Supplementary Information

Spectroelectrochemical Properties of a Ru(II) Complex with a Thiazolo[5,4-d]Thiazole Triarylamine Ligand

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Figures

Figure S1. $^1$H-$^1$H COSY spectrum for 2 obtained at 500 MHz.
Figure S2. Numbering for compounds 1 and 2.

Figure S3. Cyclic voltammograms of 1 in 0.1 M [(n-C_{8}H_{9})_{4}N]PF_{6}/CH_{3}CN electrolyte over scan rates of 25-75 mV/s where the arrow indicates the direction of the forward scan.
Figure S4. Cyclic voltammograms of 2 cycled twice in the anodic and cathodic directions in 0.1 M [(n-C₆H₉)₂N]PF₆/CH₃CN electrolyte at a scan rate of 100 mV/s where the arrow indicates the direction of the forward scan in each case.
**Figure S5.** Solution state spectroelectrochemistry on 1 in [(n-C₄H₉)₃N]PF₆/CH₃CN electrolyte over the potential range a) 0 to -1.1 V, b) 0.8 to 0.9 V, c) 0.95 to 1.0 V, d) 1.1 to 1.3 V, e) 1.3 to 1.7 V and f) overlay of all maximised processes.
Figure S6. Solution state spectroelectrochemistry on 2 in [(n-C₄H₉)₅N]PF₆/CH₃CN electrolyte over the potential range of a) 0 to -0.9 V, b) -1.05 to -1.5 V and summary of the changes in the absorption spectrum as a function of potential applied.

Figure S7. Fluorescence (λₑₓ = 390 nm) and absorption spectra of a) the 1 and b) 2 (λₑₓ = 400 nm) as a solution in acetonitrile.
Figure S8. Fluorescence difference spectra of 1 (\(\lambda_{ex} = 380\) nm) during the in situ spectrotelectrochemical experiment in \([{(n-C_4H_9)_4N}]PF_6/CH_3CN\) electrolyte where the potential was increased from a) 0 to 1.5 V, and b) 1.5 to 1.7 V.

Figure S9. Fluorescence difference spectra of 2 (\(\lambda_{ex} = 380\) nm) during the in situ spectrotelectrochemical experiment in \([{(n-C_4H_9)_4N}]PF_6/CH_3CN\) electrolyte where the potential was a) increased from 0 to 1.0 V then b) decreased from 1.0 to -1.0 V.