Electronic Supplementary Material (ESI) for Dalton Transactions

Electronic Supplementary Information

Structural characterization and spectroelectrochemical, anion sensing and solvent dependence photophysical studies of a bimetallic Ru(II) complex derived from 1,3-di(1*H*-imidazo[4,5-f][1,10]phenanthroline-2-yl)benzene

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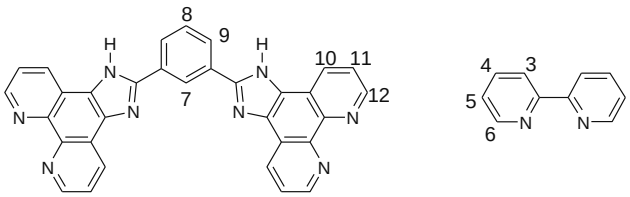

Scheme S1

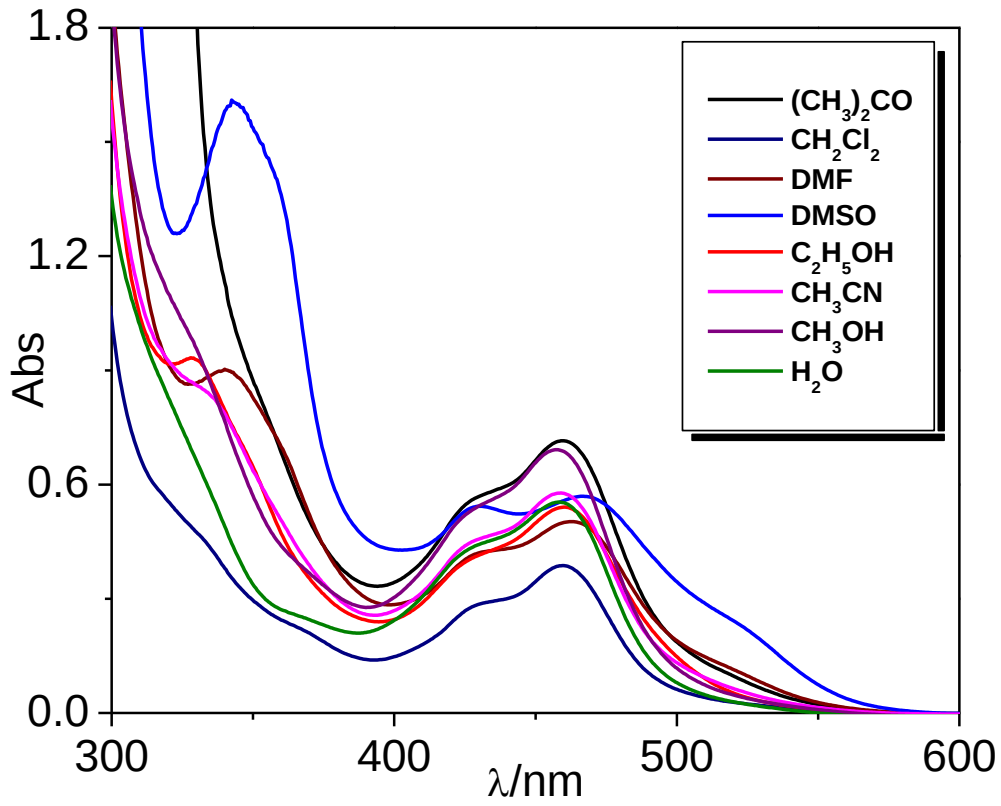

Fig. S1 UV-vis spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2](ClO_4)_4$ (**1**) in different solvents.

