Solvothermal growth and photophysical characterization of a ruthenium(II) tris-(2,2'-bipyridine)-doped zirconium UiO-67 metal organic framework thin film.

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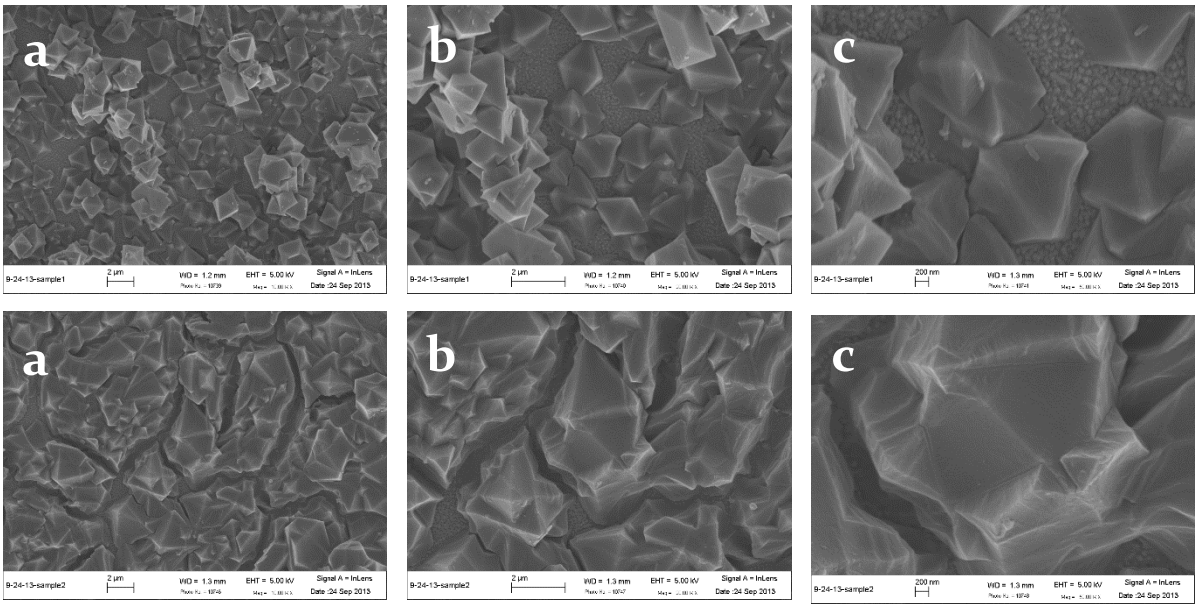

Figure S1. SEM images of undoped UiO-67/FTO (top) and RuDCBPY-UiO67/FTO (bottom) thin films at magnifications of a) 10,000 times, b) 20,000 times, and c) 50,000 times.

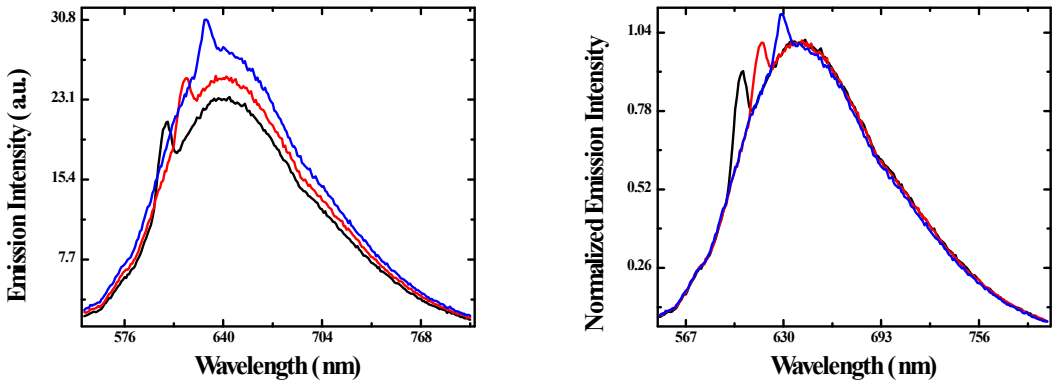

Figure S2. Steady-state emission spectra of RuDCBPY-UiO67 thin film on FTO at a doping concentration of 25 mmolal excited at 440 nm (black), 450 nm (red), and 460 nm (blue). The spectra in the left panel represent the raw data and the right panel contains the normalized spectra. The peaks observed at 604 nm (black), 614 nm (red), and 624 nm (blue)

correspond to Raman scattering from the solid samples. All three spectra were used to reconstruct the emission spectra without the Raman scatter.

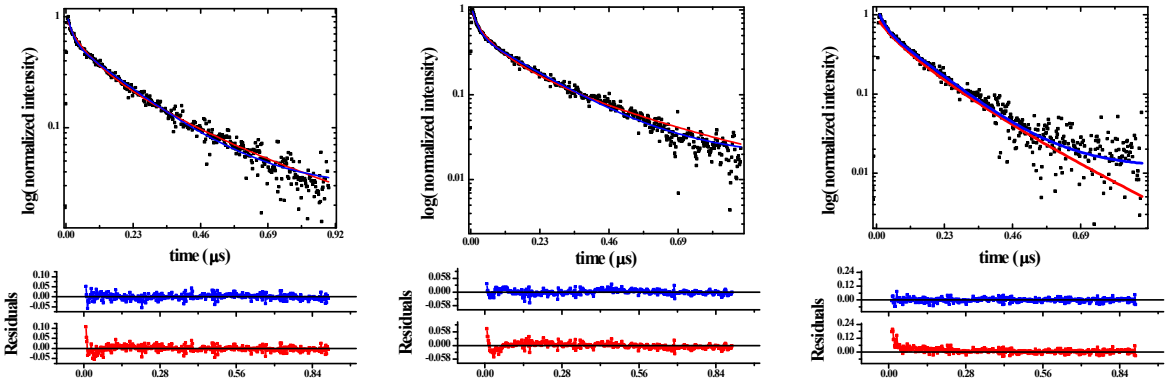

Figure S3. Comparison of the bi-exponential (solid blue line) and stretched exponential (solid red line) function fits to the emission decay data for RuDCBPY-UiO67 thin films on FTO at doping concentrations of 17 mmolal (left panel) and 25 mmolal (middle panel) and 27 mmolal (right panel). The residuals for the fits (same color coding) are presented below each panel.

