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Reversible Photoinduced Magnetism in V-Cr Prussian blue analogues[1] K. DENIZ DUMAN, JUNG-WOO YOO, N.P. RAJU, Physics, The Ohio State University, AMBER C. MCCONNELL, WILLIAM W. SHUM, KENDRIC J. NELSON, JOEL S. MILLER, Chemistry, University of Utah, A.J. EPSTEIN, Physics and Chemistry, The Ohio State University — The cyano-bridged bi-metallic compounds, so called "Prussian blue magnets," display a broad range of interesting photoinduced magnetic phenomena. A notable example is Fe-Co Prussian blue magnet, which exhibits light-induced changes in between magnetic states together with glassy behavior [1,2]. Here, we report reversible photoinduced magnetic phenomena in V-Cr Prussian blue analogue ($\mathbf{K}_{1.54}\mathbf{V}_{0.85}\mathbf{[Cr(CN)}_6\mathbf{]}\mathbf{(SO}_4\mathbf{)}_{0.16}\mathbf{3.1H}_2\mathbf{O}$), one of the few room temperature molecule-based magnets. Illumination with UV light suppresses magnetization, whereas subsequent illumination with green light increases magnetization. This recovery effect of green light is observed only when the sample is previously UV-irradiated. This suggests a hidden metastable magnetic state with a long lifetime at low T (< 100 K). Results of detailed magnetic studies and the likely microscopic mechanisms will be discussed. [1] Hashimoto et al. science **272**, 5262 (1996); [2] Pejakovic, et al. PRL **85** 1994 (2000)

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