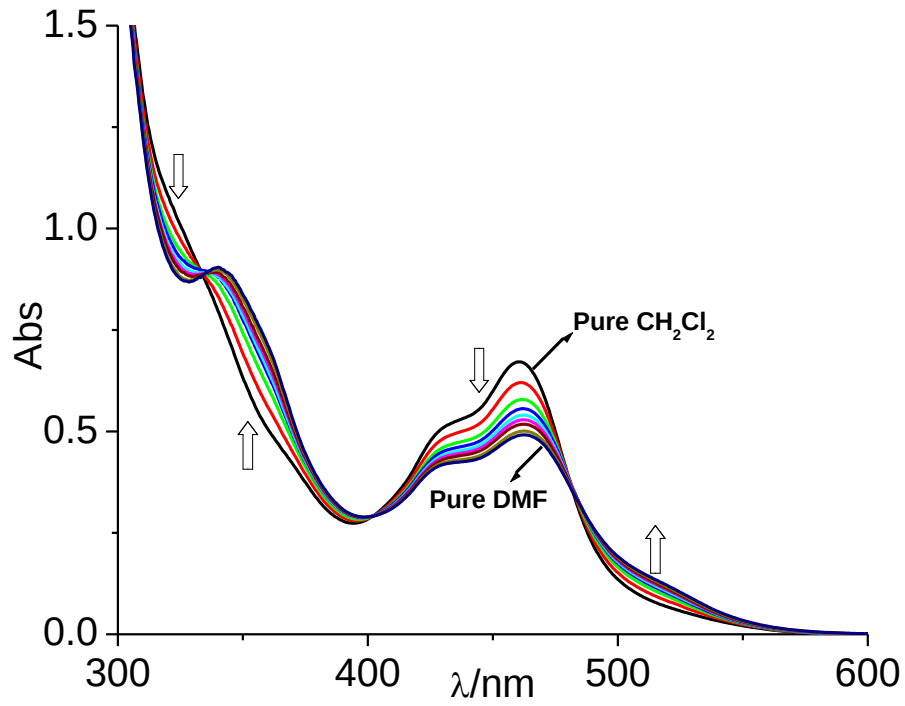

Fig. S2 Changes in UV-vis spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2](ClO_4)_4$ (**1**) on incremental addition of DMF in CH_2Cl_2.

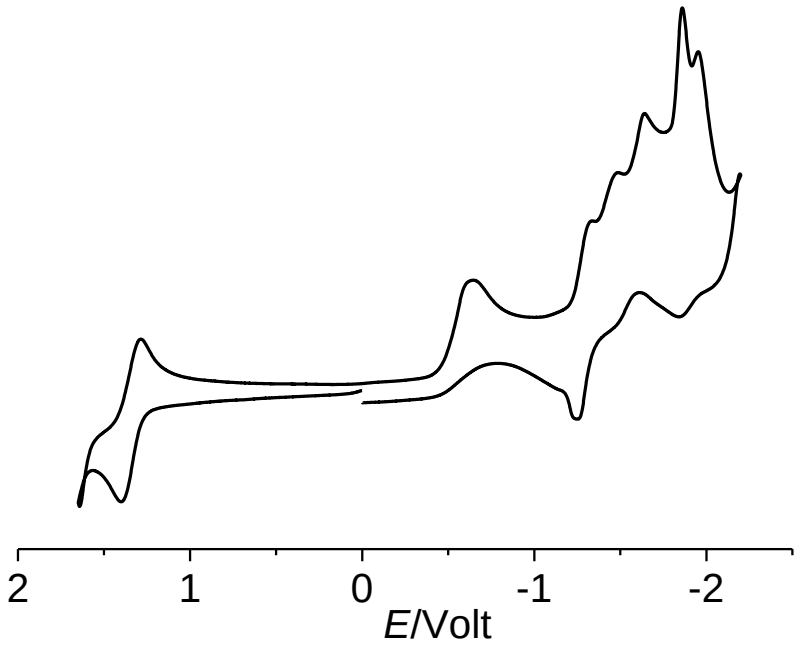

Fig. S3 Cyclic voltammogram of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2]$ $(ClO_4)_4$ (**1**) in acetonitrile solution (5.0×10^{-4} M) showing both oxidation and reduction.

