Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting information

For

Visible light-induced ring-opening polymerization of lactones based on the excited state acidity of ESPT molecules

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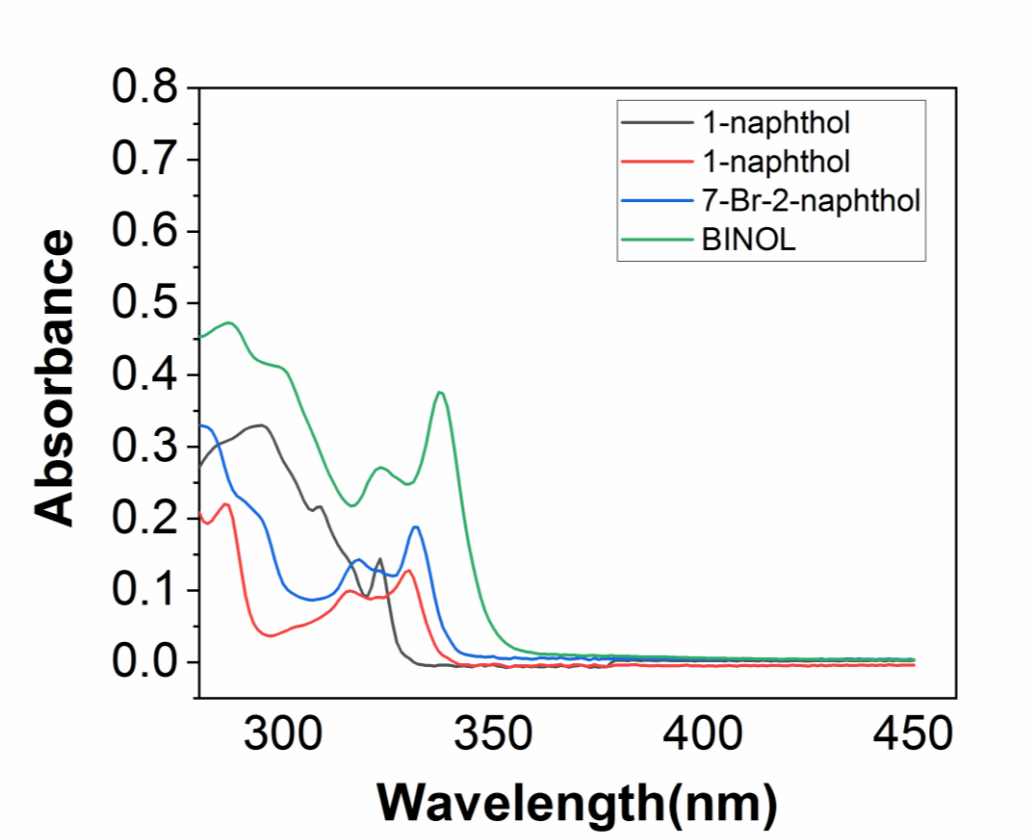


Figure S1. UV-Vis spectra of a 5 × 10 $^{-5}$ M 1-naphthol, 2-naphthol, 7-Bromo-2-naphthol and 2,2'-dihydroxy-1,1'-binaphthyl (BINOL)