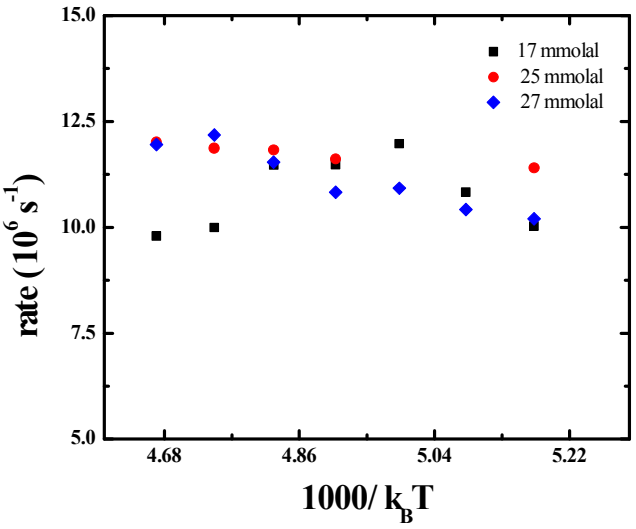

Figure S4. Temperature dependent RuDCBPY-UiO67/FTO observed ^{3}MLCT emission decay rates as a function of RuDCBPY doping concentration: (black squares) 17 mmolal, (red circles) 25 mmolal, (blue diamonds) 27 mmolal.

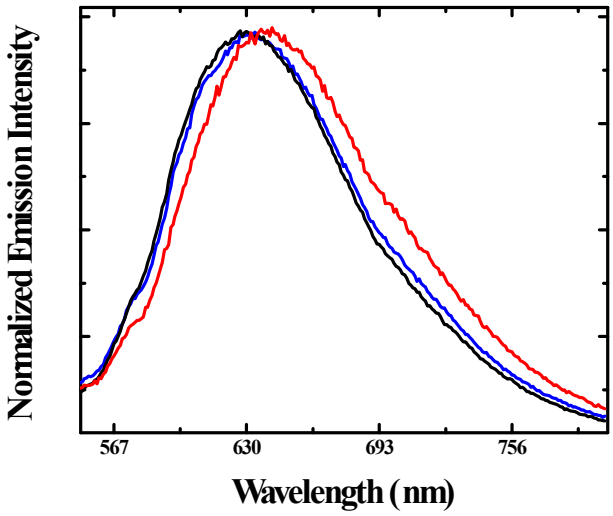

Figure S5. Steady-state emission spectra of RuDCBPY-UiO67 thin films grown on glass microscope slides. Doping concentrations were 14.2 mmolal (black), 44.8 mmolal (red), and 46.5 mmolal (blue).

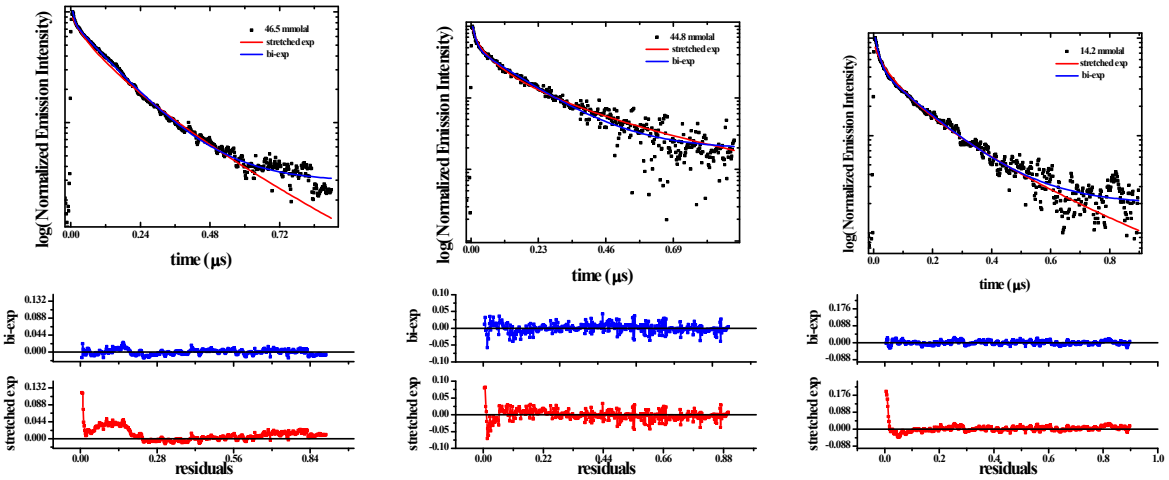

Figure S6. Comparison of the bi-exponential (solid blue line) and stretched exponential (solid red line) function fits to the emission decay data for RuDCBPY-UiO67 thin films on glass microscope slides at doping concentrations of 14 mmolal (left panel) and 45 mmolal (middle panel) and 47 mmolal (right panel). The residuals for the fits (same color coding) are presented below each panel.