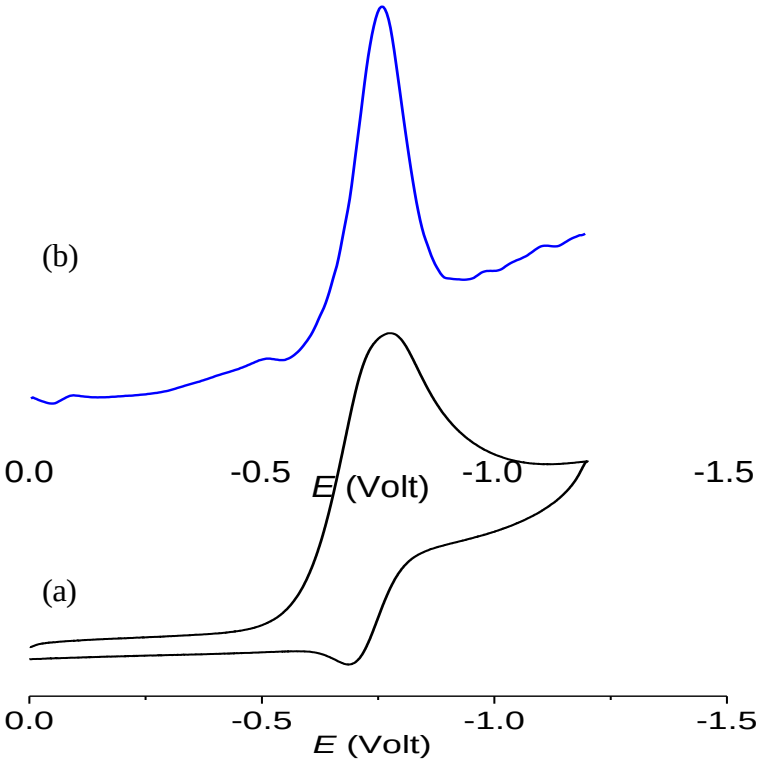

Fig. S4 CV (a) and SWV (b) of H_2Impib in dimethylsulfoxide solution (5.0×10^{-4} M) showing reduction only.

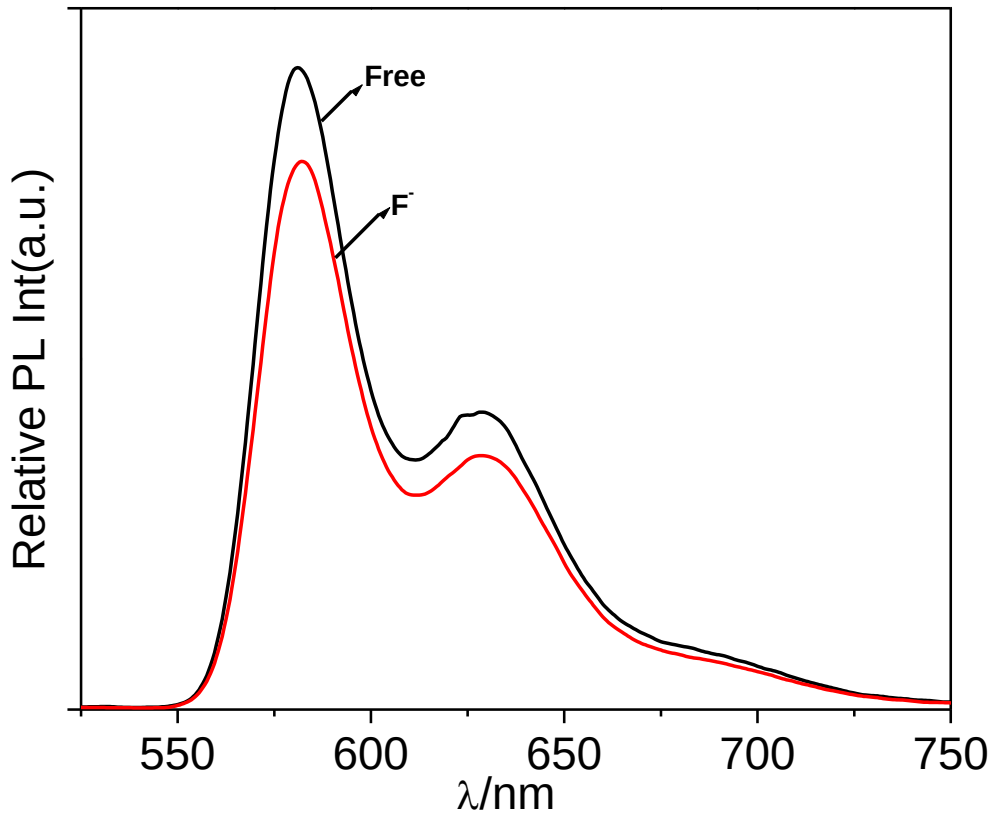

Fig. S5 Luminescence spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2]$ $(ClO_4)_4$ (**1**) in presence (red line) and in absence (black line) of F^- at 77 K in 4:1 ethanol–methanol glass.

