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Research paper

Four coordination complexes based on two novel carboxylate-functionalized resorcin[4]arenes: structures, fluorescence and sensing of nitrobenzene and dichromate anions

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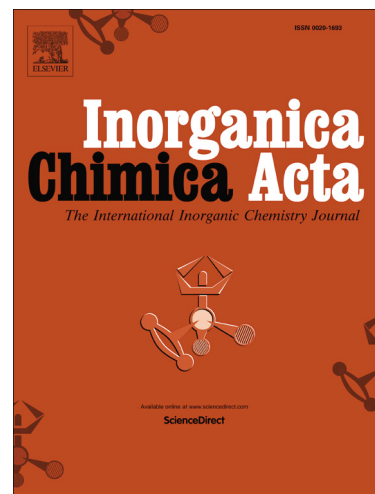
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**Four coordination complexes based on two novel
carboxylate-functionalized resorcin[4]arenes: structures,
fluorescence and sensing of nitrobenzene and dichromate anions**

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ABSTRACT

Four new coordination complexes, namely, $[\text{NH}_2(\text{CH}_3)_2]_2[\text{Cd}(\text{L1})(\text{DMF})_2]$ (**1**), $[\text{Zn}(\text{L1})_{0.5}(\text{phen})] \cdot \text{H}_2\text{O}$ (**2**), $[\text{Zn}_2(\text{L2})(\text{Phen})_2(\text{H}_2\text{O})_2]$ (**3**) and $[\text{NH}_2(\text{CH}_3)_2][\text{Zn}_2(\text{L1})(\text{Cl})(\text{DMF})(\text{H}_2\text{O})] \cdot 2\text{H}_2\text{O}$ (**4**) have been synthesized ($\text{H}_4\text{L1} = 2,8,14,20$ -tetra-phenyl-4,12,16,24-tetra-oxyallylene-6,10,18,22-tetra-carboxymethoxy-resorcin[4]arene, $\text{H}_4\text{L2} = 2,8,14,20$ -tetra-ethyl-6,12,18,24-tetra-oxyallylene-4,10,16,22-carboxymethoxy-resorcin[4]arene and phen = 1,10-phenathroline). Complex **1** shows an infinite chain. Complexes **2** and **3** exhibit similar ribbon structures. The ribbons in **2** are extended by C-H $\cdots\pi$ interactions to create a supramolecular layer. While in **3**, the ribbons are further connected via H-bonds and π - π interactions to yield a supramolecular double-layer. Complex **4** reveals a 3D framework with 4-connected $(4^28^4)_2(4^27^28^2)_2$ topology. Solid state luminescent properties for all complexes were investigated. The temperature dependence fluorescence of **2** and **3** were studied.

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