

Electronic Supplementary Information

Enhanced phosphorescence properties of Pt-porphyrin derivative fixed on the surface of nano-porous glass

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1. UV-vis absorption spectra of the control samples

UV-vis absorption spectra of the control samples were measured. No absorption peaks of Q(1, 0) and Q(0, 0) bands were obtained as shown in Figure S1.

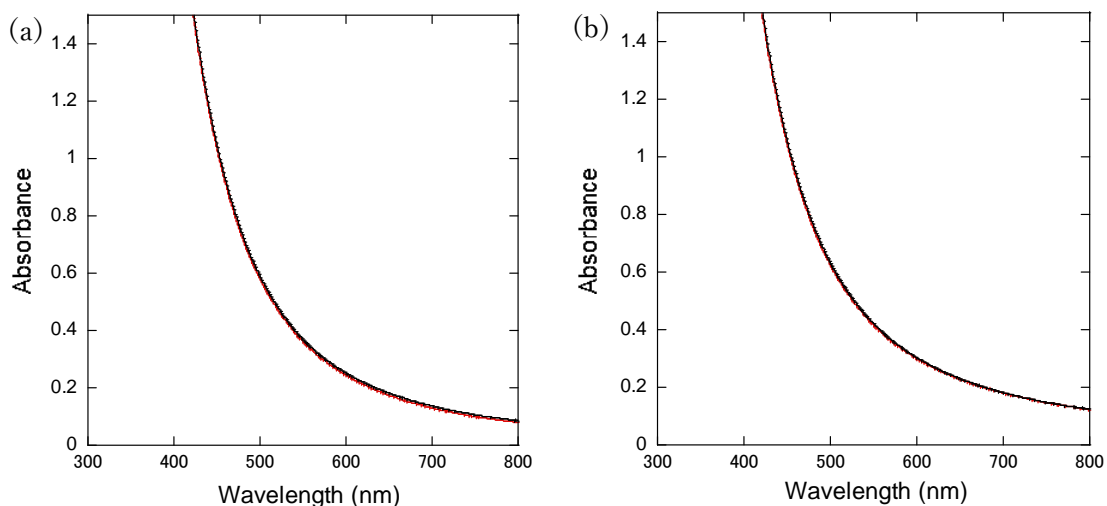


Figure S1. UV-vis absorption spectra of (a) NH₂-terminated porous glass before (black) and after dipped in PtOEP solution (75 μM) in THF (red). (b) OH-terminated porous glass before (black) and after dipped in PtCP solution (75 μM) in THF (red).

2. Phosphorescence lifetime measurement at several oxygen concentrations

Phosphorescence lifetime of a PtCP-fixed glass (loading concentration 75 μM) in a quartz cell filled with argon and oxygen gases was measured at different concentrations of oxygen at 23°C and 1 atm. The concentration of the oxygen in the cell was characterized by using a TCD gas chromatograph (GC320, GL Sciences Co., Ltd.) equipped with a MS5A column (2 m) and argon carrier gas. As oxygen concentration increased, the phosphorescence was quenched, and lifetime decreased as shown in Figure S2 and Table S1.

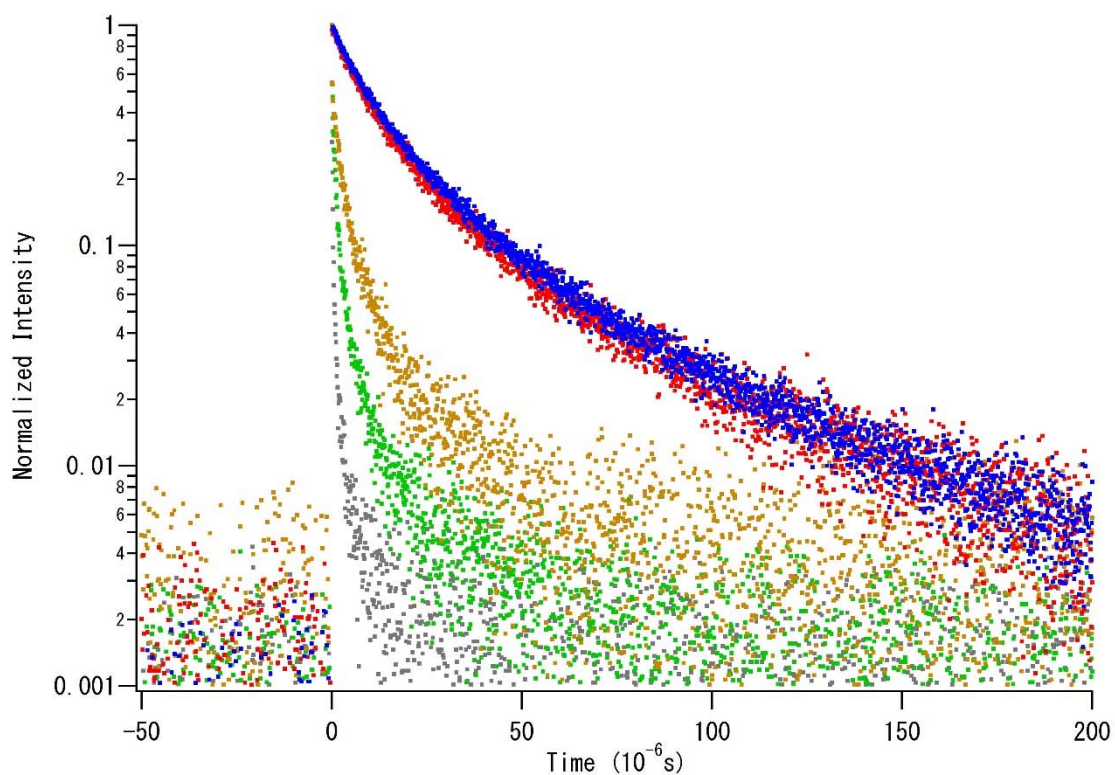


Figure S2. Normalized phosphorescence decay curves of PtCP-fixed glass (75 μM) with oxygen concentration of 0.45 (blue), 0.65 (red), 4.6 (orange), 5.2 (green) and 20.9 % (grey) in argon gas.

Table S1. Oxygen concentration and average lifetime of phosphorescence decay of PtCP-fixed nano-porous glass (loading concentration 75 μM).

Oxygen Concentration (vol%)	Lifetime (μs)
0.45	32
0.65	30
4.6	13
5.2	9.1
20.9	4.0