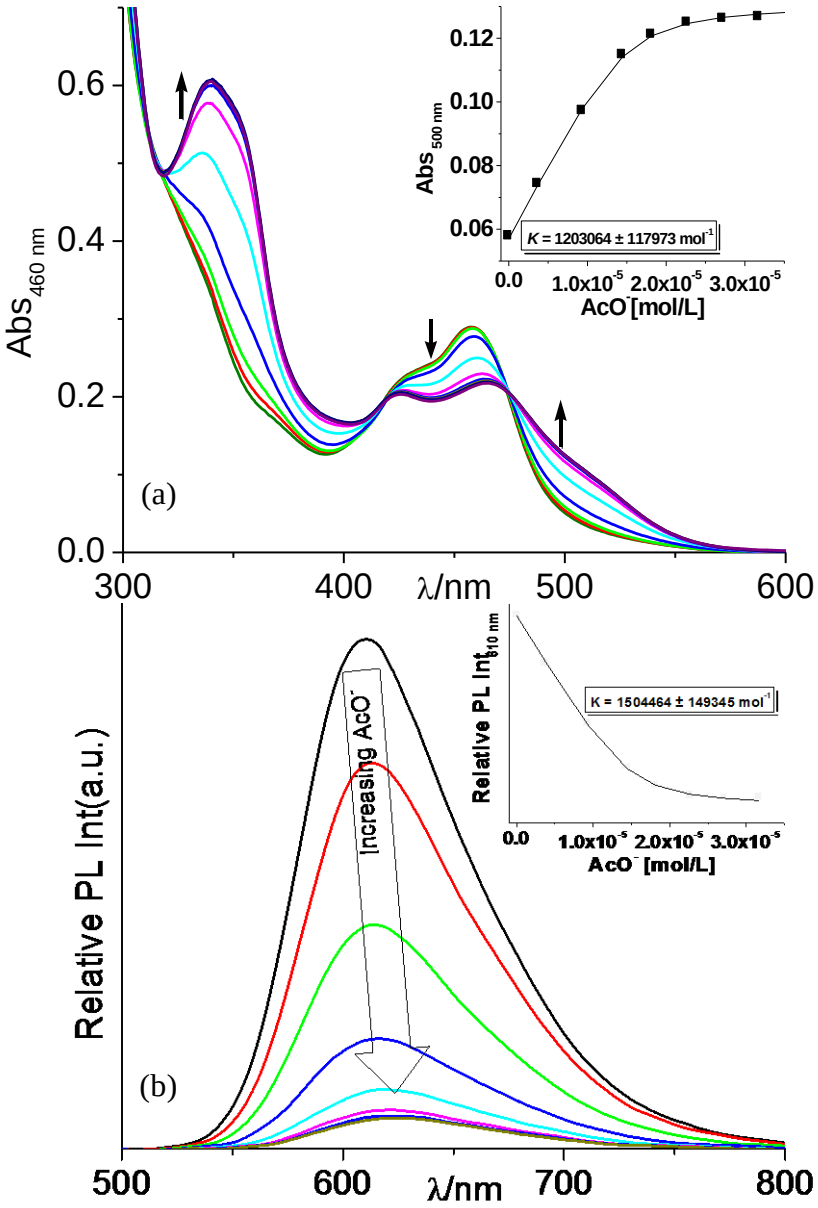

Fig. S6 Changes in UV-vis (a) and photoluminescence (b) spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2](ClO_4)_4$ (**1**) in acetonitrile upon addition of AcO^- ion. Inset shows the fit of the experimental data to a 1:1 binding profile.

