### **Supporting Information**

## Organometallic Multiads of Zinc(II) Porphyrins; Clear Evidence for Interchromophoric Cooperativity in S<sub>1</sub> and T<sub>1</sub> Energy Transfers

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#### **Experimental Section**

**Instruments:** The <sup>1</sup>H NMR, <sup>13</sup>C NMR and <sup>31</sup>P NMR spectra were collected on a Bruker DRX 400 spectrometer in deuterated chloroform solution, with tetramethylsilane (TMS) as internal standard in all cases. MALDI-TOF mass spectra were recorded on a Bruker BIFLEX III TOF mass spectrometer (Bruker Daltonics, Billerica, MA, USA) using a 337 nm nitrogen laser with dithranol as matrix. The UV-vis spectra were recorded on a Hewlett-Packard diode array model 8452A at Sherbrooke. he emission and excitation spectra were obtained using a double monochromator Fluorolog 2 instrument from Spex. The fluorescence lifetimes were measured on a Timemaster Model TM-3/2003 apparatus from PTI. The source was a nitrogen laser with a high-resolution dye laser (fwhm = 1.5 ns), and the fluorescence lifetimes were obtained from high-quality decays and deconvolution or distribution lifetime analysis. The uncertainties were about 40 ps based on multiple measurements. The phosphorescence lifetimes were performed on a PTI LS-100 using a 1  $\mu$ s tungsten flash lamp (fwhm ~1  $\mu$ s).

**Quantum yield measurements:** All samples were prepared under an inert atmosphere (in a glove box,  $O_2 < 12$  ppm) by dissolution of the different compounds in 2MeTHF using 1 cm<sup>3</sup> quartz cells at 298 K. Three different measurements (i.e. different solutions) were performed for each set of photophysical data (quantum yield). The sample concentrations were chosen to correspond to an absorbance of 0.05 at the excitation wavelength. Each absorbance value was measured five times for better accuracy in the measurements of emission quantum yield. The reference was zinc tetraphenylporphyrin (0.033 in THF).<sup>1-2</sup>

Materials. All reagents and chemicals, unless otherwise stated, were purchased from commercial sources and used without further purification. The compounds 4-trimethylsilylethynylbenzaldehyde,<sup>3</sup> 2-carbaldehyde-5,5',10,10',15,15'-hexahexyltruxene,<sup>4</sup> 5-4-trimethylsilylethynylphenyldipyrromethane,<sup>5</sup>  $trans-[Pt(P(n-Bu)_3)_2Cl_2],$ and 5-(4-ethynylphenyl)-13,17-diethyl-2,3,7,8,12,18-hexamethylporphyrin zinc<sup>6</sup> (2),trans-[Pt- $(P(n-Bu)_3)_2Cl(C \equiv CC_6H_5)]^6$  were prepared according to the literature methods. Chromophore abbreviation in experimental characterization: Tr: truxene; Py: pyrrole; Ph: phenyl; P: phosphorus.



Figure S1. The synthetic routes of target multiads zinc(II) porphyrins. i) (a) CH<sub>2</sub>Cl<sub>2</sub>, BF<sub>3</sub>•OEt<sub>2</sub>, DDQ; (b) Zn(OAc)<sub>2</sub>, THF/MeOH; (c) TBAF, THF. ii) CH<sub>2</sub>Cl<sub>2</sub>/*i*Pr<sub>2</sub>NH, CuI. iii) CH<sub>2</sub>Cl<sub>2</sub>/*i*Pr<sub>2</sub>NH, CuI, *trans*-[Pt(P(*n*-Bu)<sub>3</sub>)<sub>2</sub>Cl<sub>2</sub>]. iv) (a)CHCl<sub>3</sub>, BF<sub>3</sub>•OEt<sub>2</sub>, DDQ; (b) Zn(OAc)<sub>2</sub>, THF/MeOH. v) THF/ MeOH, K<sub>2</sub>CO<sub>3</sub>, RT. vi) CH<sub>2</sub>Cl<sub>2</sub>/*i*Pr<sub>2</sub>NH, CuI.

