

ESI:

Electronic Spectroscopy Data:

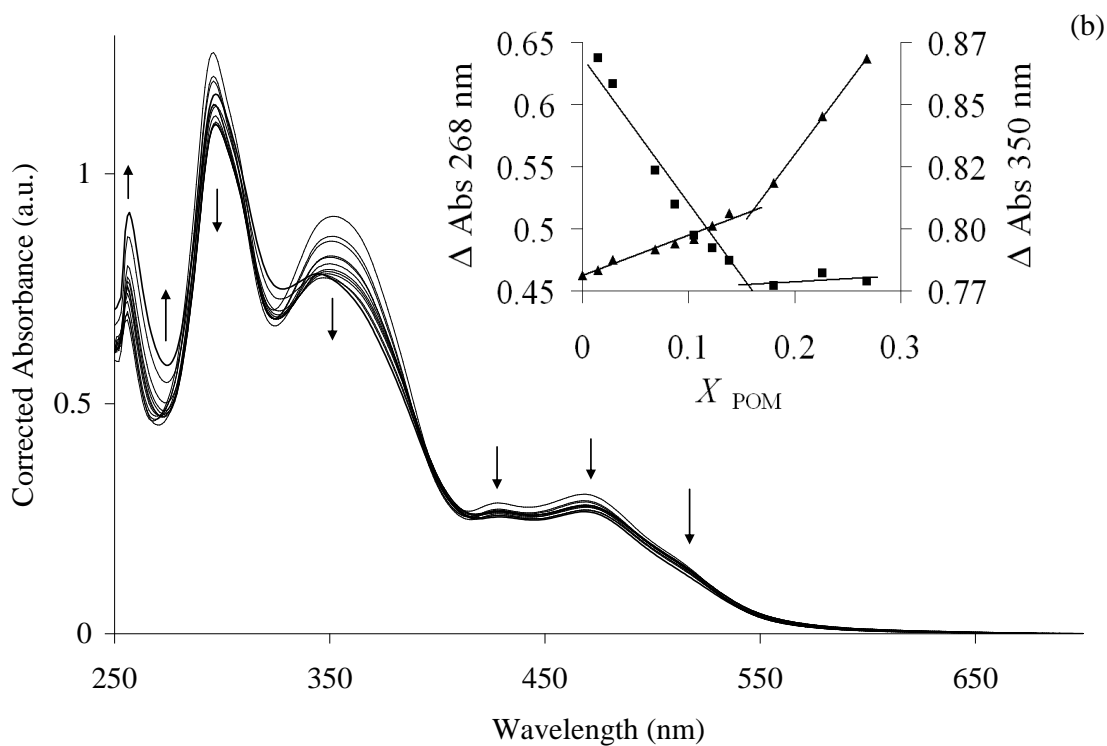


Fig S1: Electronic spectra of [Ru(bpy)<sub>2</sub>(CAIP)co-poly<sub>7</sub>]<sup>+</sup> (DMSO, 1.8 x 10<sup>-5</sup> M) titrated with [Mo<sub>18</sub>O<sub>54</sub>(SO<sub>4</sub>)<sub>2</sub>]<sup>4-</sup> (3.75 x 10<sup>-4</sup> M, MeCN). Spectra were corrected for baseline drift. Inset: Absorbance changes as a function of increasing polyoxometalate mole fraction.

