Electronic Supplementary Information

Supramolecular Assembly of Phosphole-Based Moiety into Nanostructures Dictated by Alkynylplatinum(II) Terpyridine Complexes Through Non-Covalent Pt···Pt and π–π Stacking Interactions: Synthesis, Characterization, Photophysics and Self-Assembly Behaviors

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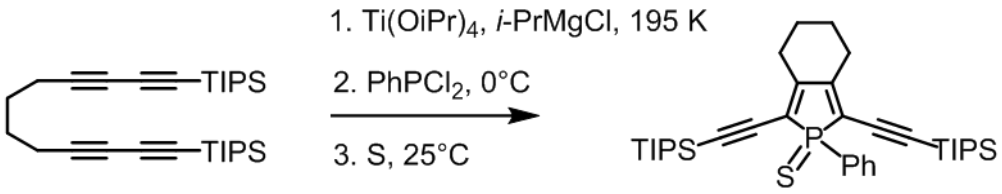
Table S1. Crystal data and structure refinement at 150 K for **2** after this 'squeeze' treatment and before 'squeeze' treatment.

	2	**2**·2OTf.
Molecular formula	$C_{72}H_{83}Pt_2S_1N_6P_1$	$C_{80}H_{83}Cl_{12}Pt_2S_3N_6O_6P_1$
Molecular weight	1485.65	2281.25
a (Å)	13.7722(6)	13.7722(6)
b (Å)	39.9563(16)	39.9563(16)
c (Å)	17.7098(7)	17.7098(7)
α (°)	90	90
β (°)	97.536(3)	97.536(3)
γ (°)	90	90
V (Å^3)	9661.3(7)	9661.3(7)
Z	4	4
*D*c (g cm^{-3})	1.021	1.569
Crystal system	Monoclinic	Monoclinic
Space group	P21/c	P21/c
Temperature (K)	150(2)	150(2)
Wavelength Mo-*K*α (Å)	0.71069	0.71069
Crystal size (mm)	0.18 * 0.05 * 0.04	0.18 * 0.05 * 0.04
μ (mm^{-1})	2.962	3.367
F(000)	2976	4520
θ limit (°)	1.02 –27.50	1.02 –27.50
Index ranges *hkl*	-16 ≤ *h* ≤ 17,	-16 ≤ *h* ≤ 17,
	-45≤ *k* ≤ 51,	-45≤ *k* ≤ 51,
	-22 ≤ *l* ≤ 14	-22 ≤ *l* ≤ 14
Reflections collected	44633	44633

Independent reflections	21914	21914
Reflections [$I > 2\sigma(I)$]	9727	10760
Data/restraints/parameters	21914 / 0 / 717	21914 / 0 / 1021
Goodness-of-fit on F^2	0.893	1.110
Final *R* indices [$I > 2\sigma(I)$]	*R*1= 0.0780	*R*1= 0.01182
	*wR*2= 0.2031	*wR*2= 0.2794
R indices (all data)	*R*1= 0.1478	*R*1= 0.2259
	*wR*2= 0.2237	*wR*2= 0.3411
Largest diff peak and hole (e Å $^{-3}$)	1.616 and -2.872	2.265 and -3.273



Scheme S1. The detailed synthetic route for the phosphole-based bridging alkynyl ligand.

