

Abstract Submitted
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Synthesis and Magnetism of High Curie Temperature Prussian Blue Analogue Molecular Nanomagnet-Chromium Cyanide Molecule Nanowire Arrays PINGHENG ZHOU, 1 Center for Advanced Microstructures and Devices (CAMD), Louisiana State University, Baton Rouge, LA 70806, DESHENG XUE, JINLI YAO, Key Laboratory for Magnetism and Magnetic Materials of MOE, Lanzhou University, Lanzhou 730000, China — The goal to synthesize molecular nanomagnets that exhibit spontaneous magnetic ordering close to room temperature might enable one to apply them in the fields of magnetic memory devices and microelectronics. Chromium cyanide molecule nanowire arrays with diameters of about 50 nm and lengths up to $4\mu\text{m}$ have been synthesized by an electrodepositing technology based on anodizing anodic aluminum oxide films. Characterization measurements show that the oxidation state of the chromium ions in the chromium cyanide nanowires can be expressed as $\text{Cr}^{3+}\text{-CN-Cr}^{3+}$. Magnetic properties measurements indicate that the Curie temperature of chromium cyanide nanowire is 200 K, which is closer room temperature compared with current molecular nanomagnet systems.

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