

On the determination of empirical absolute chiral structure: chiroptical spectrum correlations for D_3 lanthanide (III) complexes.

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Streszczenie

Circularly polarized luminescence (CPL) from selected transitions of Eu(III) in resolved single crystals of $\text{Na}_3[\text{Eu}(\text{ODA})_3]_2\text{NaClO}_4 \cdot 6\text{H}_2\text{O}$ are compared to CPL results obtained from solutions containing perturbed racemic mixtures of $\text{Eu}(\text{2,6-pyridine-dicarboxylate})_3$ and enantiomerically pure d-f helicate $[\text{LL}-(\text{L})\text{EuCr}(\text{L}8)_3]$ in order to determine an empirical relationship between helicity and CPL spectra. Comparison of the CPL results, even for the magnetic dipole allowed transitions of Eu(III) where one measures large chiral discrimination, shows that the signs and magnitudes do not correlate with the overall helicity of the Eu(III) site. It is concluded that the symmetry of the Eu(III) site in $[\text{LL}-(\text{L})\text{EuCr}(\text{L}8)_3]$ is not close enough to D_3 to allow for the confirmation of the presumed spectra:structure correlation.

Słowa kluczowe

circularly polarized luminescence, lanthanide, luminescence, polarization

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