

Electronic Supplementary Information (ESI)

New Rhenium(I) Complexes with Substituted diimine Ligands for Highly Efficient Phosphorescent Devices Fabricated by a Solution Process

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Fig. S1 Selected ^1H -NMR spectra of **L**₃ and **3** in CDCl_3 and DMSO-d_6 .

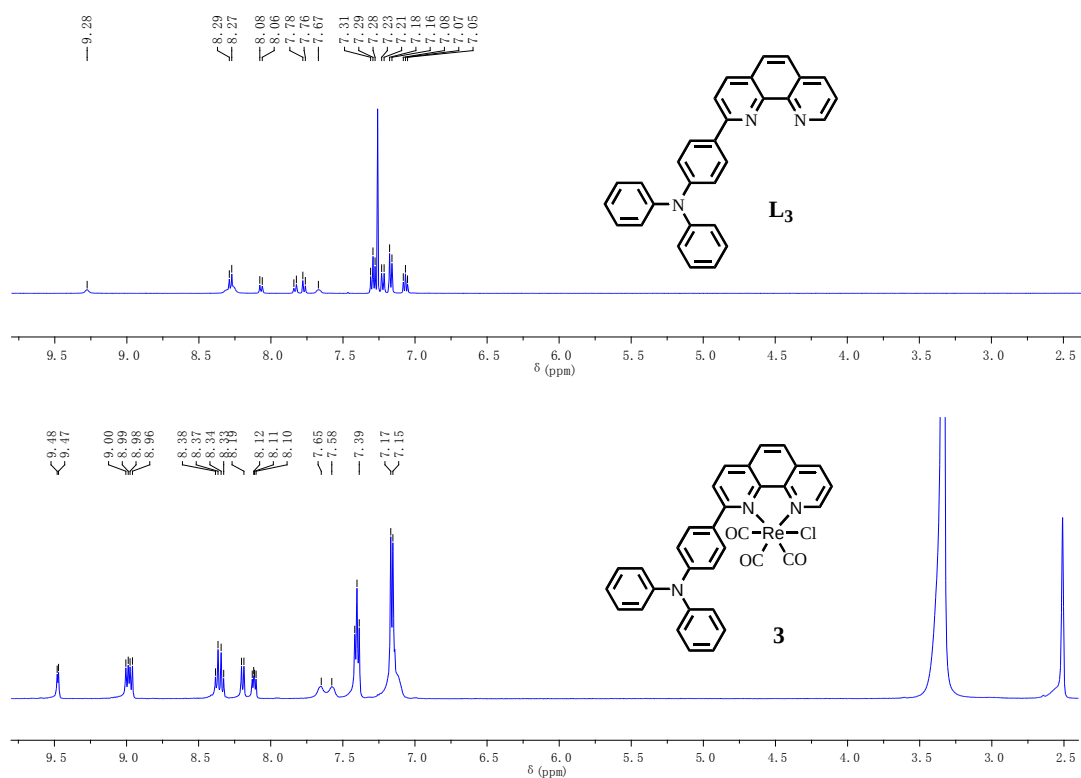


Fig. S2 Section of a two-dimensional sheet of **1**.

