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# New lanthanide 2D coordination polymers constructed from a flexible ether-bridged tricarboxylate block: Synthesis, structures and luminescence sensing

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## Abstract

Three new 2D lanthanide-organic networks,  $\{[\text{Sm}_2(\mu_4\text{-cpta})(\mu_5\text{-cpta})(\text{H}_2\text{O})_3]\cdot 3\text{H}_2\text{O}\}_n$  (**1**) and  $[\text{Ln}(\mu_3\text{-cpta})(\text{phen})(\text{H}_2\text{O})_2]_n$  (Ln = Tb (**2**) and Sm (**3**)), were successfully synthesized via hydrothermal reactions using  $\text{Ln}(\text{NO}_3)_3\cdot 6\text{H}_2\text{O}$ , a flexible ether-bridged tricarboxylic acid  $\text{H}_3\text{cpta}$  (2-(2-carboxyphenoxy)terephthalic acid) as a principal building block, and phen (1,10-phenanthroline) as an optional supporting ligand. All products were obtained as air and thermally stable microcrystalline solids and fully characterized by standard solid-state techniques, including elemental analysis, TGA, IR spectroscopy, powder and single-crystal X-ray diffraction. Compound **1** possesses an intricate 2D layer structure with the **4,5L51** topology, which is driven by the  $\mu_4$ - and

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