

## Characterization of the electronic excited-state energetics and solution structure of lanthanide(III) complexes with the polypyridine ligand 6,6'-bis[bis(2-pyridylmethyl)aminomethyl]-2,2'-bipyridine.

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### Streszczenie

Absorption, emission, and excitation spectra for solid-state and solution of Tb(III), Dy(III), and Gd(III) complexes with the polypyridine ligand 6,6'-bis[bis(2-pyridylmethyl)-aminomethyl]-2,2'-bipyridine ( $C_{36}H_{34}N_8$ ) are presented. Measurements of excited-state lifetimes and quantum yields in various solvents at room temperature and 77 K are also reported and used to characterize the excited-state energetics of this system. Special attention is given to the characterization of metal-to-ligand energy transfer efficiency and mechanisms. The measurement of circularly polarized luminescence (CPL) from the solution of the Dy(III) complex following circularly polarized excitation confirms the chiral structure of the complexes under study. No CPL is present in the luminescence from the Eu(III) or Tb(III) complex because of efficient racemization. The variation of the magnitude of the CPL as a function of temperature from an aqueous solution of DyL is used for the first time to characterize the solution equilibria between different chiral species.

### Słowa kluczowe

Absorption, Ligands, Luminescence, Quantum yield, Solution chemistry

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