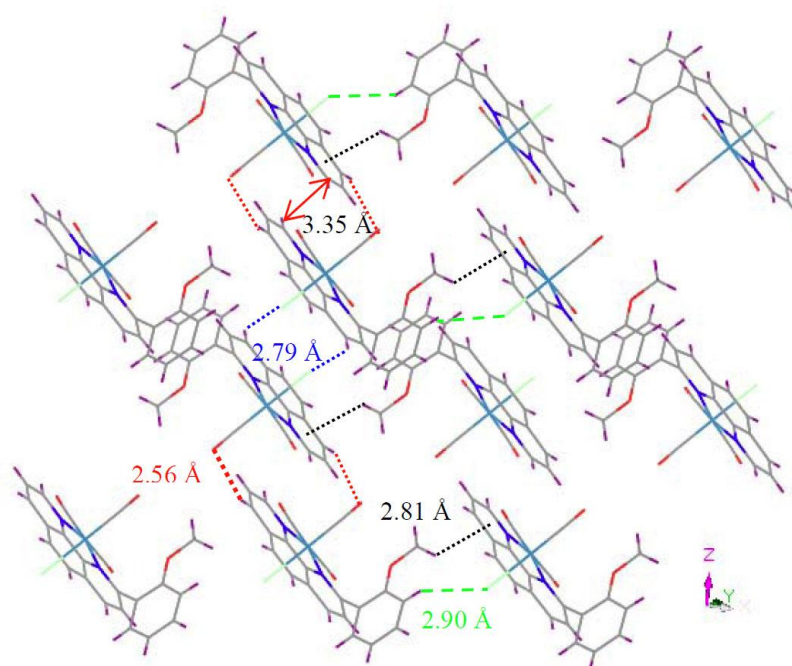


Fig. S3 Absorption and emission spectra of L_1 and L_2 in CH_2Cl_2 .

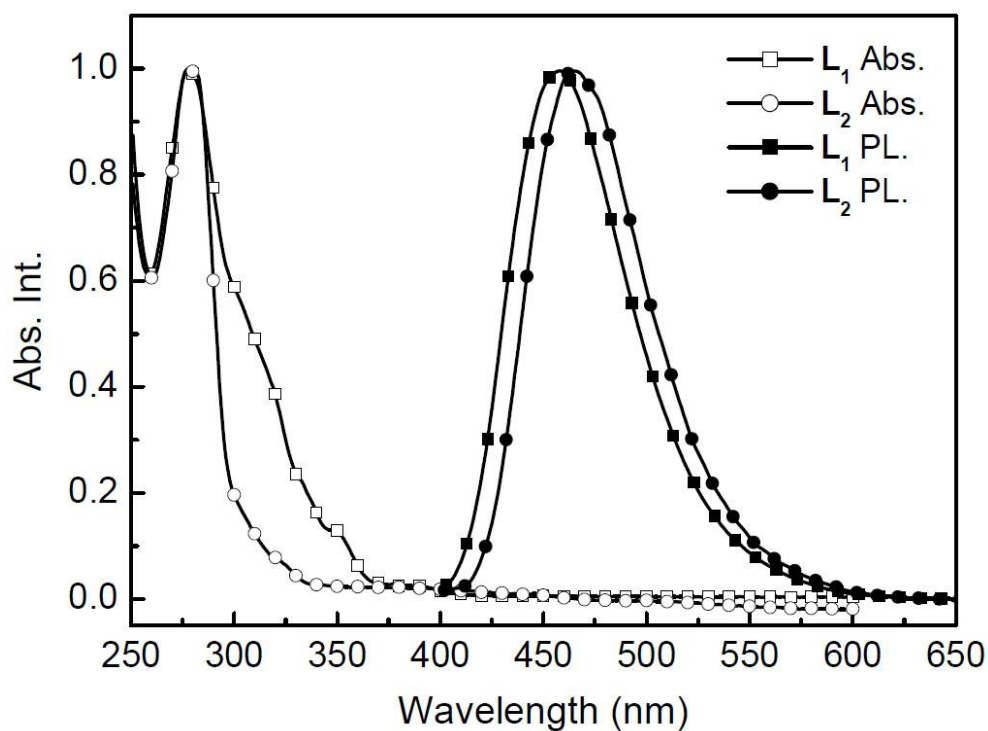


Fig. S4 Emission spectra of L_3 in different solution.

