Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Synthesis, crystal structure and photoluminescence studies of [Eu(dbm)$_3$(impy)] and its polymer based hybrid film.

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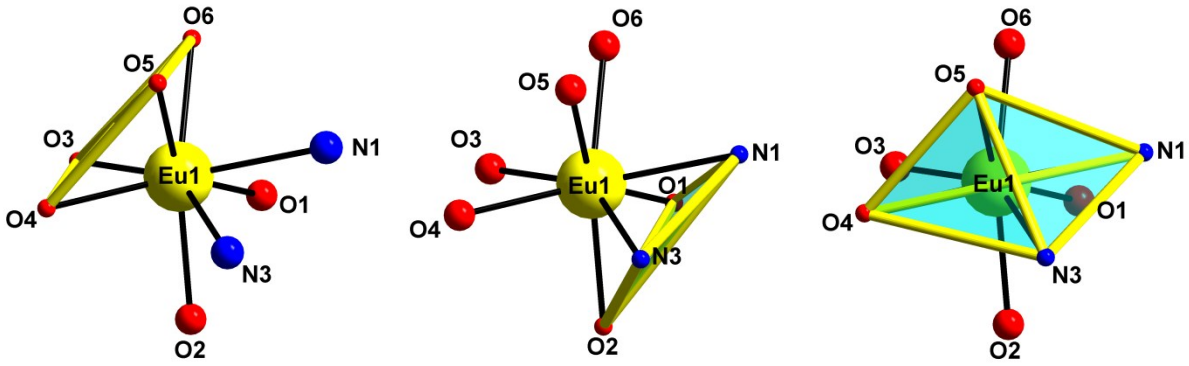
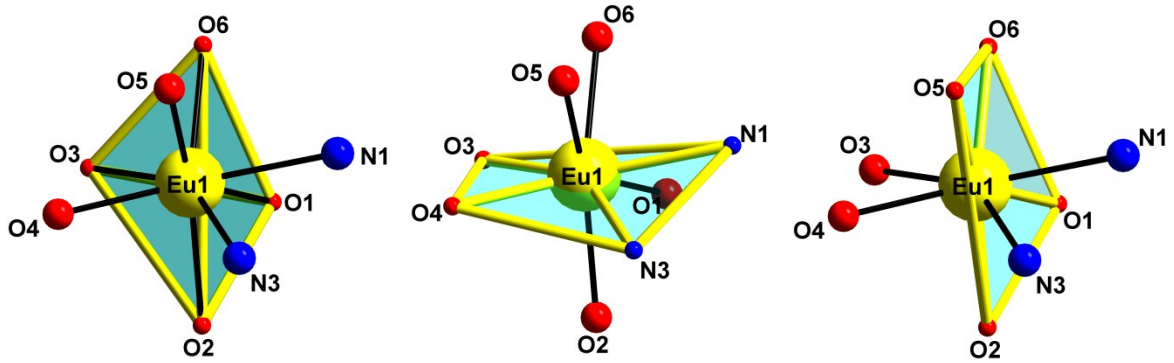
Supplementary information

Table S1. Selected bond lengths(Å) and angles(deg.) for the complex, [Eu(dbm)$_3$(impy)]

