ELECTRONIC SUPPORTING INFORMATION FOR:

LOW POWER UPCONVERSION USING MLCT SENSITIZERS

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General. Anthracene gold label (Aldrich) and 9-10-diphenylanthracene (Fluorochem USA) were used a received. $Ru(dmb)_3(PF_6)_2$ was prepared according to the published procedure.[1]

Luminescence Measurements. Steady-state photoluminescence spectra were obtained with a single photon counting spectrofluorimeter from Edinburgh Analytical Instruments (FL/FS 900). The excitation was accomplished with an argon ion laser (Coherent Innova 300) whose multi-line output was split into selected wavelength components (488 or 514.5 nm) using a diffraction grating in concert with several optics. In some instances, a commercial green laser pointer (λ_{ex} = 532 nm, peak power < 5 mW) afforded excitation of the samples. All luminescence samples in 10 mm path anaerobic quartz cells (Sterna Cells) were deoxygenated with argon at least 45 min prior to measurements. Luminescence lifetime data were measured as previously described.[2]

References (ESI)

1 N. H. Damrauer, T. R. Boussie, M. Devenney and J. K. McCusker, *J. Am. Chem. Soc.* 1997, **119**, 8253.

2 D. S. Tyson, C. R. Luman, X. Zhou and F. N. Castellano, *Inorg. Chem.* 2001, **40**, 4063.

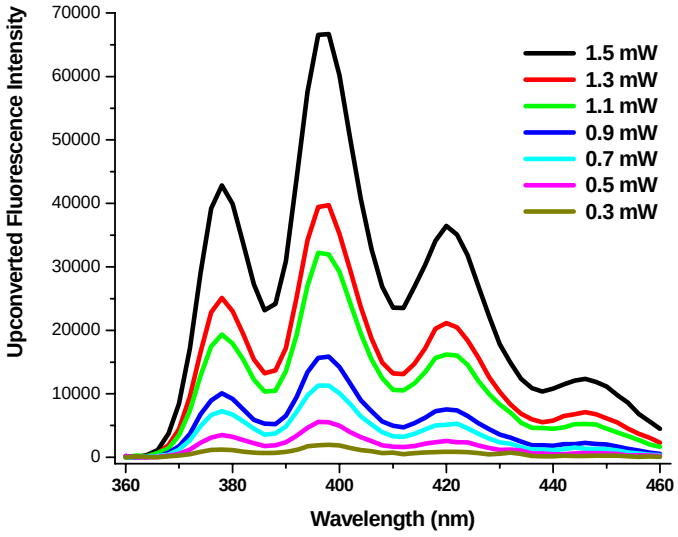

Figure S1. Delayed fluorescence intensity profile of deaerated CH_3CN solution of anthracene (1.3×10^{-4} M) + $[Ru(dmb)_3]^{2+}$ (3.0×10^{-5} M) as a function of 488 nm laser power .

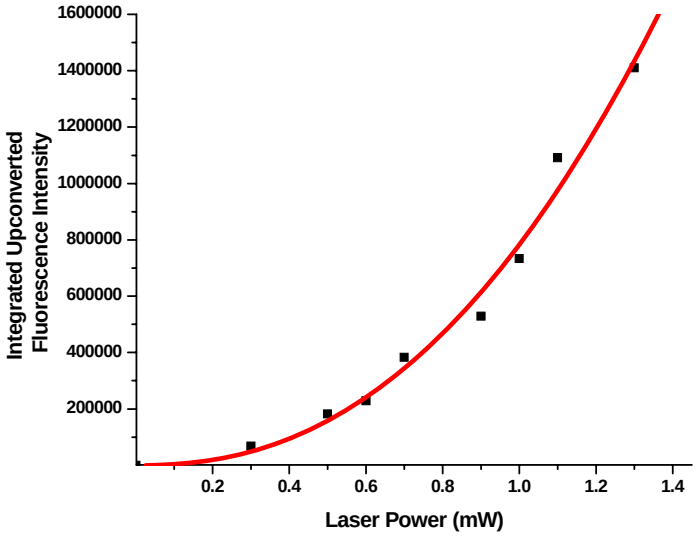

Figure S2. The solid red line is the best quadratic fit to the integrated upconverted emission data (solid squares) from Figure S1.