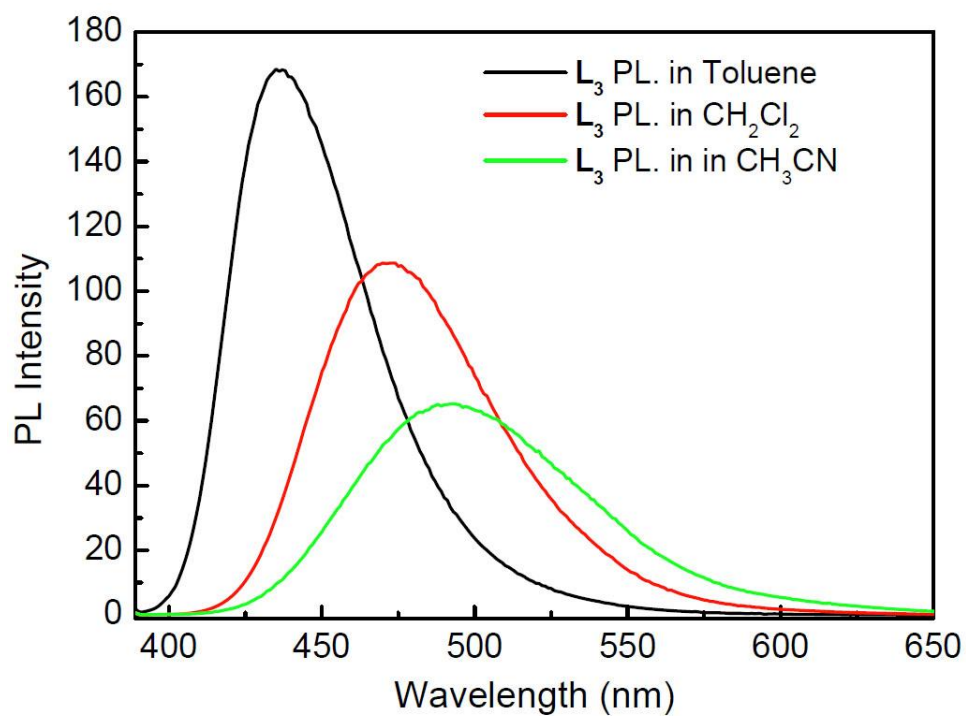


Fig. S5 Photos of L_3 in various solvents (a) under no excitation light (b) under irradiation of light at 365nm.

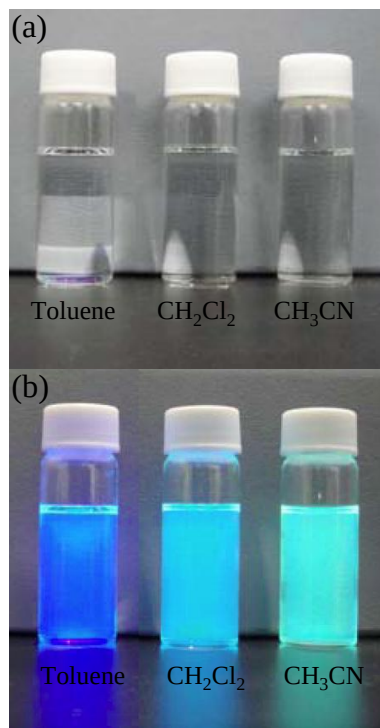


Fig. S6 Photoluminescence lifetime decay measurement of **1–3** in CH_2Cl_2 .

