetic field, and the temperature. This result is the first example of a photoinduced decrease in magnetization while generating new spins via a charge transfer induced spin transition (CTIST) in a bulk material. Constrastingly, the photodecrease observed in PBA binary thin films has different microscopic origins [1-2]. Insight into the underlying mechanisms can be obtained by using mean field models, which qualitatively reproduce the experimental data. SQUID magnetometer, FT-IR, TEM, and EDS data will be presented.

[1] J.-H. Park, *et al.*, Appl. Phys. Lett. **85**, 3797 (2004).

[2] F. A. Frye *et al.*, Chem. Mater. **20**, 5706 (2008).

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D.M. Pajerowski
Dept. Phys., Univ. Florida

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