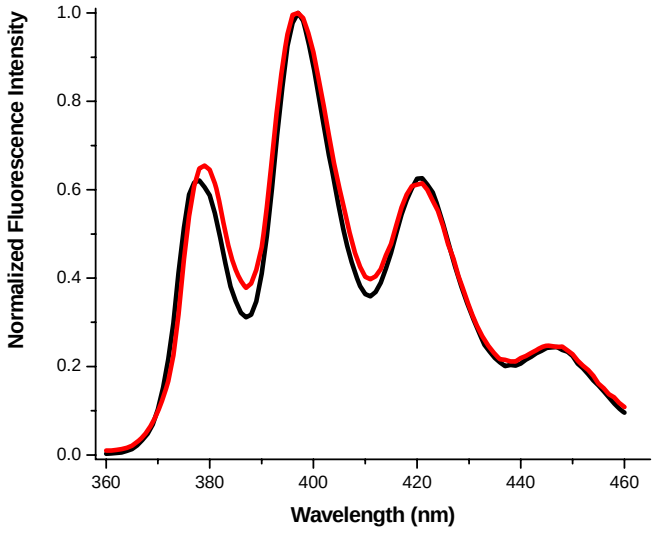

Figure S3. Comparison of normalized upconverted (λ_{ex}= 488 nm, red line) and prompt (λ_{ex} = 376 nm, black line) emission intensity of a mixture of $[Ru(dmb)_3]^{2+}$ (3.0 x 10^{-5} M) and anthracene (1.3 x 10^{-4} M) in deaerated CH_3CN.

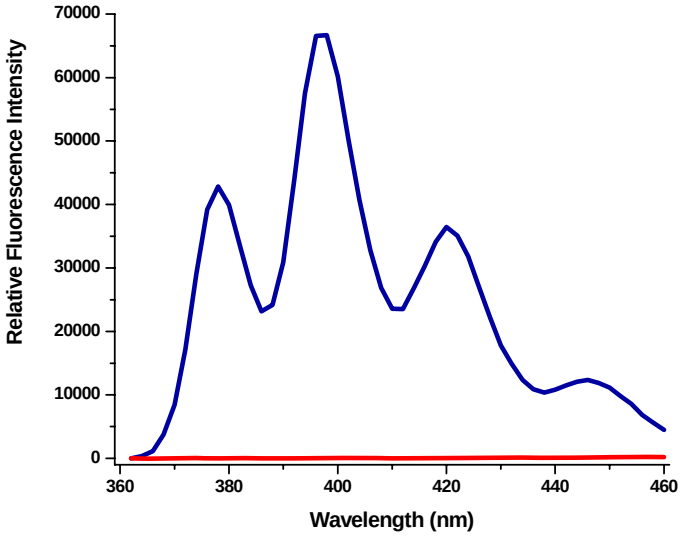

Figure S4. Comparison of the upconverted emission intensity of a mixture of anthracene + $[Ru(dmb)_3]^{2+}$ (blue line) relative to anthracene alone (red line) (λ_{ex} = 488 nm, incident laser power = 1.5 mW). The concentrations are the same as in Figure S3.

