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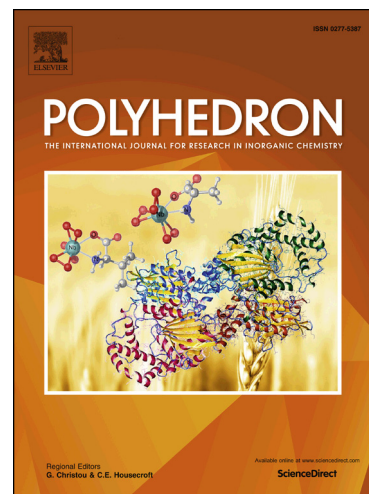
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Synthesis, structure and magnetic properties of dinuclear cobalt-tetraoxolene complexes with bidentate terminal ligands

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Abstract

The design of molecule-based systems with tuneable optical and/or magnetic properties has attracted considerable attention because of their potential applications in high-performance molecule-based electronic devices, switches, sensors and displays. In this regard, a large number of valence tautomeric tetraoxolene-bridged dinuclear cobalt complexes with tetradentate ancillary ligands have been reported, but none of these complexes contained a bidentate terminal ligand. In order to increase the scope in this field, the present report describes the synthesis, structures, electrochemical and magnetic studies of two dinuclear cobalt-tetraoxolene complexes, $[\text{Co}_2(\text{d}hbq)(\text{bpy})_4](\text{PF}_6)_3$ (**1**(PF₆)₃) and $[\text{Co}_2(\text{d}hbq)(\text{bpa})_4](\text{PF}_6)_3 \cdot 6\text{H}_2\text{O}$ (**2**(PF₆)₃·6H₂O), where H₂d**hbq** is 2,5-dihydroxy-1,4-benzoquinone, with the bidentate terminal ligands 2,2'-bipyridine (bpy) and 2,2'-bipyridyl

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