**3:** CuI (6.0 mg, 0.030 mmol) was added to a mixture of *trans*-Pt(PnBu<sub>3</sub>)<sub>2</sub>Cl<sub>2</sub> (1.2 g, 1.8 mmol) and 5-(4-ethynylphenyl)-13,17-diethyl-2,3,7,8,12,18-hexamethylporphyrin zinc (0.20 g, 0.35 mmol) in CH<sub>2</sub>Cl<sub>2</sub>/iPr<sub>2</sub>NH (50 mL, 1:1 v/v). The purple solution was stirred overnight under inert atmosphere. After all solvent was removed under reduced pressure, the residue was redissolved in CH<sub>2</sub>Cl<sub>2</sub> and washed 3 times with water and dried over K<sub>2</sub>CO<sub>3</sub>. All solvents were removed under reduced pressure again. The residue was dissolved in a minimum amount of CH<sub>2</sub>Cl<sub>2</sub> and passed through a silica column using hexane/CH<sub>2</sub>Cl<sub>2</sub> (40/60, v:v) as a solvent to afford a purple solid (35 %, 0.15 g). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz, ppm):  $\delta$  9.77 (s, 2H, meso-H), 9.46 (s, 1H, meso-H), 7.88-7.85 (d, 2H, <sup>3</sup>J<sub>H-H</sub> = 8.0 Hz, Ph-H), 7.61-7.59 (d, 2H, <sup>3</sup>J<sub>H-H</sub> = 8.1 Hz, Ph-H), 3.81 (q, 4H, <sup>3</sup>J<sub>H-H</sub> = 7.6 Hz, CH<sub>2</sub>), 3.45 (s, 6H, CH<sub>3</sub>), 3.43 (s, 6H, CH<sub>3</sub>), 2.49 (s, 6H, CH<sub>3</sub>), 2.26-2.21 (m, 12H, P-CH<sub>2</sub>), 1.89-1.55 (m, 24H, CH<sub>2</sub>), 1.06-0.99 (m, 18H, CH<sub>2</sub>CH<sub>3</sub>). <sup>31</sup>P NMR (CDCl<sub>3</sub>, 161.92 MHz, ppm):  $\delta$  8.16. 4.50. MS ESI: m/z=1246.5354 [MH]<sup>+</sup>; 1245.52 calcd for C<sub>62</sub>H<sub>89</sub>ClN<sub>4</sub>P<sub>2</sub>PtZn.

**4:** A solution of 2-carbaldehyde-5,5',10,10',15,15'-hexahexyltruxene (0.92 g, 1.1 mmol), 4-trimethylsilylethynylbenzaldehyde (0.070 g, 0.35 mmol) and pyrrole (0.10 g, 1.4 mmol) in CHCl<sub>3</sub> (50 mL) was degassed for 30 min at room temperature. The condensation was initiated by the addition of BF<sub>3</sub>•Et<sub>2</sub>O in CH<sub>2</sub>Cl<sub>2</sub> (5.0  $\mu$ L) in the dark and the reaction was stirred overnight. The 2,3-dichloro-5,6-dicyano-1,4-benzoquinone (**DDQ**; 1.5 g, 2.3 mmol) was added for oxidation. The reaction mixture was stirred for additional 2 h. After the addition of triethylamine (1.0 mL), the reaction was stirred for 20 min.The reaction was concentrated and chromatographed on silica gel using CH<sub>2</sub>Cl<sub>2</sub>/hexane (1:4, v/v) as solvents to obtain a purple free base porphyrin. A solution of Zn(OAc)<sub>2</sub> (1.0 g, 4.5 mmol) in MeOH (10 mL) was added to the free base porphyrin solution in THF (50 mL) and the reaction mixture was stirred overnight. The solvents were removed under vacuum leaving a purple solid. The metalloporphyrin was purified by silica gel chromatography with CH<sub>2</sub>Cl<sub>2</sub>/hexane (1:4, v/v) as solvents to obtain a purple solid. The zinc porphyrin further reacted with **NBu<sub>4</sub>F** (2 equivalent) in THF (50 mL) for 2 h. After the solvent was removed and a flash chromatography using CH<sub>2</sub>Cl<sub>2</sub> as solvent, title complex was obtained (0.12 g, 10 % for three steps). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 100 MHz, ppm):  $\delta$  9.17-9.10 (6H, m, Py-H), 9.00-8.98 (2H, d, J = 8Hz, Py-H), 8.76-8.74 (3H, m, Tr-H), 8.43-8.25 (14H, m, Tr-H and Ph-H), 7.94-7.92 (2H, m, Ph-H), 7.56-7.37 (18H, m, Tr-H), 3.32 (1H, s,  $-C \equiv CH$ ), 3.26-3.04 (18H, m, Tr-CH<sub>2</sub>), 2.32-2.10 (18H, m, Tr-CH<sub>2</sub>), 0.82-0.57 (198H, m, CH<sub>2</sub>CH<sub>3</sub>). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz, ppm):  $\delta$  153.9, 153.8, 152.4, 150.8, 150.2, 145,5 143.9, 139.9, 138.5, 134.6, 132.9, 132.5, 131.9, 130.7, 129.0, 126.7, 126.3, 124.9, 122.8, 122.5, 121.6, 120.3, 84.1, 78.4, 56.1, 56.0, 37.3, 31.8, 30.6, 30.0, 29.7, 24.2, 22.4, 14.4, 14.3, 14.2, 14.1.