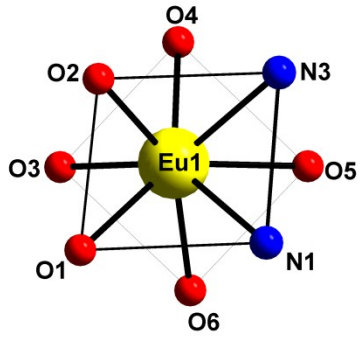
Bond	Bond length (Å)	Bond	Bond angle ( )	Bond	Bond angle ( )
Eu(1)-O(2)	2.339(3)	O(2)-Eu(1)-O(1)	71.91(10)	O(4)-Eu(1)-O(5)	73.86(12)
Eu(1)-O(1)	2.341(3)	O(2)-Eu(1)-O(6)	150.45(11)	O(2)-Eu(1)-N(1)	98.94(11)
Eu(1)-O(6)	2.347(3)	O(1)-Eu(1)-O(6)	79.59(11)	O(1)-Eu(1)-N(1)	75.10(11)
Eu(1)-O(3)	2.349(3)	O(2)-Eu(1)-O(3)	92.27(12)	O(6)-Eu(1)-N(1)	80.70(11)
Eu(1)-O(4)	2.362(3)	O(1)-Eu(1)-O(3)	80.03(11)	O(3)-Eu(1)-N(1)	147.85(11)
Eu(1)-O(5)	2.392(3)	O(6)-Eu(1)-O(3)	74.99(12)	O(4)-Eu(1)-N(1)	139.80(11)
Eu(1)-N(1)	2.551(3)	O(2)-Eu(1)-O(4)	85.75(11)	O(5)-Eu(1)-N(1)	77.23(12)
Eu(1)-N(3)	2.633(3)	O(1)-Eu(1)-O(4)	142.30(12)	O(2)-Eu(1)-N(3)	70.05(11)
		O(6)-Eu(1)-O(4)	113.70(12)	O(1)-Eu(1)-N(3)	116.41(10)
		O(3)-Eu(1)-O(4)	70.70(11)	O(6)-Eu(1)-N(3)	132.18(11)
		O(2)-Eu(1)-O(5)	139.39(11)	O(3)-Eu(1)-N(3)	148.42(11)
		O(1)-Eu(1)-O(5)	141.35(11)	O(4)-Eu(1)-N(3)	81.75(10)
		O(6)-Eu(1)-O(5)	69.70(11)	O(5)-Eu(1)-N(3)	72.49(11)
		O(3)-Eu(1)-O(5)	112.53(12)	N(1)-Eu(1)-N(3)	63.11(11)



(a) (b) (c)



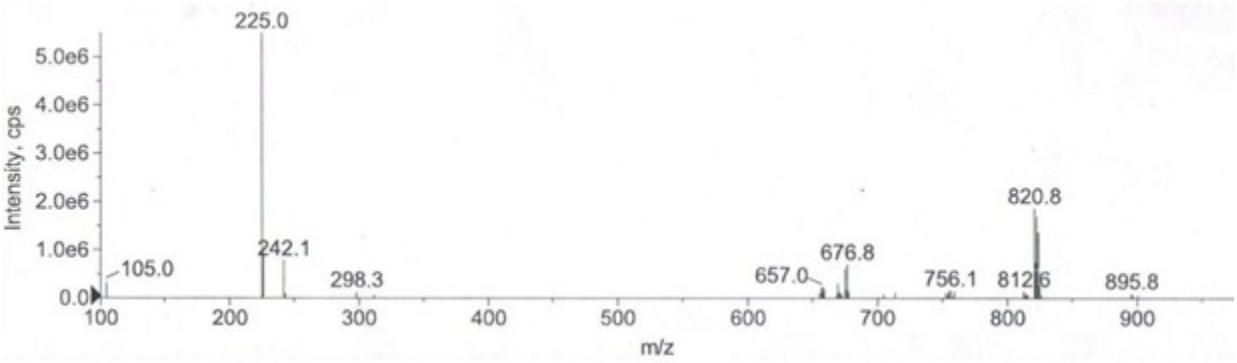
(d) (e) (f)



(g)

Figure S1. (a) (b) (c) (d) (e) and (f) are the dihedral plane which are showing their dihedral angle δ_1, δ_2, δ_3, δ_4, φ_1 and φ_2, respectively and (g) is the polyhedra of [Eu(dbm)$_{3(}$impy)].

(a)



(b)