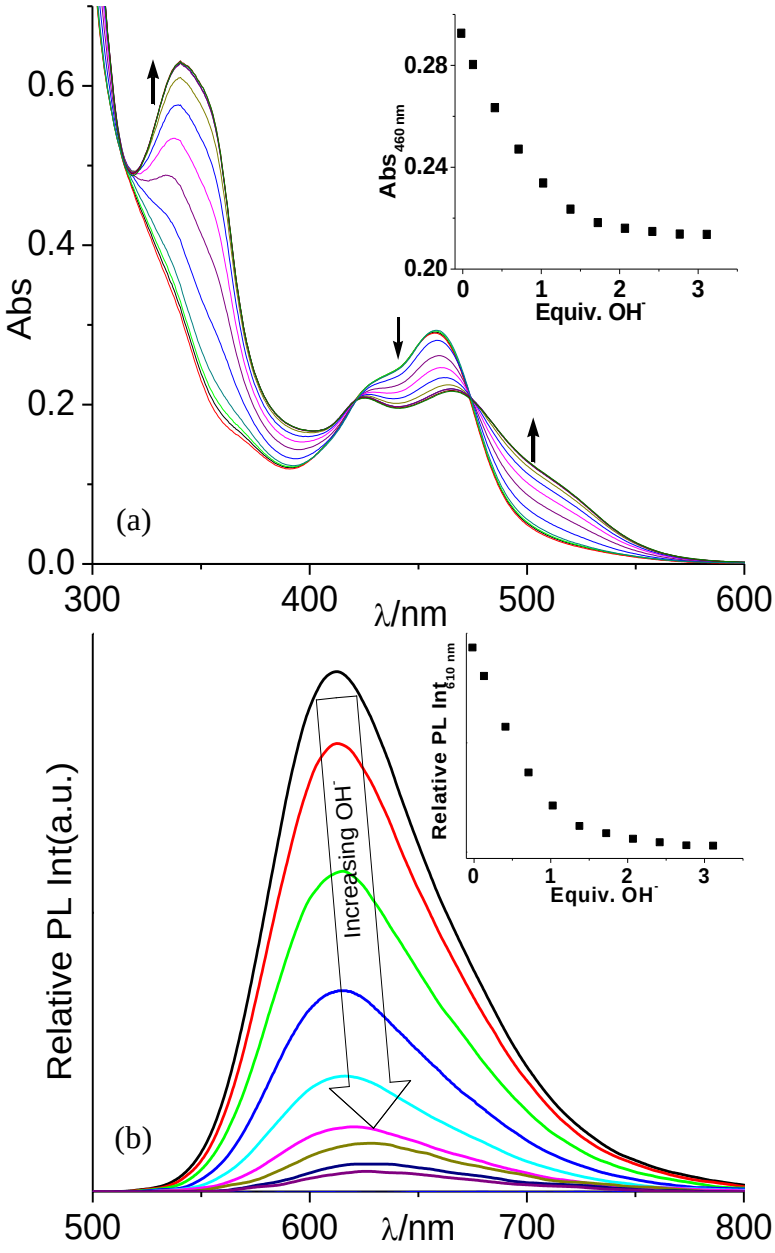

Fig. S7. Changes in UV-vis (a) and photoluminescence (b) spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2](ClO_4)_4$ (**1**) in acetonitrile upon addition of OH^- ion. The inset shows the change of absorption and emission intensity as a function of the equivalent of OH^- ion added.