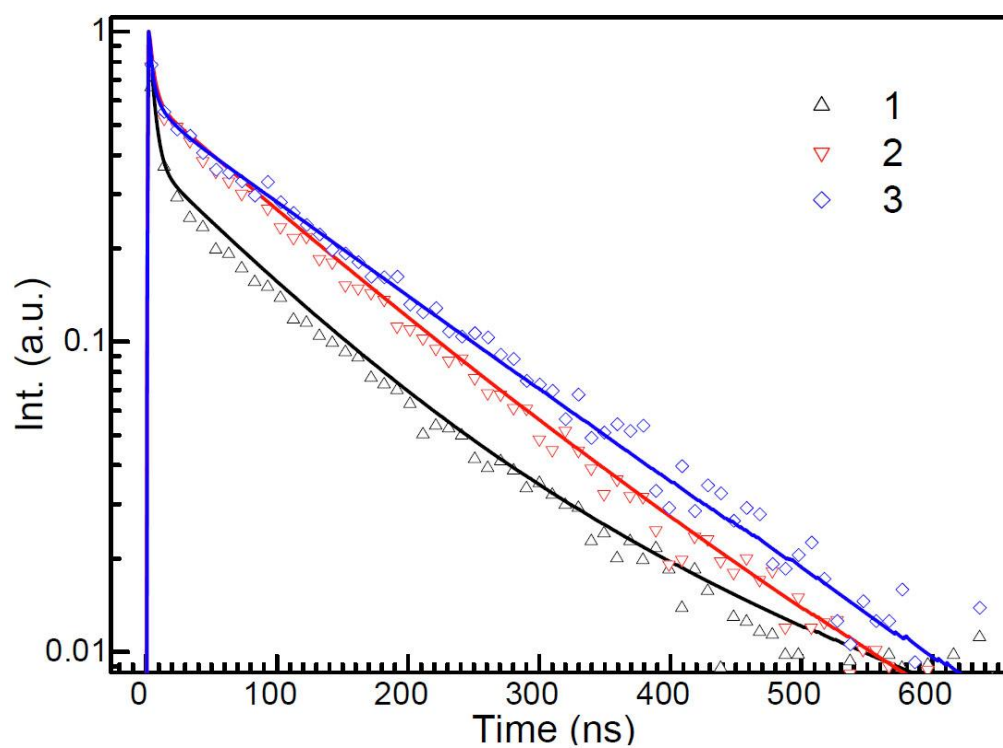


Fig. S7 TGA traces for complexes 1–3.