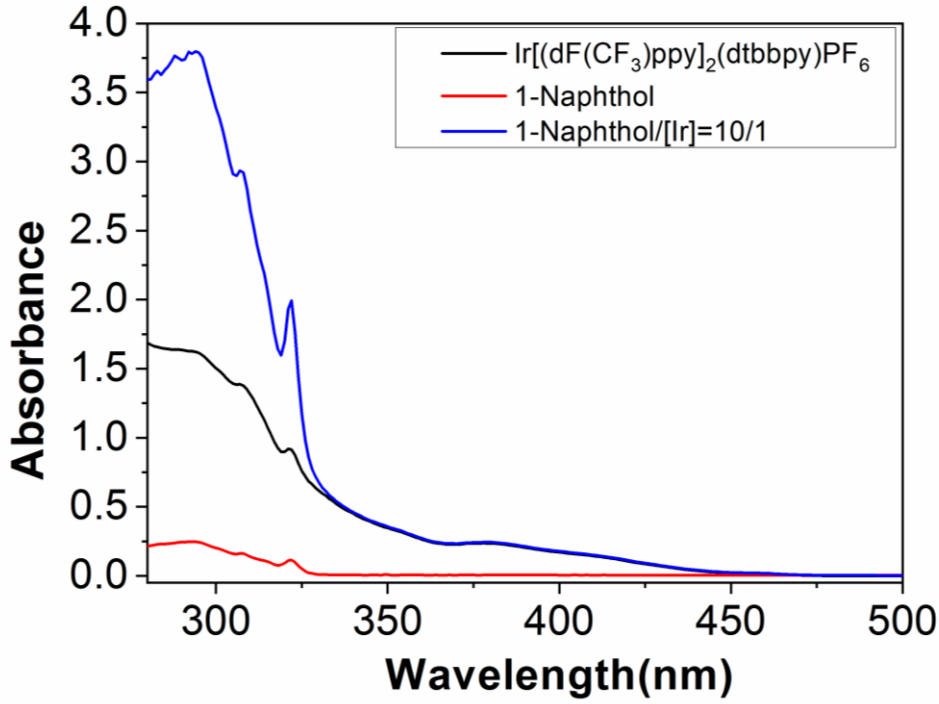


Figure S2. UV-Vis spectra of a 5 × 10 $^{-5}$ M Ir[dF(CF$_3$)ppy]$_2$(dtbpy)PF$_6$ (**SENS 5**), 1-naphthol, and 1-naphthol/ **SENS 5=**10/1 in DCM.