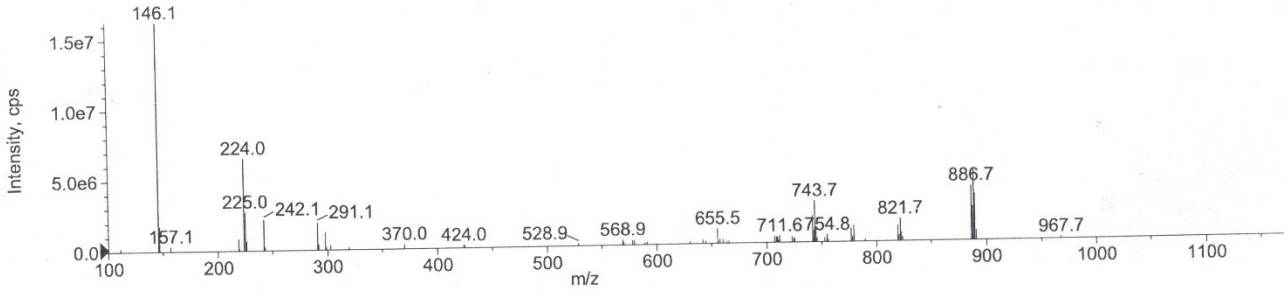


Figure S2. ESI-MS spectra in positive ion mode of $[Eu(dbm)_3(H_2O)]\cdot H_2O$ (a) and $[Eu(dbm)_3(impy)]$ (b).

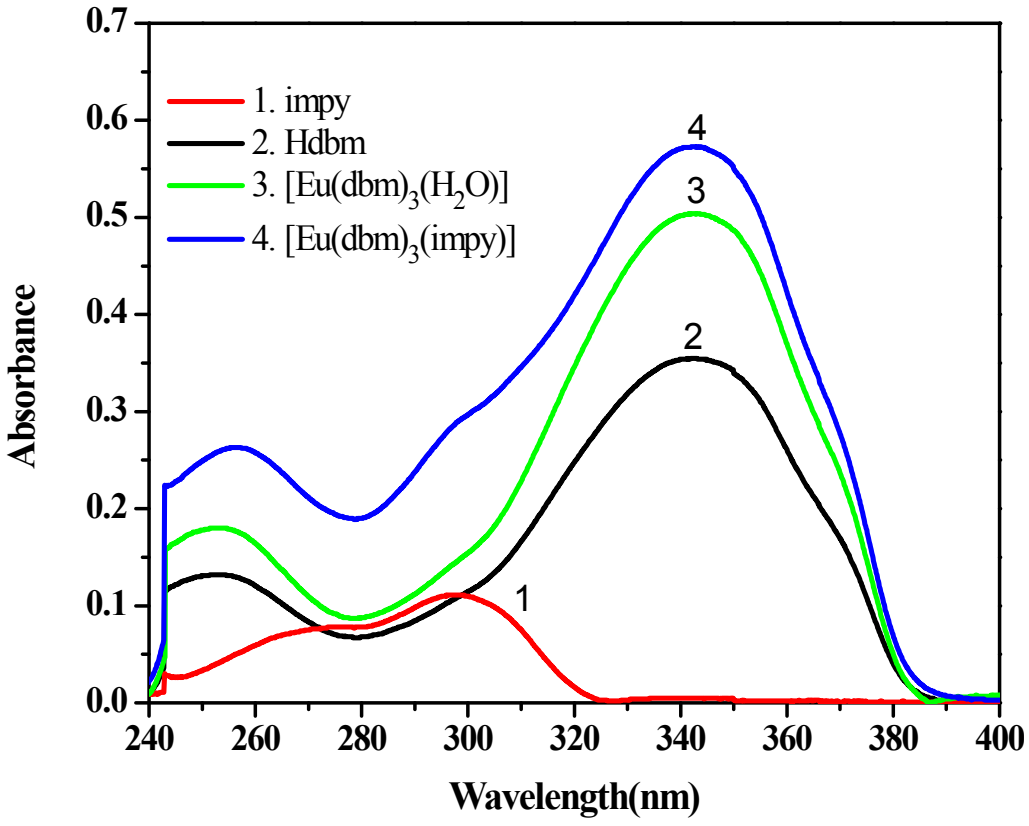


Figure S3. Absorption spectra of free ligands impy (1), Hdbm (2) and complexes $[Eu(dbm)_3(H_2O)]$ (3), $[Eu(dbm)_3(impy)]$ (4).

