

Structure and photophysical properties of new lanthanide (III) complexes [Ln(C₁₀H₈O₆)_{1.5}(H₂O)₃]·H₂O.

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Streszczenie

A serie of lanthanide complexes with o-phenylenedioxydiacetic acid (PDDA) was synthesized and the crystal structure was resolved. The compounds [Ln(C₁₀H₈O₆)_{1.5}(H₂O)₃]·H₂O (where Ln = Tb(III), Gd(III) and Eu(III)), crystallize as polymer with the space group Pbcn and a = 34.075(2) Å, b = 12.595(1) Å, c = 8.314(1) Å. Absorption, emission, and excitation spectra at 293 K, 77 K and 4 K as well as luminescence decay time measurements were used to characterize the dynamics of the excited states and to determine the ligand-to-metal energy transfer mechanism for the complexes in solid state and solution. The role of the C–T state in these processes has been analysed. The results are compared with those achieved for a Na[Eu(C₁₀H₈O₆)₂(H₂O)₂]·4H₂O complex and a Eu(III) complex with PDDA in aqueous solution.

Słowa kluczowe

Terbium, Europium, Luminescence, , Charge transfer state, O-Phenylenedioxydicarboxylic acid

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