**5:** Treatment of **4** (0.45 g, 0.15 mmol) with 1 equiv of **3** (0.19 g, 0.15 mmol) in the presence of CuI (5.0 mg) using *i*Pr<sub>2</sub>NH-CH<sub>2</sub>Cl<sub>2</sub> (50 mL, 1:1, v/v) as a solvent for overnight at 298 K under argon, gave the title complex as a red solid after purification on a silica column using n-hexane/CH<sub>2</sub>Cl<sub>2</sub> (60:20, v/v) as a solvent (0.19 g, 30 %). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz, ppm):  $\delta$  10.08 (2H, s, meso-H), 9.94 (H, s, meso-H), 9.19-9.13 (8H, m, Py-H), 8.77-8.75 (3H, m, Tr-H), 8.33-8.15 (14H, m, Tr-H and Ph-H), 7.90-7.88 (2H, d, *J* = 8 Hz, Ph-H), 7.75-7.73 (4H, m, Ph-H), 7.56-7.25 (18H, m, Tr-H), 4.08-4.02 (4H, q, <sup>3</sup>*J*<sub>H-H</sub> = 7.6 Hz, CH<sub>2</sub>), 3.60 (s, 6H, CH<sub>3</sub>), 3.53 (s, 6H, CH<sub>3</sub>), 3.14-3.03 (18H, m, Tr-CH<sub>2</sub>), 2.55 (s, 6H, CH<sub>3</sub>), 2.41-2.13 (30H, m, Tr-CH<sub>2</sub> and P-CH<sub>2</sub>), 1.87-1.57 (m, 24H, CH<sub>2</sub>), 1.10-0.50 (216H, m, CH<sub>2</sub>CH<sub>3</sub>). <sup>31</sup>P NMR (CDCl<sub>3</sub>, 161.92 MHz, ppm):  $\delta$  4.32. MALDI-TOF MS, m/z calcd for C<sub>279</sub>H<sub>368</sub>N<sub>8</sub>P<sub>2</sub>PtZn<sub>2</sub>: 4215.675. Found (MH)<sup>+</sup>: 4216.725.

6: 5-4-Trimethylsilylethynylphenyldipyrromethane (3.6 11 mmol) and g, 2-carbaldehyde-5,5',10,10',15,15'-hexahexyltruxene (9.9 g, 11 mmol) were dissolved in CHCl<sub>3</sub> (125 mL) under Ar in a one-neck round-bottom flask. BF<sub>3</sub>•Et<sub>2</sub>O (25 µL) was added to initiate the condensation reaction. The reaction mixture stirred overnight under was Ar. 2,3-Dichloro-5,6-dicyano-1,4-benzoquinone (DDQ; 2.6 g, 11 mmol) was added to the reaction mixture, and stirring was continued for another hour. The triethylamine (5 mL) was added and the mixture was stirred for additional 15 min. The solvent was removed under reduced pressure. The silicon column chromatography using hexane/CH<sub>2</sub>Cl<sub>2</sub> (4:1, v:v) as a solution afforded a purple solid. A solution of Zn(OAc)<sub>2</sub>·2H<sub>2</sub>O (1.9 g, 8.5 mmol) in MeOH (18 mL) was added to the free base in THF (100 mL), and the mixture was stirred overnight. The solvent was removed under vacuum. The