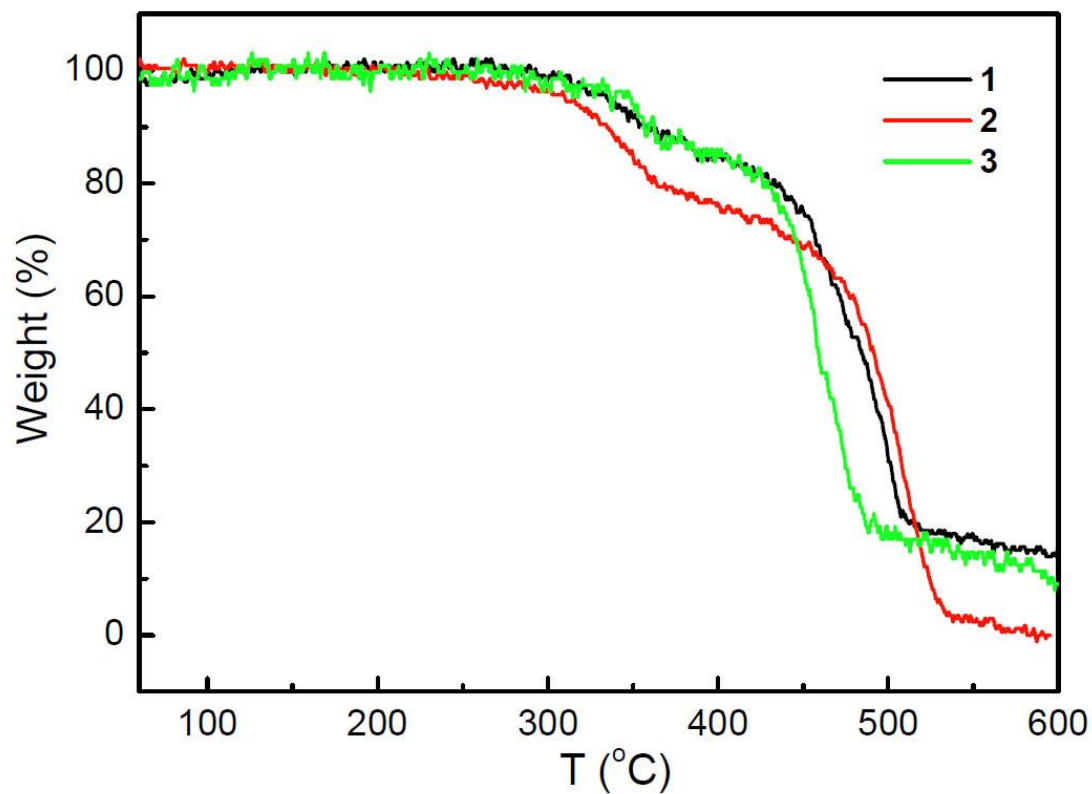


Fig. S8 AFM images of PVK-PBD (40 wt%) doped with 1.0% of **2** (a) and 1.0% of **3** (b).

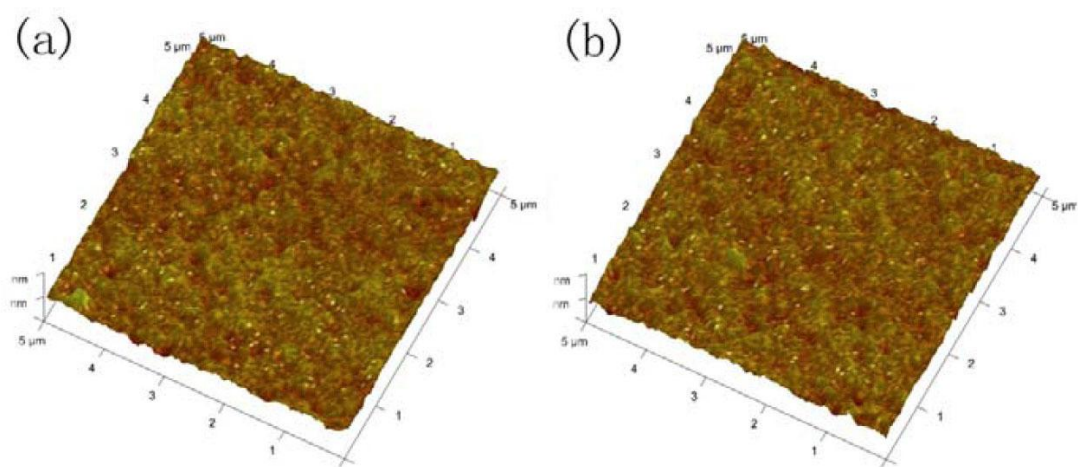


Fig. S9 HOMO and LUMO levels of used materials in devices and the work functions of electrodes.

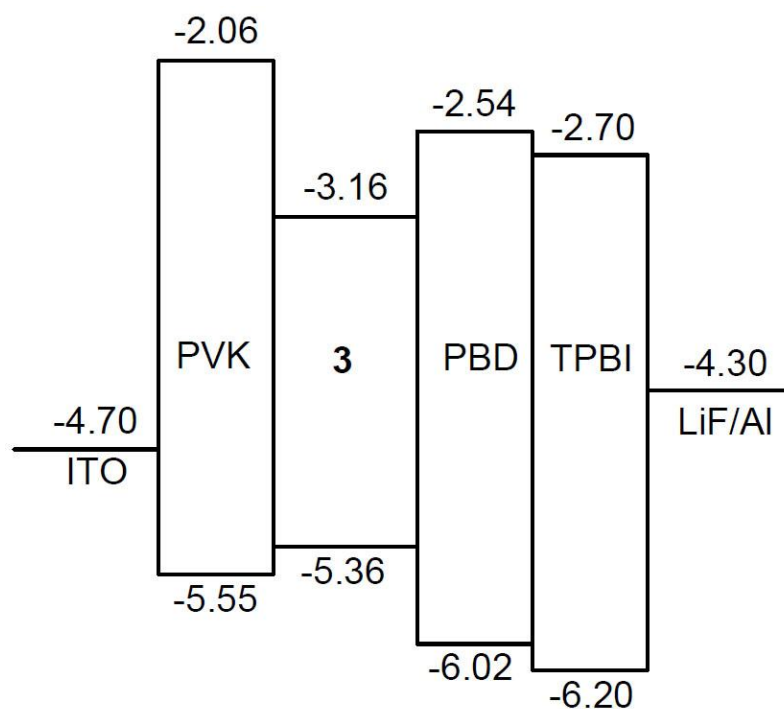


Fig. S10 Current density–voltage characteristics of complex 3 doped polymer OLEDs in PVK-PBD.