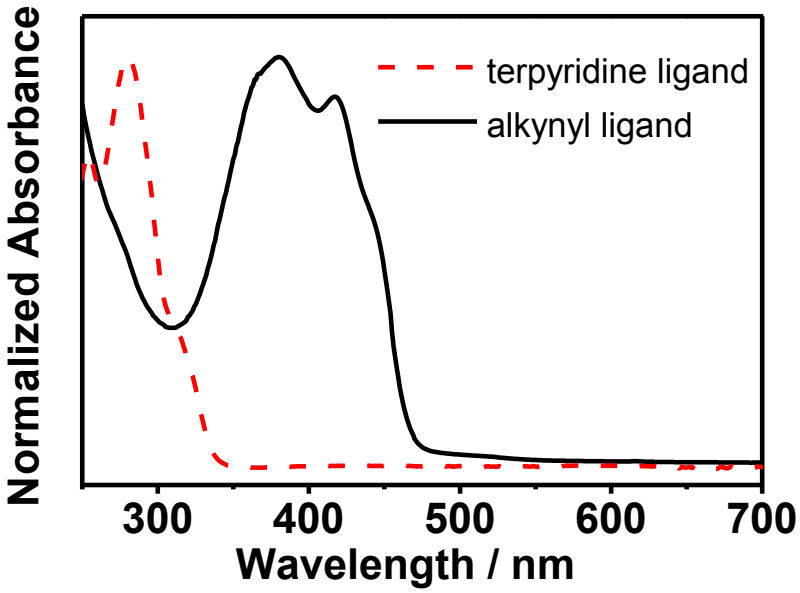


Figure S1. Normalized UV-Vis absorption spectra of the terpyridine (---------) and phosphole-based bridging alkynyl ligand (———) in CH_2Cl_2.

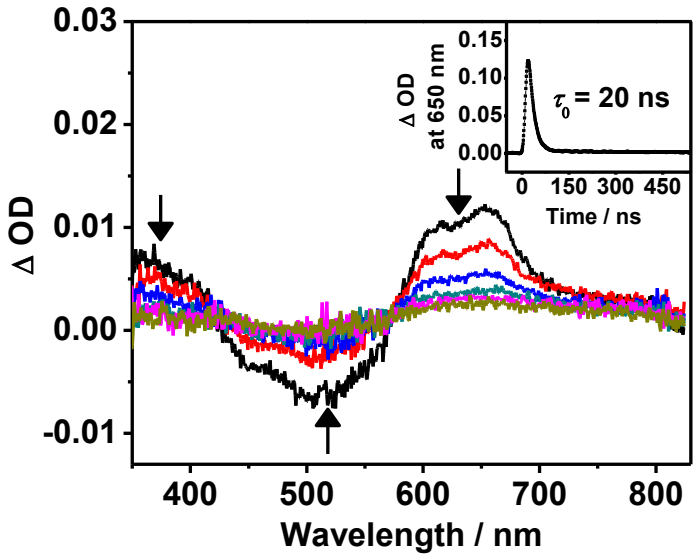


Figure S2. Transient absorption difference spectrum of **2** measured in degassed CH_2Cl_2 following a 355 nm laser pulse. The insert shows the decay trace of the absorption at 650 nm.

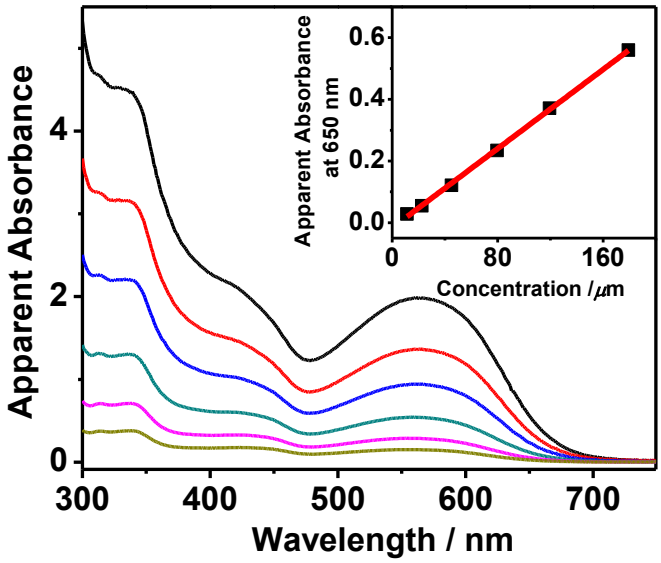


Figure S3. UV-Vis absorption spectra of **1** in CH_2Cl_2 at various concentrations. (Insert) The plot of the appearance absorbance at 650 nm at various concentrations. The apparent absorbance values have been obtained by correcting to a 1-cm path length equivalence.