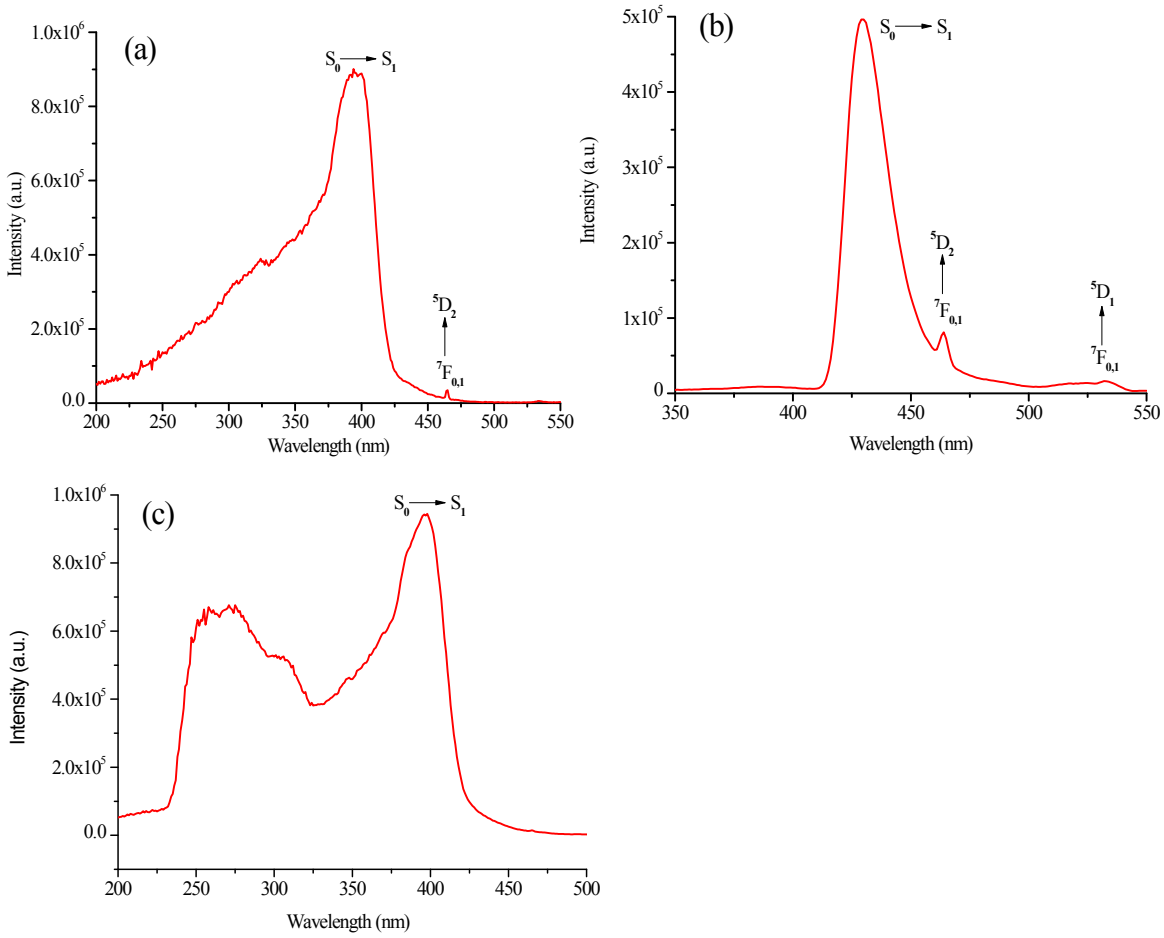
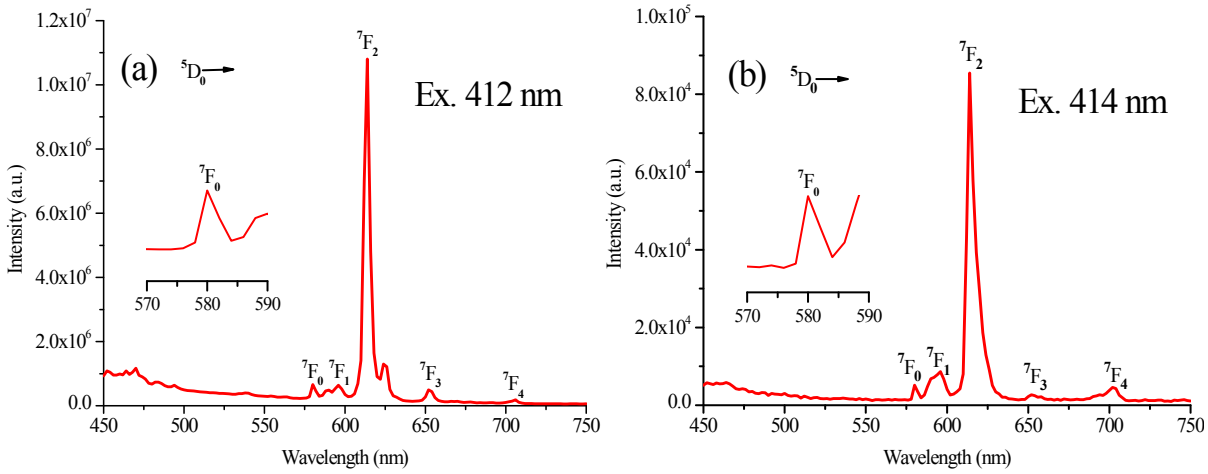