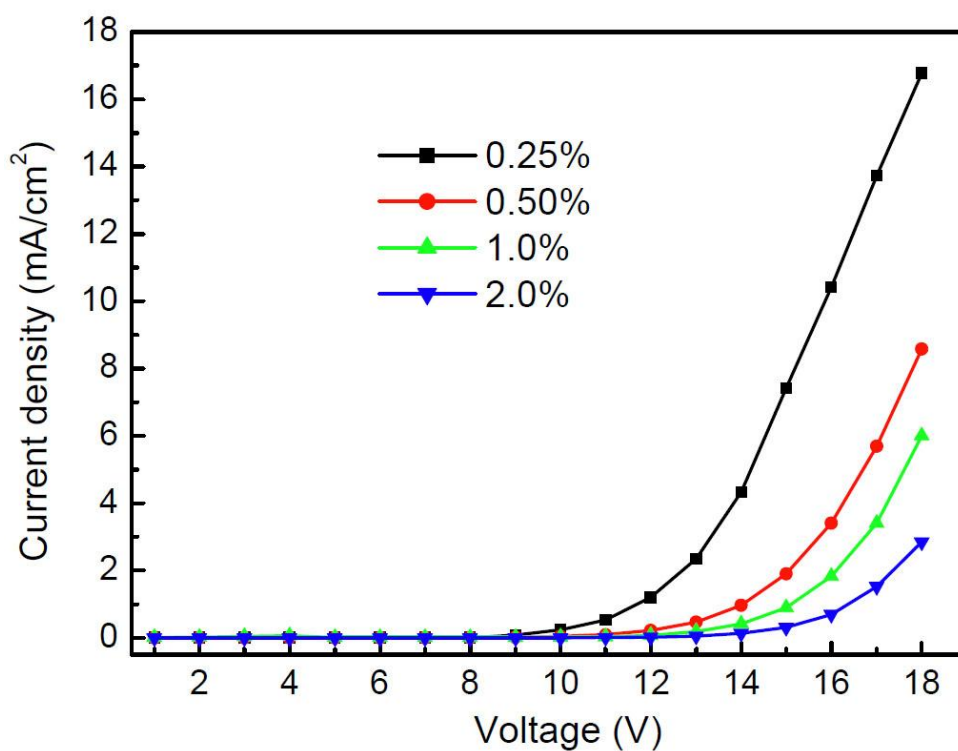


Table S1 Photoluminescence data for **L**₁–**L**₃ in solution at room temperature.

Compounds	$\lambda_{\text{abs}}^{\text{a}}$ (nm) $\epsilon \times 10^3$ $\text{M}^{-1}\text{cm}^{-1}$	$\lambda_{\text{em}}^{\text{b}}$ (nm)	Quantum yields ^c	Lifetime (ns)	Solution
L ₁	280(31)	461	0.088	3.16	CH ₂ Cl ₂
L ₂	283(31)	467	0.091	3.18	CH ₂ Cl ₂
L ₃	282(63.8), 381(54.8)	470	0.397	3.24	CH ₂ Cl ₂
L ₃	281(65.6), 380(55.7)	435	0.497		Toluene
L ₃	279(62.3), 380(53.4)	495	0.277		CH ₃ CN

^a Maximum absorption wavelength ^b Maximum emission wavelength ^c Determined using quinine sulfate in 0.1 M sulphuric acid as a standard.