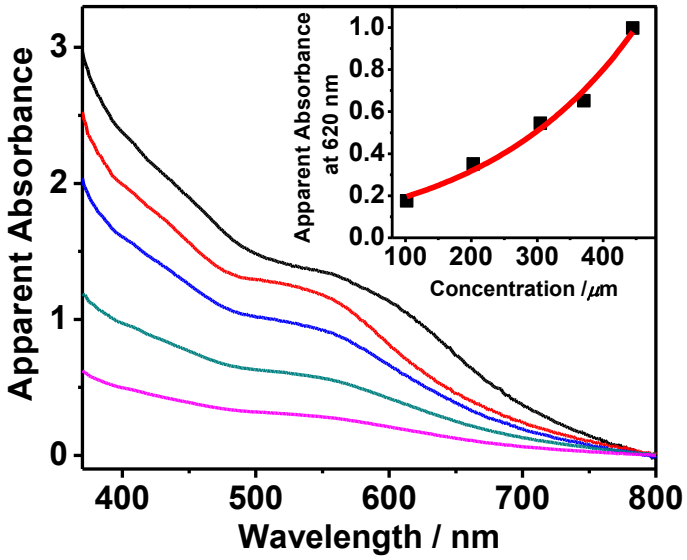


Figure S4. UV-Vis absorption spectra of **1** in DMSO at various concentrations. (Insert) The plot of the appearance absorbance at 620 nm at various concentrations. The apparent absorbance values have been obtained by correcting to a 1-cm path length equivalence.

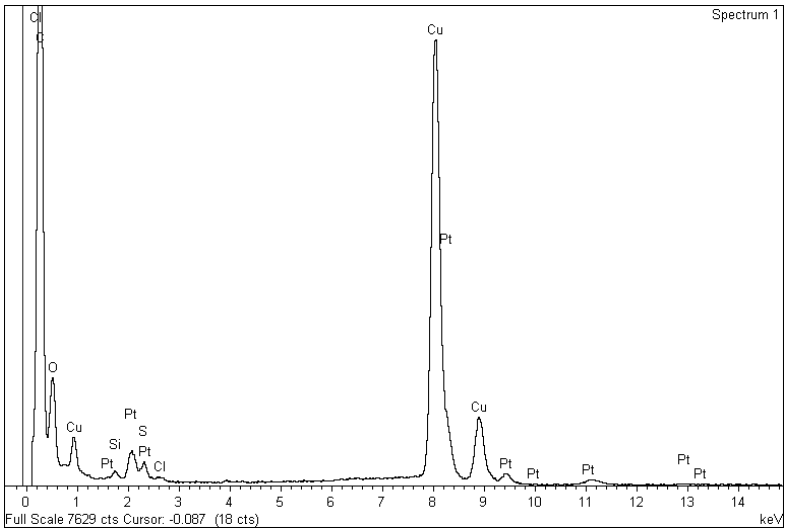


Figure S5. Energy-Dispersive X-ray (EDX) analysis on the spherical aggregates of **1**.

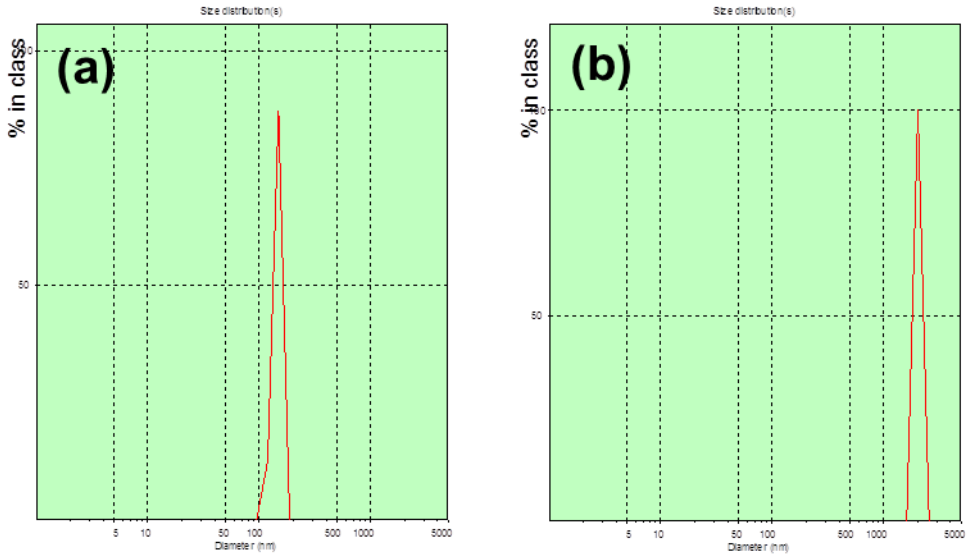


Figure S6. DLS measurement for **1** in (a) DMSO and (b) diethyl ether media.