Photoinduced Magnetism in Nanoscale Heterostructures of Prussian Blue Analogues* E.S. KNOWLES, D.M. PAJEROWSKI, M.W. MEISEL, Dept. Phys. and NHMFL, Univ. Florida, M.F. DUMONT, A. QUIET, D.R. TALHAM, Dept. Chem., Univ. Florida, A. GOMEZ, S.W. KYCIA, Dept. Phys., Univ. Guelph — Nanometer-scale cubic heterostructures of two Prussian blue analogues, ferromagnetic K$_7$Ni$_{18}$[Cr(CN)$_{6}$]$_{c}$·nH$_2$O (A) with $T_c \sim 70$ K and photo-active ferromagnetic Rb$_6$Co$_{18}$[Fe(CN)$_{6}$]$_{c}$·mH$_2$O (B) with $T_c \sim 20$ K, have been studied. These samples exhibit a persistent photoinduced decrease in magnetization at temperatures up to $T_c \sim 70$ K of the A constituent, resembling results from analogous ABA heterostructured films. This net decrease suggests that the photoinduced structural transition in the B layer generates a strain-induced decrease in the magnetization of the A layer, similar to a pressure-induced decrease previously observed in the pure A material. Core-shell and core-shell-shell configurations AB, BA, ABA, and BAB have been characterized by TEM, FTIR, XRD, and SQUID magnetometry.

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