crude product was then purified by using chromatography on silica gel with CH<sub>2</sub>Cl<sub>2</sub>/hexane (1:4, v:v) as a solvent to afford a red solid (1.5 g, 11 %). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz, ppm): δ 9.17-9.10 (4H, m, Py-H), 8.99-8.94 (4H, m, Py-H), 8.75-8.73 (2H, m, Tr-H), 8.47-8.19 (12H, m, Tr-H and Ph-H), 7.91-7.88 (4H, m, Ph-H), 7.56-7.37 (12H, m, Tr-H), 3.31-2.97 (12H, m, Tr-CH<sub>2</sub>), 2.29-2.08 (12H, m, Tr-CH<sub>2</sub>), 1.11-0.52 (132H, m, CH<sub>2</sub> and CH<sub>3</sub>), 0.35(18H, s, Si-CH<sub>3</sub>). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz, ppm): δ 153.7, 153.6, 152.1, 150.5, 149.9, 145.2, 142.1, 140.5, 138.2, 132.7, 131.7, 128.7, 124.7, 122.6, 122.2, 121.9, 120.4, 105.1, 95.3, 55.9, 55.8, 55.7, 37.0, 31.5, 29.6, 29.4, 22.3, 22.1, 14.0, 13.9, 13.80.

**7:** K<sub>2</sub>CO<sub>3</sub> (1.4 g, 9.7 mmol) was added to a solution of **4** (4.7 g, 1.9 mmol) in THF/MeOH (v/v = 3:1; 100 mL) and was stirred for 12 h. The solution was evaporated under vacuum. The crude product was purified by column chromatography on silica gel with CH<sub>2</sub>Cl<sub>2</sub>/hexane (1:4, v:v) as the solvent to yield a red solid (4.0 g, 98%). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz, ppm):  $\delta$  9.14-9.13 (4H, d, *J* = 4.0 Hz, Py-H), 9.01-9.00 (4H, d, *J* = 4.0 Hz, Py-H), 8.77-8.75 (2H, d, *J* = 8.0 Hz, Tr-H), 8.47-8.44 (4H, m, Tr-H), 8.37-8.35 (2H, d, *J* = 8 Hz, Tr-H), 8.30-8.25 (6H, m, Tr-H and Ph-H), 7.94-7.92 (4H, d, *J* = 8 Hz, Ph-H), 7.56-7.37 (12H, m, Tr-H), 3.31 (2H, s,  $-C \equiv CH$ ), 3.30-2.95 (12H, m, Tr-CH<sub>2</sub>), 2.30-2.08 (12H, m, Tr-CH<sub>2</sub>), 1.11-0.55 (132H, m, CH<sub>2</sub> and CH<sub>3</sub>). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz, ppm):  $\delta$  154.0, 153.9, 152.4, 150.8, 150.1, 145.5, 143.8, 140.1, 138.5, 133.0, 132.0, 129.1, 126.7, 126.3, 125.0, 122.9, 122.5, 122.3, 121.6, 120.5, 120.2, 83.9, 78.4, 56.1, 56.0, 55.9, 37.3, 31.8, 29.9, 29.7, 22.6, 22.4, 14.4, 14.3, 14.2, 14.1. MALDI-TOF MS, m/z calcd for C<sub>162</sub>H<sub>196</sub>N<sub>4</sub>Zn: 2261.475. Found (MH)<sup>+</sup>: 2262.479.

8: Treatment of 7 (0.34 g, 0.15 mmol) with 2 equiv of 3 (0.37 g, 0.30 mmol) for 12 h at 298 K, in the presence of CuI (3.0 mg), in  $iPr_2NH-CH_2Cl_2$  (50 mL, 1:1, v/v) under argon, gave the title complex as a red solid after purification on a silica column using n-hexane/CH<sub>2</sub>Cl<sub>2</sub> (30:60, v/v) as a solvent (0.070 g, 10 %). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz, ppm): 10.12 (4H, s, meso-H), 9.99 (2H, s, meso-H), 9.14-9.11 (8H, m, Py-H), 8.77-8.75 (2H, d, J = 8 Hz, Tr-H), 8.48-8.29 (8H, m, Tr-H), 8.17-8.15 (2H, d, J = 8 Hz, Ph-H), 7.90-7.88 (2H, d, J = 8 Hz, Ph-H), 7.74-7.58 (4H, m, Ph-H), 7.52-7.41 (12H, m, Tr-H), 3.90-3.88 (8H, q, <sup>3</sup>J<sub>H-H</sub>=7.6 Hz, CH<sub>2</sub>), 3.48 (24H, s, CH<sub>3</sub>), 3.29-3.06

