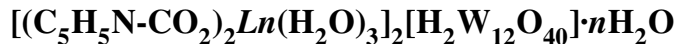


# Two Novel One-dimensional Inorganic-Organic Hybrids Constructed from $[\text{H}_2\text{W}_{12}\text{O}_{40}]^{6-}$ Clusters and Lanthanide-organic Complexes:



( $\text{C}_5\text{H}_5\text{N-CO}_2 = \text{Pyridine-4-carboxylate}$ ;  $\text{Ln} = \text{La}^{3+}$ ,  $n = 5$ ;  $\text{Ce}^{3+}$ ,  $n = 7$ )

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*Z. Naturforsch.* **2008**, *63b*, 16–22; received August 15, 2007

Two novel polyoxotungstate-based rare earth compounds,  $[(\text{C}_5\text{H}_5\text{N-CO}_2)_2\text{Ln}(\text{H}_2\text{O})_3]_2[\text{H}_2\text{W}_{12}\text{O}_{40}] \cdot n\text{H}_2\text{O}$  ( $\text{C}_5\text{H}_5\text{N-CO}_2 = \text{pyridine-4-carboxylate}$ ;  $\text{Ln} = \text{La}^{3+}$  (**1**),  $n = 5$ ;  $\text{Ce}^{3+}$  (**2**),  $n = 7$ ), have been synthesized in aqueous solution and characterized by single-crystal X-ray diffraction, elemental analyses, IR spectra and TG analyses. The isostructural compounds **1** and **2** exhibit one-dimensional (1D) zig-zag chains, in which the dinuclear lanthanide complexes act as bridging linkers and the  $[\text{H}_2\text{W}_{12}\text{O}_{40}]^{6-}$  groups serve as bidentate ligands. The results of cyclic voltammetry (CV) show that compounds **1** and **2** undergo two two-electron redox processes, similar to that of the parent  $(\text{NH}_4)_6[\text{H}_2\text{W}_{12}\text{O}_{40}] \cdot 3\text{H}_2\text{O}$ , and also reveal that the pH of the supporting electrolytic solution has a notable effect on the electrochemical behavior of compound **2**.

*Key words:* Polyoxometalates, Lanthanide, Electrochemical Properties