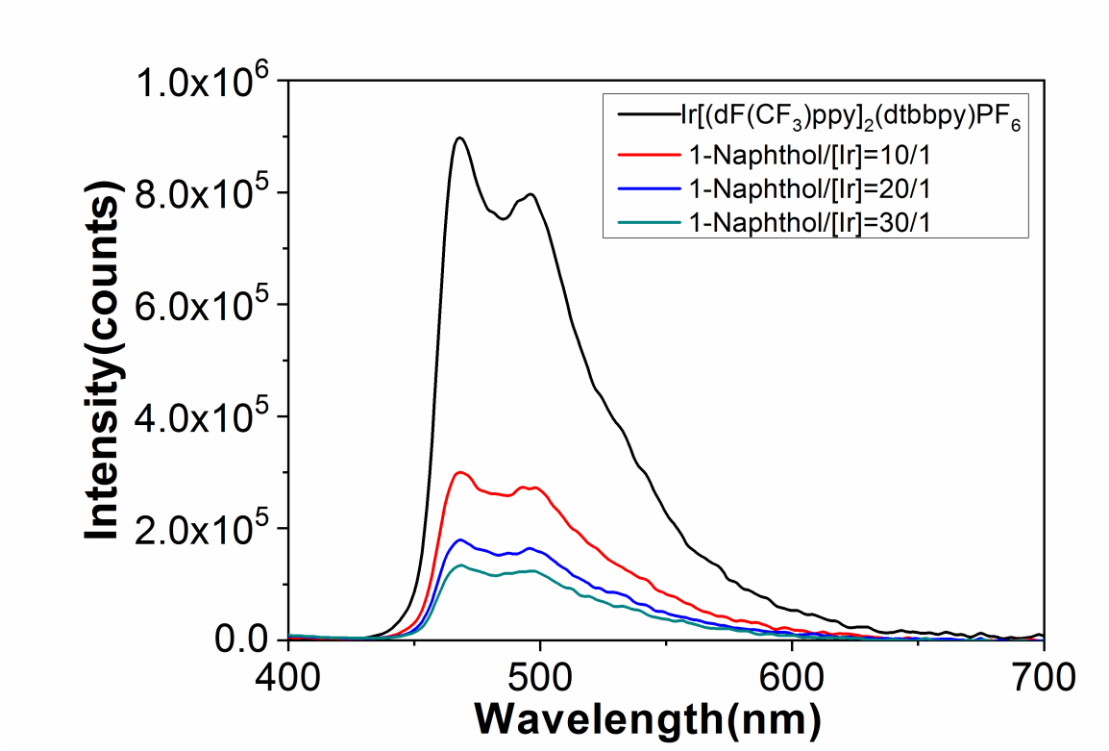


Figure S3. Emission spectra of Ir[dF(CF$_3$)ppy]$_2$(dtbpy)PF$_6$ (**SENS 5**), and fluorescence titration with 10 equivalents, 20 equivalents, 30 equivalents of 1-napthol.

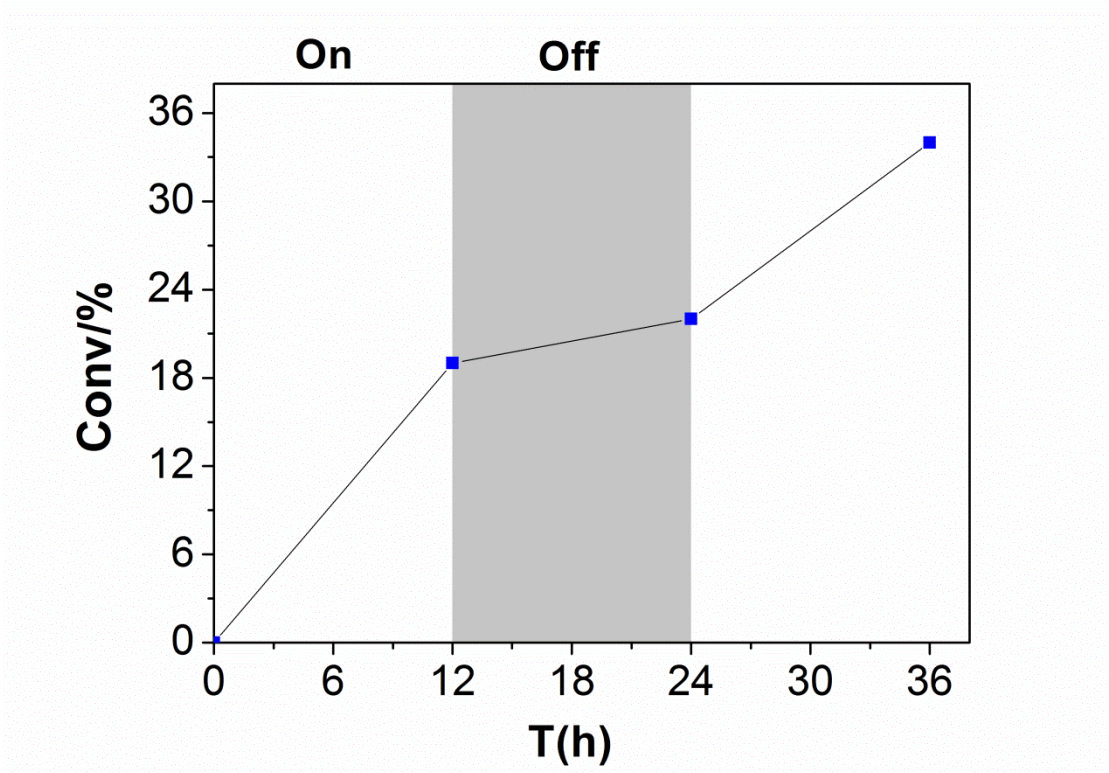


Figure S4. Light On-Off experiment: [δ-VL]$_0$/[PPA]$_0$/[NPOH]$_0$/[*fac*-Ir(ppy)$_3$]$_0$ = 50/1/1/0.1.

