

Supporting Information -

Ground and excited state communication within a ruthenium containing benzimidazole metallopolymer

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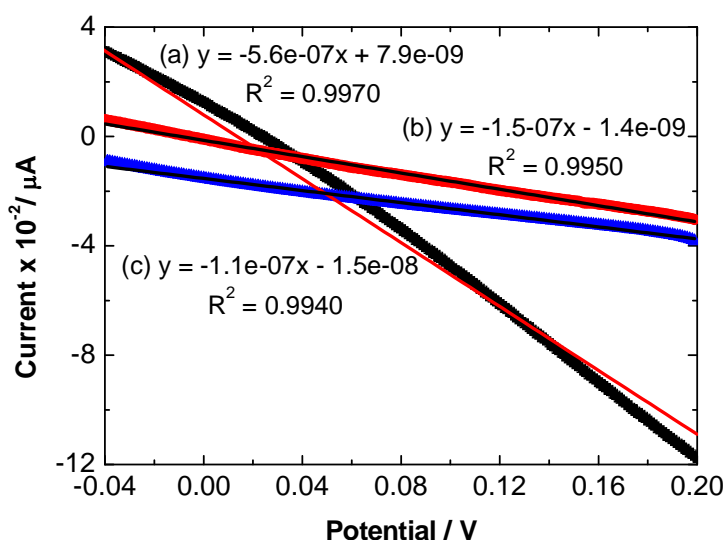


Figure S1: Voltammetric response for thin films of $[\text{Ru}(\text{bpy})_2(\text{PPyBBIM})_n]^{2+}$, where n is (a) 3, (b) 10 and (c) is 20, cycled over the potential range of -0.04 to 0.20 V, on Interdigitated Array Electrodes. The supporting electrolyte was 0.1 M LiClO_4 . $\Gamma = 7 \times 10^{-8} \text{ molcm}^{-2}$. Analysis was performed at pH 6.0.

Table S1. D_e and Conductivity values for $[\text{Ru}(\text{bpy})_2(\text{PPyBBIM})_n]^{2+}$ based on data in Figure S2.

Polymer Loading	D_e (cm^2S^{-1})	Conductivity (Scm^{-1})
1/3	$5.23 \pm 0.4 \times 10^{-10}$	2.34×10^{-8}
1/10	$4.79 \pm 0.7 \times 10^{-10}$	4.44×10^{-9}
1/20	$7.05 \pm 1.0 \times 10^{-11}$	5.96×10^{-9}

All values based on averaged results from spectra of 5 analogous samples.

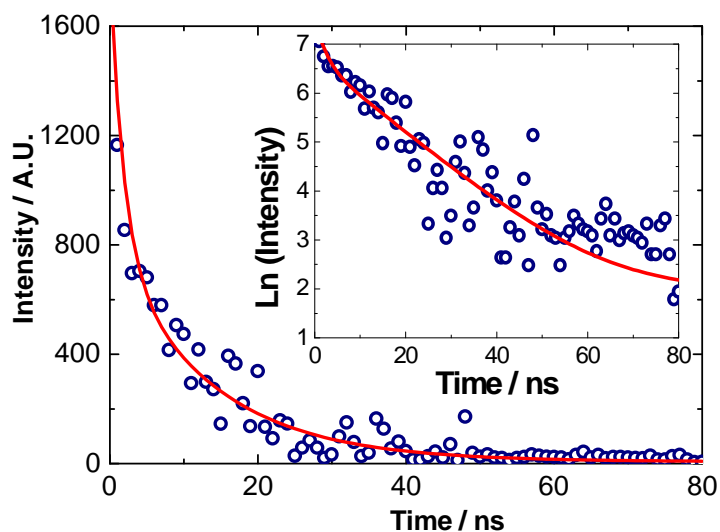


Figure S2: Typical transient emission spectra for a 100 μM solution of $[\text{Ru}(\text{bpy})_2(\text{PPyBBIM})_{10}]^{2+}$ in acetonitrile. An excitation wavelength of 355 nm was utilised. Photon counts of 10,000 were used. The inset shows the natural log of this data. The red line represents the biexponential fitted data.

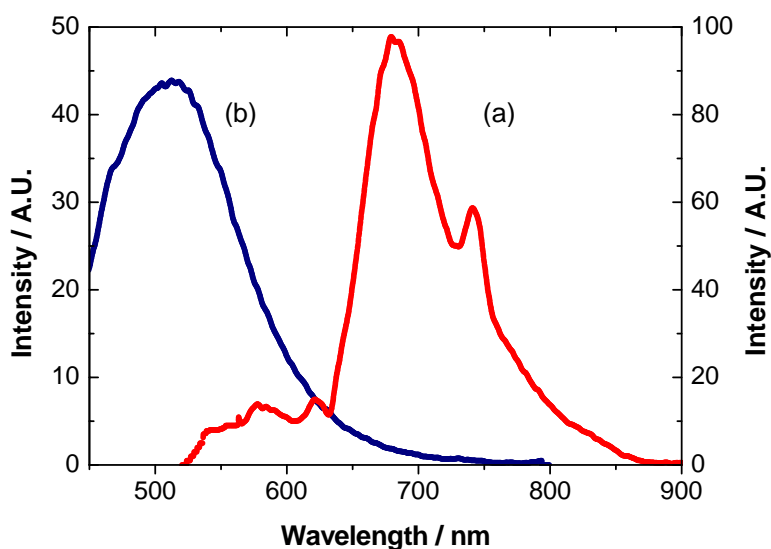


Figure S3: Typical emission spectra for a 50 μM solution of $[\text{Ru}(\text{bpy})_2(\text{PPyBBIM})_{10}]^{2+}$ (a) and 100 μM solution of PPyBBIM (b) in 50:50 MeOH:EtOH degassed solution at 77 K.