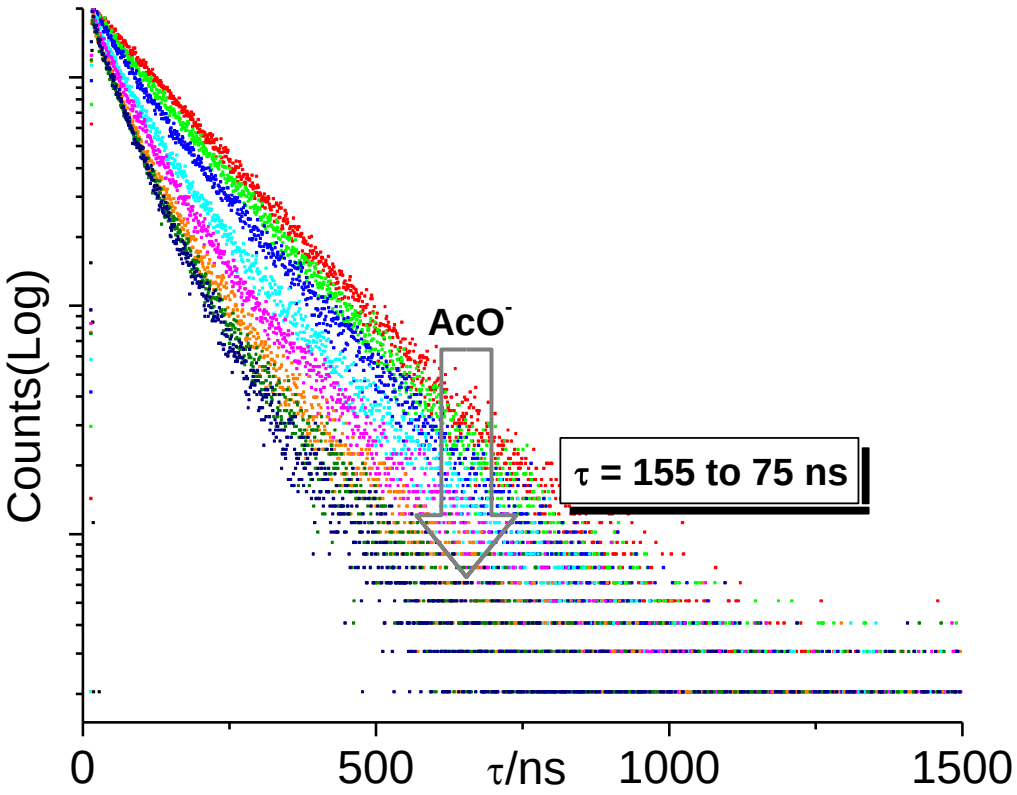

Fig. S8 Time-resolved decay profiles of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2]$ $(ClO_4)_4$ (**1**) in acetonitrile as function of the incremental addition of AcO^-.

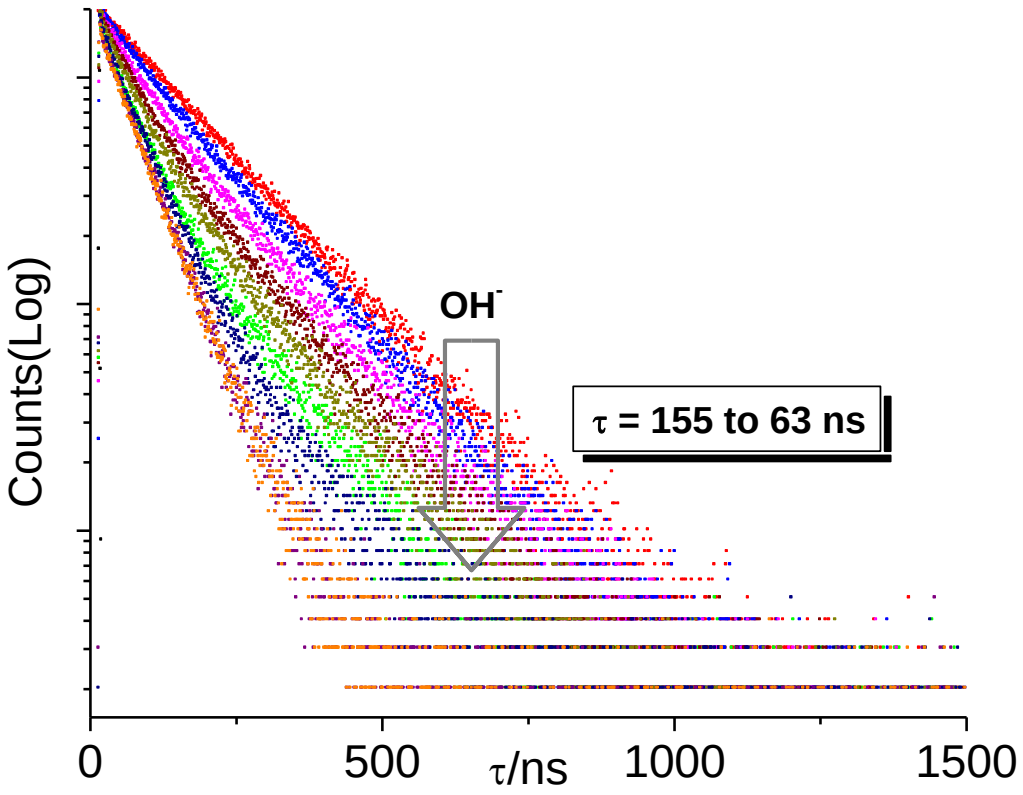

Fig. S9 Time-resolved decay profiles of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2]$ $(ClO_4)_4$ (**1**) in acetonitrile as function of the incremental addition of OH^-.

