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Preparation of a magnetic metal-organic square and metal-organic cubes using 4,5-bis(2-imidazolyl)imidazolate: slow magnetization relaxation behavior in mixed-valent octamanganese(II/III) clusters

The 4,5-bis(2-imidazolyl)imidazolate ligand has produced three kinds of magnetic multinuclear clusters, namely a metal-organic square with copper(II) ion and metal-organic cubes with nickel(II) and manganese(II/III) ions. The paramagnetic tetracopper(II) square and octanickel(II) cube exhibit moderate antiferromagnetic exchange coupling constants as -95 and -32 K, respectively. Notably, the octamanganese(II/III) cube exhibits a slow magnetization relaxation behavior due to significant magnetic anisotropy of the manganese(III) ions. The thermal barrier for the magnetization reversal is estimated to be 6.38 K. The compound has also been characterized by X-ray crystallography, UV-vis spectroscopy, and electrochemistry.

As featured in:



See Hajime Kamebuchi, Makoto Tadokoro *et al.*, *Dalton Trans.*, 2021, **50**, 5452.