Figure S4. Excitation spectra of $[Eu(dbm)_3(H_2O)]$ (a) solid state (b) in chloroform and (c) hybrid film.



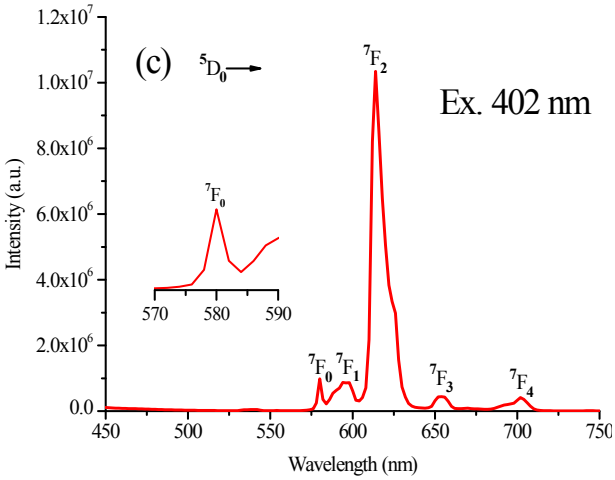
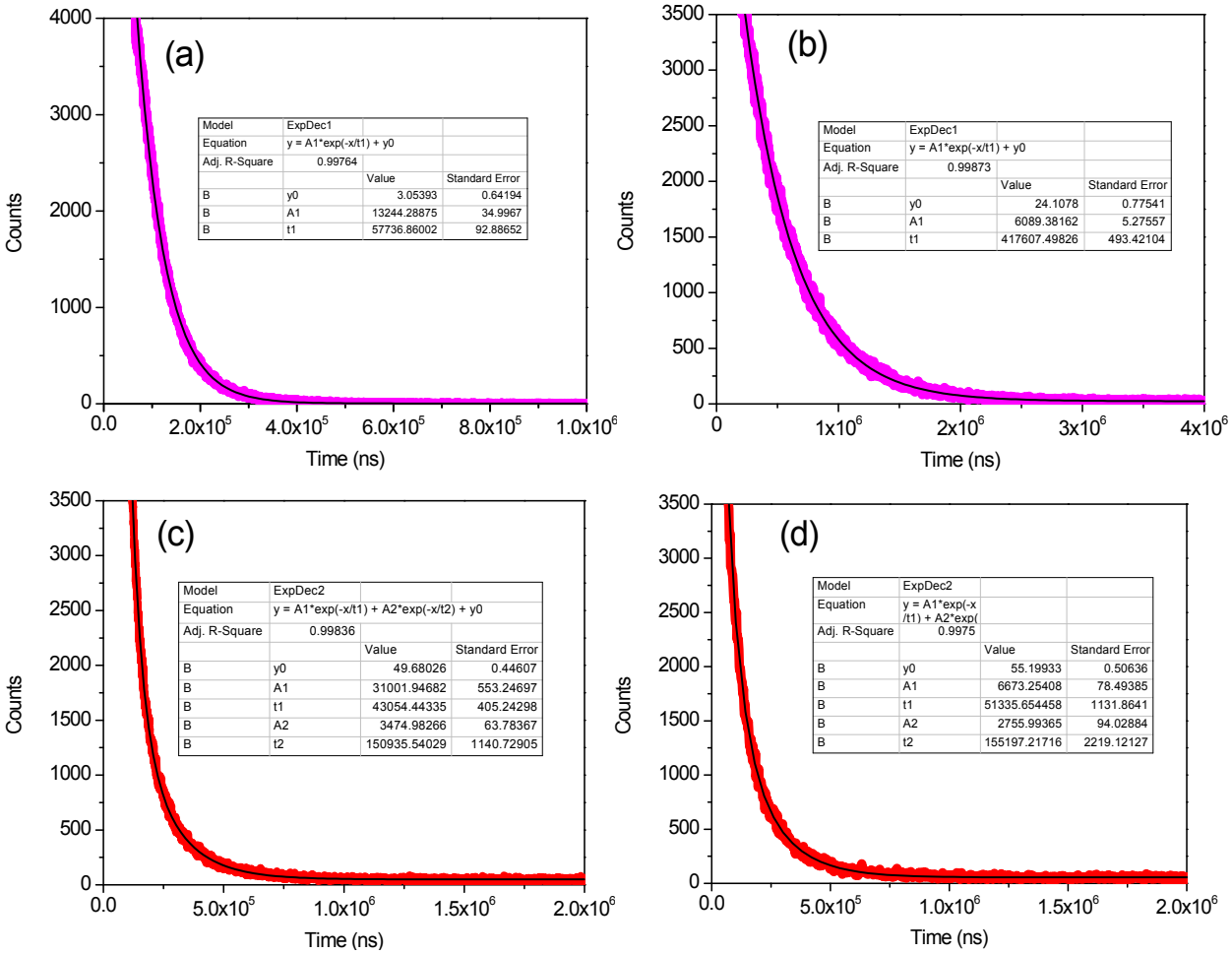