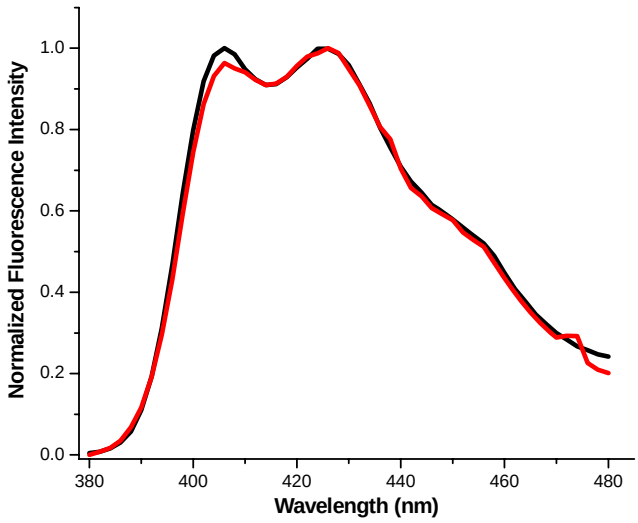

Figure S5. Comparison of normalized upconverted (λ_{ex}= 514.5 nm, red line) and prompt (λ_{ex} = 393 nm, black line) emission intensity of a mixture of $[Ru(dmb)_3]^{2+}$ (3.0 x 10^{-5} M) and DPA (1.3 x 10^{-4} M) in deaerated CH_3CN.

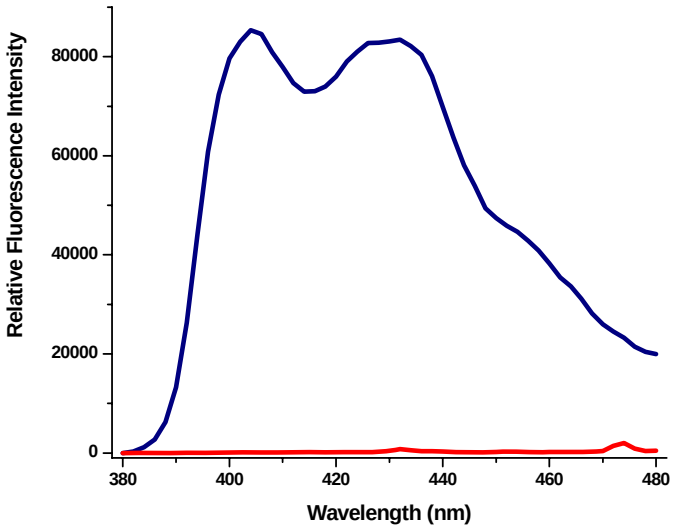

Figure S6. Comparison of upconverted emission intensity of a deaerated CH_3CN solution of $[Ru(dmb)_3]^{2+}$ + DPA (blue line) and DPA alone (red line) (λ_{ex} = 514.5 nm , incident laser power = 1.3 mW). The concentrations are the same as in Figure S5.

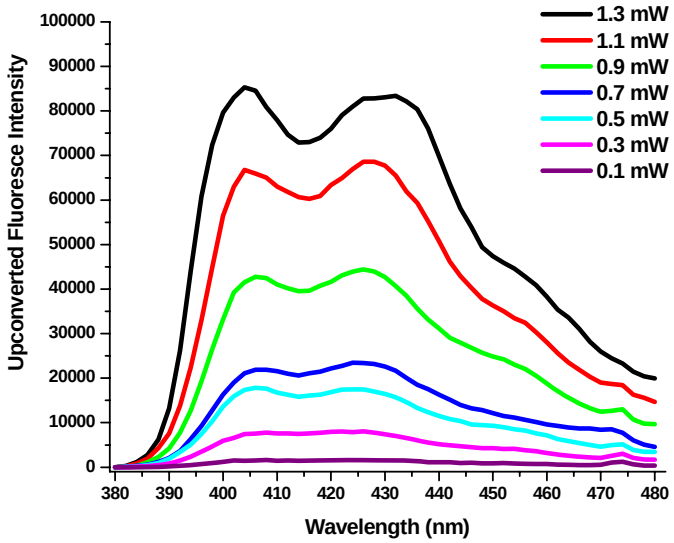

Figure S7. Upconverted emission intensity profile of $[Ru(dmb)_3]^{2+}$ (3.0×10^{-5} M) + DPA (6.9×10^{-5} M) as a function of 514.5 nm incident laser power.

