

DEVELOPMENT OF LUMINESCENT LANTHANIDE COMPLEXES BASED ON TETRAIMINODIPHENOLATE MACROCYCLES.

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The lanthanide (Ln) metals are useful for a variety of optical and biomedical imaging applications due to their unique luminescence properties. Emission intensity is generally weak, however, for the free Ln ions in solution due to low absorption coefficients and luminescence quenching by coordinated solvent molecules. It therefore becomes beneficial to bind the Ln to an organic “antenna” ligand that can effectively absorb light and transfer the energy to the metal ion for subsequent Ln-centered emission. This presentation will focus on the development of macrocyclic ligands incorporating Schiff base and phenolate binding moieties suitable for Ln coordination. These binding units are known to sensitize Ln luminescence and should lead to stable Ln complexes for further study. Synthesis, characterization, photophysical properties, and general structural aspects of this new series of compounds will be discussed.