

## Excited state energetics and spectroscopic characterization of a chiral mixed chelate complex containing Eu(III).

### Autorzy

Paula Gawryszewska

Grażyna Oczko

James P. Riehl

Vera I. Tsaryuk

Janina Legendziewicz

### Rok wydania

2004

### Czasopismo

Journal of Alloys and  
Compounds

### Numer woluminu

380

### Strony

352-356

### DOI

10.1016/j.jallcom.2004.03.013

### Kolekcja

Naukowa

### Język

Angielski

### Typ publikacji

Artykuł

### Streszczenie

Lanthanide chelates with strong ligand absorbance in the UV region are the subject of interest because of various applications. In many studies involving chiral or racemic systems, the measurement of circularly polarized luminescence (CPL) can yield important information concerning the structure and excited state dynamics of the lanthanide complex. In the present paper, the most important spectroscopic behavior will be described. Absorption, emission spectroscopy and the decay time studies of solid and solutions of  $\text{Eu}(\text{TTFA})_3 \cdot 5\text{Mphen}$  (where TTFA is thenoyltrifluoroacetone-4,4,4-trifluoro-1-[2-thienyl]-1,3-butadione and 5Mphen is 5-methylphenanthroline) at 293 and 77 K are presented. The role of radiative and non-radiative processes in emission intensity is discussed. Unexpectedly, in addition to the expected emission from  $^5\text{D}_0$  level, emission from  $^5\text{D}_1$  was also detected. The results of high resolution emission, CPL measurements, structure and symmetry of the compounds in the solid state and solutions are described. The potential use of  $\text{Eu}(\text{TTFA})_3 \cdot 5\text{Mphen}$  as a sensor of chiral systems is discussed.

### Słowa kluczowe

Europium(III), Chelate complexes, Spectroscopy, Circularly polarized luminescence

### Adres publiczny

<https://doi.org/10.1016/j.jallcom.2004.03.013>

### Strona internetowa wydawcy

<http://www.elsevier.com>