(12H, m, Tr-CH<sub>2</sub>), 2.54-2.52 (12H, s, CH<sub>3</sub>), 2.45-2.13 (48H, m, Tr-CH<sub>2</sub> and P-CH<sub>2</sub>), 1.76-1.52 (m, 48H, CH<sub>2</sub>), 1.10-0.50 (168H, m, CH<sub>2</sub>CH<sub>3</sub>). <sup>31</sup>P NMR (CDCl<sub>3</sub>, 161.92 MHz, ppm):  $\delta$  5.01. MALDI-TOF MS: m/z calcd for C<sub>286</sub>H<sub>372</sub>N<sub>12</sub>P<sub>4</sub>Pt<sub>2</sub>Zn<sub>3</sub>: 4680.560. Found (MH)<sup>+</sup>: 4681.769.

9: Treatment (0.34)0.15 of 7 g, mmol) with 2 equiv of trans-phenylethynylchlorobis( tri-n-butylphosphine) platinum(II) (0.22 g, 0.29 mmol) for 12 h at 298 K, in the presence of CuI (3.0 mg), in *i*Pr<sub>2</sub>NH-CH<sub>2</sub>Cl<sub>2</sub> (50 mL, 1:1, v/v) gave the title complex as a red solid (0.25 mg, 75%) after purification on a silica column using n-hexane/CH<sub>2</sub>Cl<sub>2</sub> (1:2, v/v) as a solvent. <sup>1</sup>HNMR(CDCl<sub>3</sub>, 400 MHz, ppm):  $\delta$  9.11-9.07 (8H, m, Py-H), 8.75-8.73 (2H, d, J = 8.0Hz, Tr-H), 8.48-8.43 (4H, m, Tr-H), 8.37-8.35 (2H, d, J = 8 Hz, Tr-H), 8.29-8.26 (2H, m, Tr-H), 8.12-8.10 (4H, d, J = 8.0 Hz, Ph-H), 7.68-7.66 (4H, m, J = 8.0 Hz, Ph-H), 7.56-7.40 (12H, m, Tr-H), 7.31-7.29 (4H, m, J = 8.0 Hz, Ph-H), 7.24-7.18 (4H, t, J = 8.0 Hz, Ph-H), 7.14-7.11 (2H, m, Ph-H), 3.31-2.99 (12H, m, Tr-CH<sub>2</sub>), 2.27-2.21 (36H, m, Tr-CH<sub>2</sub> and P-CH<sub>2</sub>), 1.71-0.1.44 (48H, m, CH<sub>2</sub>), 1.11-0.55 (168H, m, CH<sub>2</sub> and CH<sub>3</sub>). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz, ppm): δ 153.9, 152.3, 150.6, 150.5, 145.5, 145.4, 139.9, 138.6, 131.1, 129.3, 128.1, 126.6, 126.3, 124.9, 122.8, 122.3, 121.8, 56.1, 56.0, 55.9, 37.3, 31.8, 29.9, 29.7, 26.7, 22.6, 22.4, 14.4, 14.3, 14.2, 14.1. <sup>31</sup>P NMR (CDCl<sub>3</sub>, 161.92 MHz): δ 4.18. MALDI-TOF MS, m/z calcd for C<sub>226</sub>H<sub>312</sub>N<sub>4</sub>P<sub>4</sub>Pt<sub>2</sub>Zn: 3660.207. Found (MH)<sup>+</sup>: 3661.209.



Figure S2. <sup>1</sup>H NMR spectrum of the compound **3** in CDCl<sub>3</sub>.



Figure S3. <sup>31</sup>P NMR spectrum of the compound **3** in CDCl<sub>3</sub>.





Figure S5. <sup>1</sup>H NMR spectrum of the compound **4** in CDCl<sub>3</sub>.





Figure S9.  $^{13}$ C NMR spectrum of the compound **6** in CDCl<sub>3</sub>.



Figure S10. <sup>1</sup>H NMR spectrum of the compound **7** in CDCl<sub>3</sub>.



