Electronic Supplementary Information

Photophysics in Solution and Langmuir-Blodgett Film and Vapochromic Behavior of the Pt(II) 2,6-Bis(N-alkylbenzimidazol-2'-yl)pyridine Complexes with Different Alkyl Chains and Counter Anions

Iswarya Mathew, Wenfang Sun*

Department of Chemistry and Molecular Biology, North Dakota State University, Fargo, ND 58108-6050

* Corresponding author. E-mail: Wenfang.Sun@ndsu.edu. Phone: 701-231-6254. Fax: 701-231-8831.
**Figure S1.** Concentration-dependent UV-Vis absorption spectra of 3 in CH$_3$CN.

**Figure S2.** UV-Vis absorption spectra of 5c in different solvents. Insets are the expansion for the $^1$MLCT band of this complex.
**Figure S3.** Emission spectra of 5c in different solvents. The concentration used for the measurements is $1 \times 10^{-5}$ mol/L, and the excitation wavelength is 450 nm.

**Figure S4.** Emission spectra of 5a-5e in CH$_2$Cl$_2$. The concentration used for the measurements is $1 \times 10^{-5}$ mol/L, and the excitation wavelength is 450 nm.
Figure S5. Solutions of complexes 5(a-f) in hexane / chloroform (v/v = 3/1) mixture.

Figure S6. Absorption spectra of aggregated 3-5a in hexane / chloroform (v/v = 66/34) solution.

The original concentration for all of the solutions is $2 \times 10^{-5}$ mol/L.
**Figure S7.** Emission spectra of aggregated 5 (a-f) in mixed hexane/CHCl₃ (v/v = 7/3) solution (c = 2×10⁻⁵ mol/L) upon excitation at λ<sub>ex</sub> = 570 nm. The percentage shown in the legend is the hexane percentage.

**Figure S8.** Surface pressure-molecular area isotherm on pure water for 5(a-f).
Figure S9. Schematic representation of “flat-on” (a) and “side-on” (b) orientation of the molecules in LB films.

Figure S10. Normalized emission spectra of 5-layer LB films of 3-5a when excited at 450 nm.