

LUMINESCENT THIN FILMS BASED ON N-(DIPHENYLPHOSPHORYL)BENZAMIDE Eu^{III} AND Tb^{III} COMPLEXES FOR LIGHT EMITTING DIODE TECHNOLOGY

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Abstract. A series of lanthanide coordination compounds LnL₃, LnL₃Phen, and LnL₃Dipy with aryl-functionalised carbacylamidophosphate (CAPH) ligand N-(diphenylphosphoryl)benzamide (HL= PhC(O)N(H)P(O)Ph₂) were synthesized for luminescent thin films producing. The bulky organic ligands provide a hydrophobic shell around Ln^{III} ion leading to highly luminescent terbium and europium complexes with long-lived emission. The thin films of the complexes were obtained by spin coating and, for the first time, by vacuum evaporation. The films exhibit an intensive monochromatic photoemission with decay times equal to 0.78-1.34 ms.

Keywords: lanthanide complex, photoluminescence, carbacylamidophosphate, chelate ligand, thin film.

Received: 15 March 2018/ Revised final: 07 May 2018/ Accepted: 16 May 2018