### Luminescence Quenching Data:

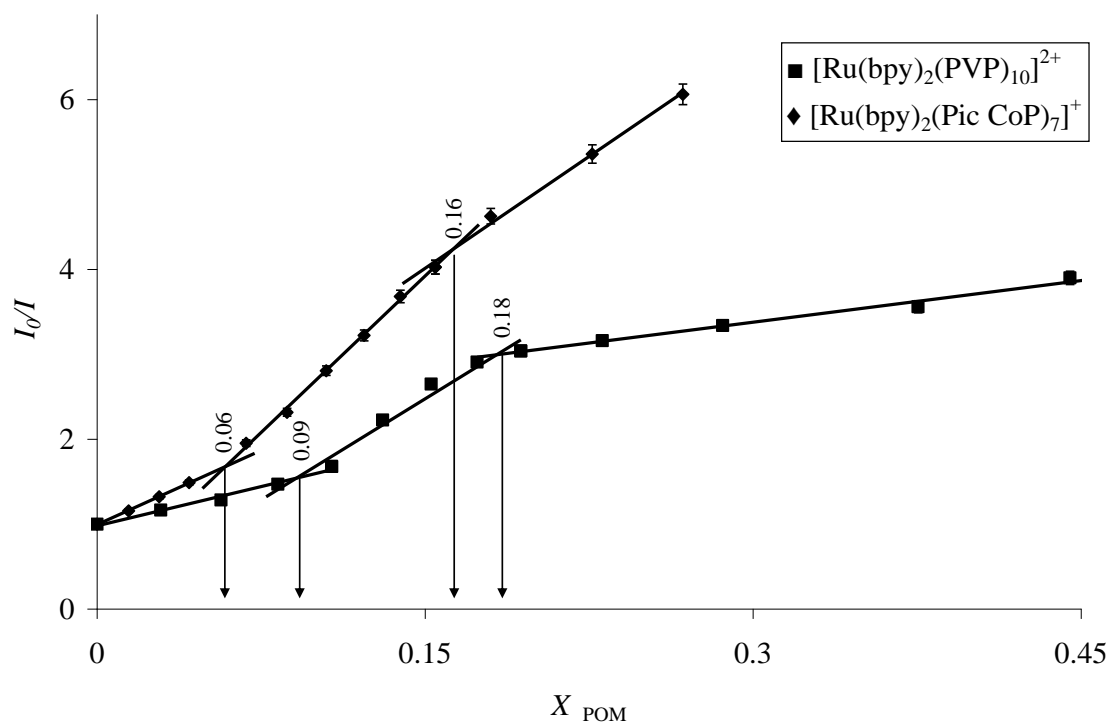


Fig S2: Stern-Volmer plots of luminescence quenching data in Fig 2.

ATR-FTIR:

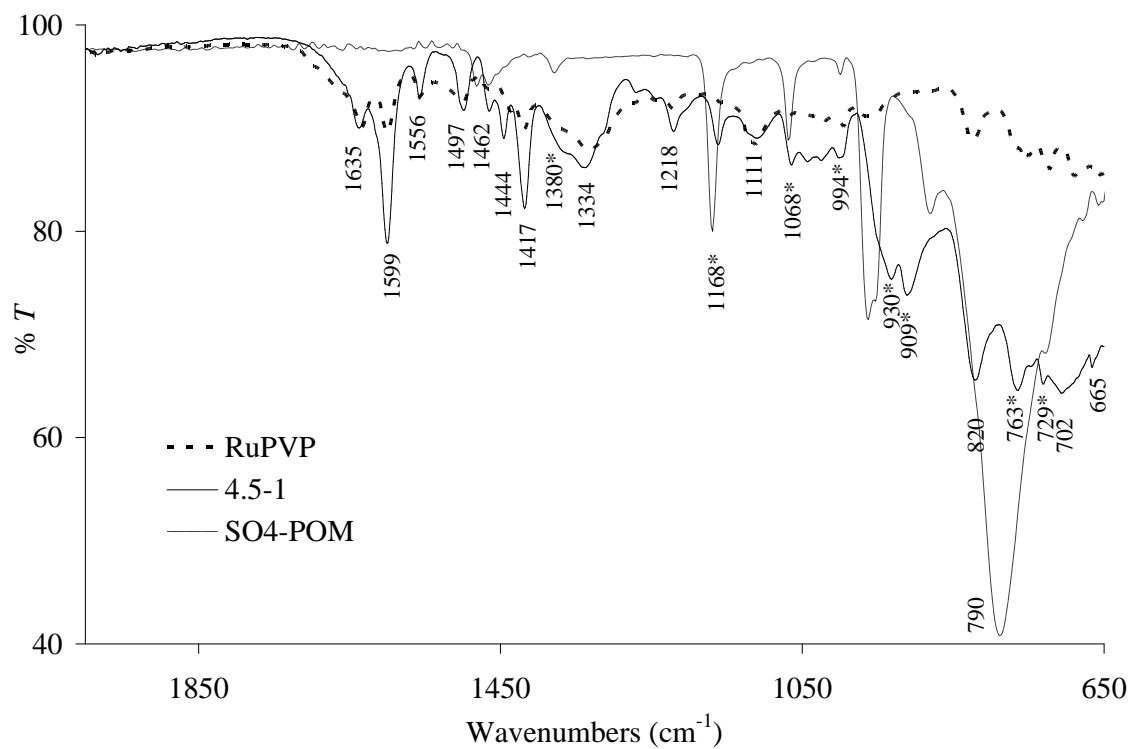


Fig S3: ATR-FTIR spectra of  $[\text{Ru}(\text{bpy})_2(\text{PVP})_{10}](\text{NO}_3)_2$ ,  
 $\{[\text{Ru}(\text{bpy})_2(\text{PVP})_{10}]_{4.5}[\text{Mo}_{18}\text{O}_{54}(\text{SO}_4)_2]\}^{5+}$  and  $[(\text{Hex})_4\text{N}]_4[\text{Mo}_{18}\text{O}_{54}(\text{SO}_4)_2]$  5% w/w in KBr