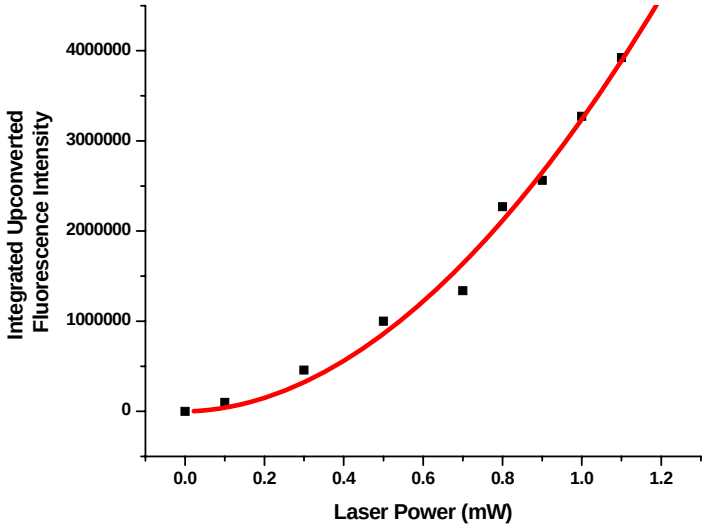

Figure S8. The solid red line is the best quadratic fit to the upconverted emission data (solid squares) from Figure S7.

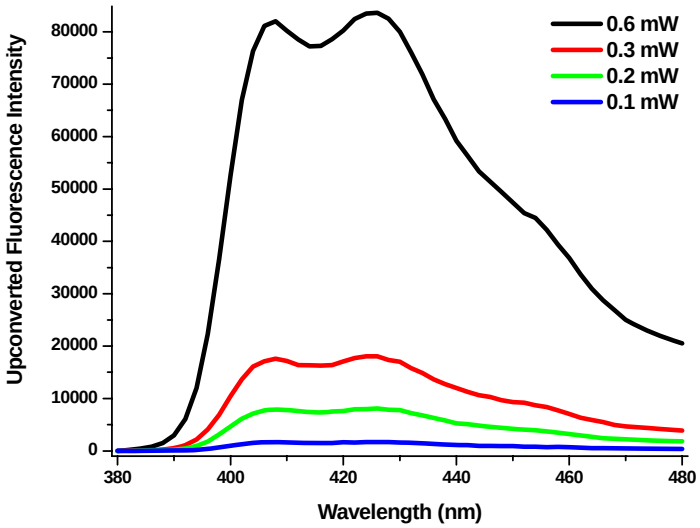

Figure S9. Upconverted emission intensity profile of deaerated CH_3CN solution of DPA (1.3 x 10^{-4} M) + $[Ru(dmb)_3]^{2+}$ (3.2 x 10^{-5} M) as a function of 514.5 nm incident laser power.

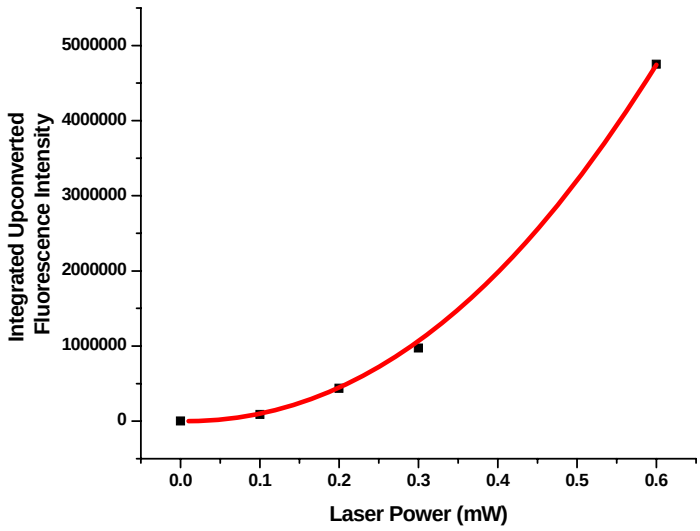

Figure S10. The solid red line is the best quadratic fit to the integrated upconverted emission data (solid squares) from Figure S9.