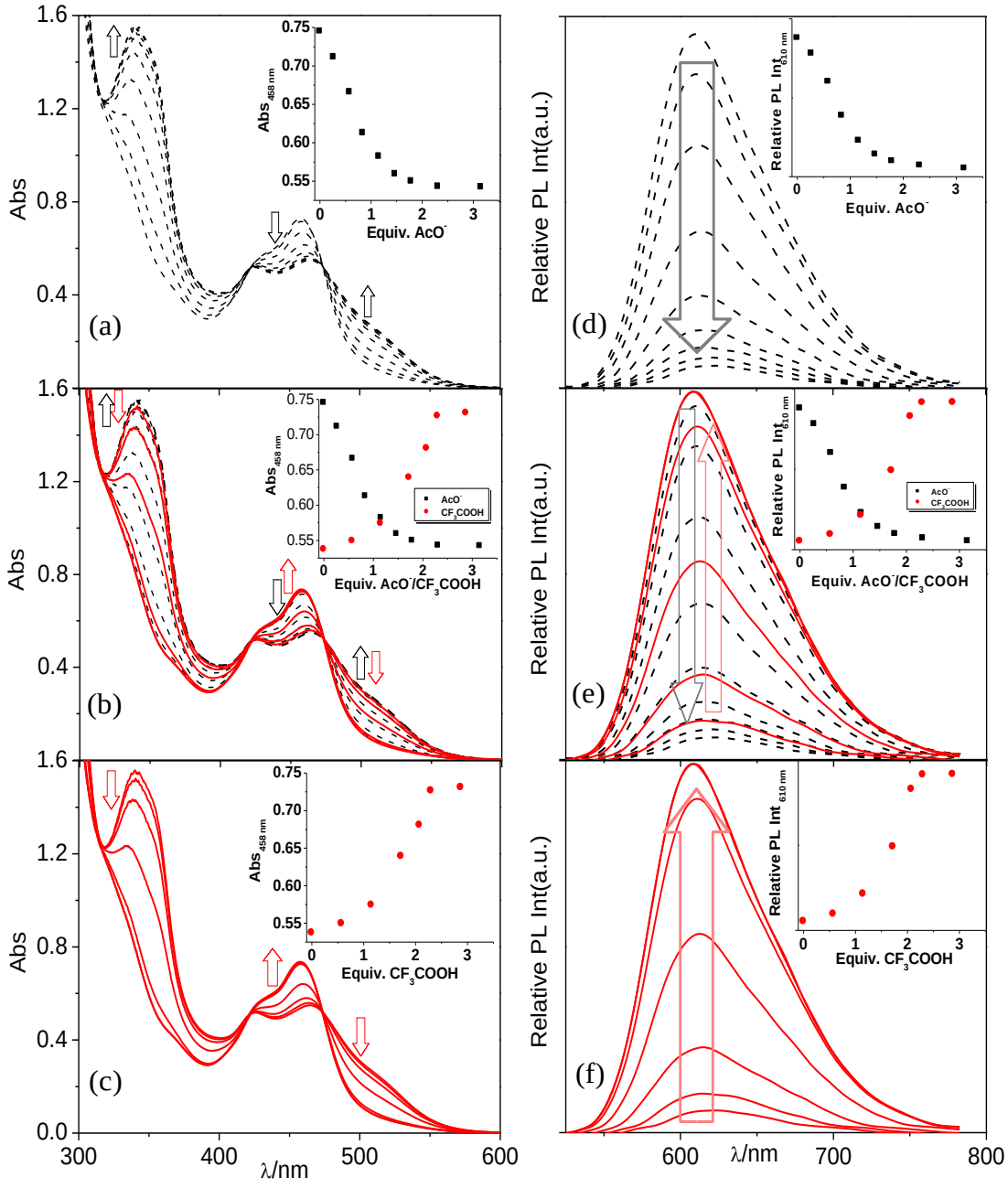

Fig. S10 Changes in UV-vis (a-c) and photoluminescence (d-f) spectra of $[(bipy)_2Ru(H_2Impib)Ru(bipy)_2]$ $(ClO_4)_4$ (**1**) in acetonitrile upon incremental addition of 2 equiv of AcO^- (dotted black line, part a and d) followed by 2 equiv of trifluoroacetic acid (solid red line, part c and f) ion.