Figure S5. Emission spectra of $[Eu(dbm)_3(H_2O)]$ (a) solid state (b) in chloroform and (c) hybrid film.



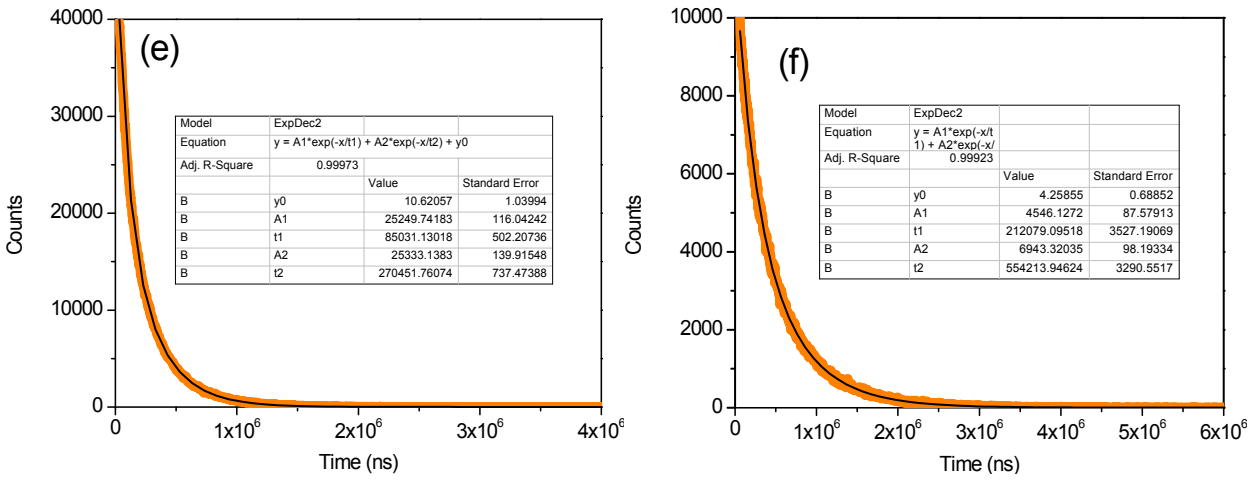


Figure S6. Decay time of $^5D_0 \rightarrow {}^7F_2$ transition of $[Eu(dbm)_3(H_2O)]$ (a) solid state (c) in chloroform (e) hybrid film and $[Eu(dbm)_3(impy)]$ (b) solid state (d) in chloroform (f) hybrid film.