

## Eu<sup>3+</sup> and Tb<sup>3+</sup> coordination compounds with phenyl-containing carbacylamidophosphates: comparison with selected Ln<sup>3+</sup> β-diketonates

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### Streszczenie

Materials based on Eu<sup>3+</sup> and Tb<sup>3+</sup> coordination compounds are of great interest due to their strong red and green luminescence. Appropriate selection of ligands plays a huge role in optimizing their photophysical properties. Another very helpful instrument for such optimization is theoretical modelling, which permits the prediction of the emissive properties of materials through intramolecular energy transfer analysis. The ligands that allow for achieving high efficiency of Eu<sup>3+</sup> and Tb<sup>3+</sup> emissions include carbacylamidophosphates (CAPH, HL). In this brief review, we summarize recent research for lanthanides CAPH-based coordination compounds of general formulas Cat[LnL]<sub>4</sub>, [LnL<sub>3</sub>Q] and [Ln(HL)<sub>3</sub>(NO<sub>3</sub>)<sub>3</sub>], where Cat<sup>+</sup> = Cs<sup>+</sup>, NEt<sub>4</sub><sup>+</sup>, PPh<sub>4</sub><sup>+</sup> and Q = 1,10-phenanthroline, 2,2-bipyridine or triphenylphosphine oxide, involving the use of thermal gravimetric analysis, X-ray analysis, and absorption and luminescence spectroscopy. We carried out a comparison with selected Ln<sup>3+</sup> β-diketonates. Possibilities and developments of theoretical calculations on energy transfer rates are also presented.

### Słowa kluczowe

anthanide, luminescence, carbacylamidophosphates, β-diketone, thermal gravimetric analysis, photosensitisation, energy transfer

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