Figure S11. <sup>13</sup>C NMR spectrum of the compound **7** in CDCl<sub>3</sub>.



Figure S12. Ms spectrum of the compound 7.

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Figure S13. <sup>1</sup>H NMR spectrum of the compound **8** in CDCl<sub>3</sub>.







Figure S15. Ms spectrum of the compound **8**.



Figure S16. <sup>1</sup>H NMR spectrum of the compound **9** in CDCl<sub>3</sub>.



Figure S17. <sup>13</sup>C NMR spectrum of the compound **9** in CDCl<sub>3</sub>.





Figure S19. Ms spectrum of the compound 9.



Figure S20. Corrected emission spectra of **4** and **7** at different excitation wavelengths at 298 K in 2-MeTHF.



Figure S21. Corrected absorption (blue), excitation (red) and emission (black) spectra for zinc porphyrins (5, 7, 8 and 9) at 298 K in 2-MeTHF.



Figure S22. Corrected absorption (blue), excitation (red) and emission (black) spectra for zinc porphyrins (5, 7, 8 and 9) at 77 K in 2-MeTHF.



Figure S23. Corrected emission spectra of the zinc(II) porphyrins (5 and 8) at the different excitation wavelength at 298 K in 2-MeTHF.



Figure S24. Corrected emission spectra of the zinc(II) porphyrins (7) at the different excitation wavelength at 77 K in 2-MeTHF.

Complex	$\lambda_{abs}(nm) (\epsilon \times 10^{-3} \text{ M}^{-1} \text{ cm}^{-1})^{a}$						
	Tru	[Pt]	Soret	Q			
5	308 (192)	334(75)	412(580), 434(512)	540(21.7), 560(38.2), 608(19.2)			
7	296 (97), 308 (120)		432(533)	564 (19.9), 605 (10.5)			
8	307(202.7)	334(138.8)	412(932), 434(832)	540(56.4), 560(46.5), 608(24.7)			
9	296 (172), 308 (195)	342 (84.8)	434 (975)	562 (40.7), 604 (32.3)			

Table S1. UV-vis absorption data for the target zinc(II) porphyrins in 2-MeTHF at 298 K.

<sup>*a*</sup>The absorption band is assigned to the truxene (**Tru**),  $[(p-C_6H_4)C \equiv CPt(P(n-Bu)_3)_2C \equiv C(p-C_6H_4)]$ [**Pt**], or zinc(II) porphyrin (Soret band and Q band).

Table S2. Emission data for all target zinc(II) porphyrins in 2-MeTHF.

Compound	chrom <sup>a</sup>	$\lambda_{em}(nm)^{b}$	$\lambda_{em}(nm)^{b}$	$\Phi_{\rm F}^{\ \rm c}$
		298 K	77 K	298 K
5	Tru and [Pt]	359, 379, 398, 446	360, 378, 399, 427, 452,	0.047
	ZnP2	614, 661	616, 674, 803	
	ZnP1	579	575	
7	Tru	440	360, 380, 401, 424, 450, 502,	0.019
	ZnP2	610, 661	610, 671, 797	
8	Tru and [Pt]	367, 441	360, 379, 399, 424, 479, 502	0.027
	ZnP2	615, 661	617, 645, 677, 710, 806	
	ZnP1	578	575	
9	Tru and [Pt]	442	358, 376, 397, 450, 522,	0.036
	ZnP2	615, 662	615, 673, 803	

<sup>*a*</sup>**Tru:** chromophore = truxene; **ZnP2**: chromophore = meso-aryl-substituted zinc(II) porphyrin. **ZnP1**: chromophore =  $\beta$ -pyrrole-alkyl-substituted zinc(II) porphyrin. [**Pt**]: chromophore =  $[(p-C_6H_4)C\equiv CPt(P(n-Bu)_3)_2C\equiv C(p-C_6H_4)]$ . <sup>*b*</sup>The emission spectra was recorded using  $\lambda_{exc}$ = 310 nm under the inert atmosphere at 298 K and 77 K. <sup>*c*</sup>Fluorescence quantum yields ( $\Phi_F$ ) of the samples in 2MeTHF were measured by using zinc-tetraphenylporphyrin (**ZnTPP**,  $\Phi_F = 0.033$  in THF) as standards using the excitation of 560 nm.

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