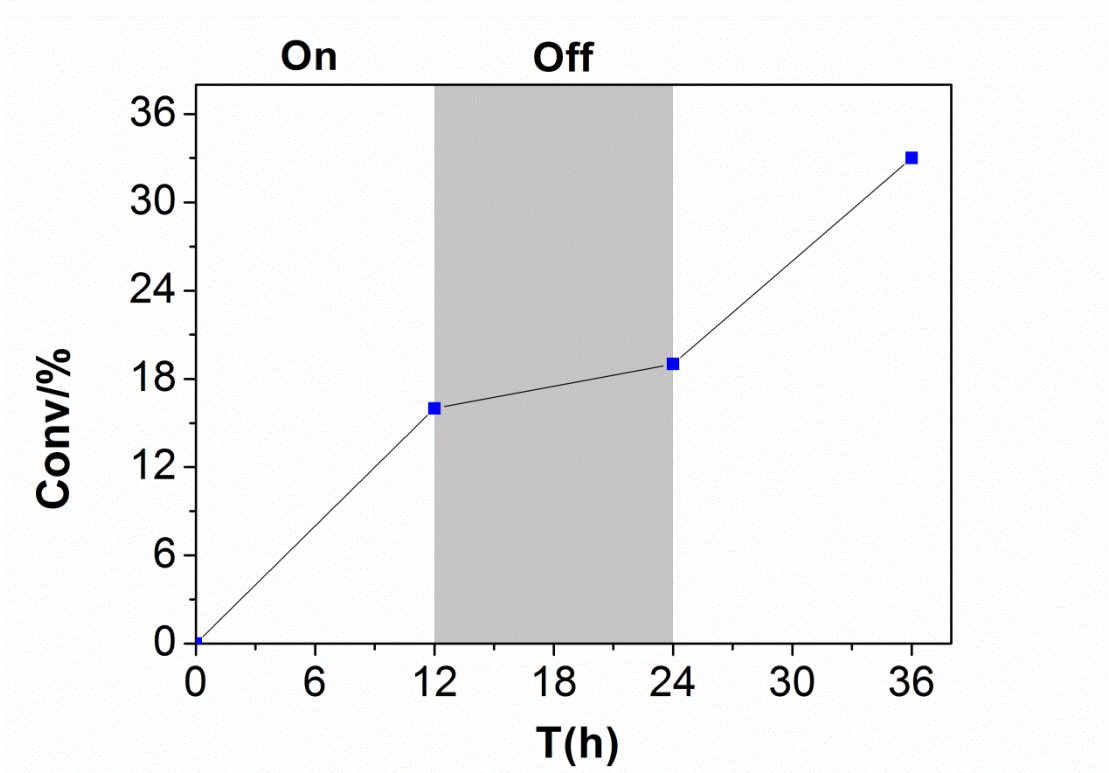
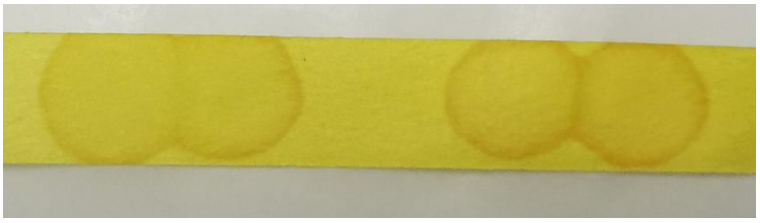


Figure S5. Light On-Off experiment: $[\delta\text{-VL}]_0/[\text{PPA}]_0/[\text{2-naphthol}]_0/[\textit{fac}\text{-Ir(ppy)}_3]_0$ = 50/1/1/0.1.



Left **Right**

Figure S6. The pH change of NPOH in EtOH/H_2O (v/v 1:1, 0.1M) before (left) and after (right) light irradiation for 4 hours.