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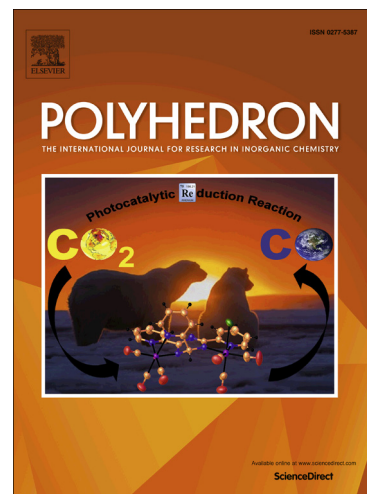
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**Novel heterometallic polymeric lanthanide acetylacetonates with bridging  
cymantrenecarboxylate groups – synthesis, magnetism and thermolysis**

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New isostructural complexes  $[\text{Ln}(\text{CymCOO})(\text{acac})_2(\text{H}_2\text{O})]_n$  (Ln = Eu (**1**), Gd (**2**), Tb (**3**), Dy (**4**), Ho (**5**), Er(**6**), acac – acetylacetonate (pentane-2,4-dionate) anion) having a polymeric structure based on CymCOO-bridged  $\{\text{Ln}(\text{acac})_2(\text{H}_2\text{O})\}$  fragments were prepared by exchange reactions of hydrated Ln acetylacetonates with CymCOOH (Cym =  $(\eta^5\text{-C}_5\text{H}_4)\text{Mn}(\text{CO})_3$ ) in a  $\text{CHCl}_3\text{-EtOH-H}_2\text{O}$  mixture. For the synthesized complexes comprising diamagnetic cymantrenyl moieties the temperature dependences of the dc magnetic susceptibility were studied in the temperature range of 300-2 K under an applied magnetic field of 5 kOe. Slow magnetic relaxation was found in complexes **4** and **6**. The thermal decomposition of the complexes was studied by TGA and DSC in the 30 – 600°C temperature range in air and under Ar atmosphere. In the former case, the reaction affords  $\text{LnMnO}_3$  phases. The first step of the thermal decomposition of **6** was studied by the kinetic analysis. For the Dy and Ho complexes, standard thermodynamic functions were calculated from adiabatic calorimetry data. Manganites  $\text{LnMnO}_3$  (Ln = Eu, Gd, Tb, Dy) were synthesized from the corresponding complexes, and their magnetic properties were studied.

**Keywords:** cymantrenecarboxylate,  $\beta$ -diketonate, magnetic properties, thermal decomposition, lanthanide manganites

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