Supporting Information

Assembly of Silver(I)–Organic Frameworks from Flexible Supramolecular Synthons with Pendant Ethynide Arms Attached to Biphenyl and Phenoxybenzene Skeletons

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Table S1. X-ray Crystal Data and Structure Refinement for Compounds **1**–**3**.

	1	**2**	**3**
formula	$C_{19}H_{11}Ag_3F_6O_5$	$C_{27}H_{16}Ag_6F_{15}NO_{12}$	$C_{60}H_{44}Ag_6N_2O_{10}$
fw	756.89	1478.63	1600.19
cryst syst	monoclinic	triclinic	triclinic
space group	*C*2/*c*	*P*$\bar{1}$	*P*$\bar{1}$
a (Å)	20.9095(16)	11.746(2)	7.6485(2)
b (Å)	19.3423(8)	12.454(3)	11.1943(3)
c (Å)	11.6313(8)	14.005(3)	30.1822(7)
α (deg)	90	76.38(3)	94.781(2)
β (deg)	119.100(10)	74.67(3)	92.459(2)
γ (deg)	90	87.77(3)	90.367(2)
volume (Å^3)	4110.3(5)	1919.6(7)	2572.70(11)
Z	8	2	2
D_{calc} (g·cm^{-3})	2.446	2.558	2.066
F(000)	2880	1396	1560
R(int)	0.0287	0.0280	0.0309
GOF	1.086	1.030	1.024
$R_1[(I > 2\sigma(I))]$	0.0484	0.0524	0.0542
$wR_2[(I > 2\sigma(I))]$	0.1214	0.1180	0.1253
R_1 (all data)	0.0619	0.0594	0.0709
wR_2 (all data)	0.1298	0.1226	0.1351

Table S2. X-ray Crystal Data and Structure Refinement for Compounds **4**–**6**.

	4	**5**	**6**
formula	$C_{23}H_{11}Ag_5F_{12}O_{10}$	$C_{36}H_{22}Ag_5F_9O_{10}$	$C_{82}H_{54}Ag_8F_{18}N_8O_{14}$
fw	1214.67	1324.89	2580.29
cryst syst	monoclinic	monoclinic	monoclinic
space group	$P2_1/c$	*C*2/*c*	$P2_1$/c
a (Å)	9.0069(18)	32.536(6)	13.8833(14)
b (Å)	23.389(5)	11.670(2)	24.923(3)
c (Å)	16.537(5)	26.226(5)	13.0817(13)
α (deg)	90	90	90
β (deg)	118.56(2)	127.60(3)	114.308(2)
γ (deg)	90	90	90
volume (Å^3)	3059.8(13)	7890(2)	4125.1(7)
Z	4	8	2
D_{calc} (g·cm^{-3})	2.637	2.231	2.077
F(000)	2288	5072	2504
R(int)	0.0537	0.0993	0.0886

GOF	1.101	1.082	1.003
$R_1[(I > 2\sigma(I))]$	0.0727	0.1225	0.0270
$wR_2[(I > 2\sigma(I))]$	0.1752	0.4347	0.0645
R_1 (all data)	0.0854	0.1495	0.0345
wR_2 (all data)	0.1855	0.4614	0.0671

Table S3. Selected Bond Lengths (Å) for Complexes **1**–**6**[a]

			1		
C1≡C2	1.202(7)	Ag1–C1	2.122(6)	Ag2–C1	2.293(7)
Ag2–C2	2.654(8)	Ag3–C1	2.371(7)	Ag3–C2	2.843(9)
Ag2–C9	2.989(9)	Ag3–C5#2	2.499(7)	Ag3–C6#2	2.690(8)
Ag1–Ag1#1	3.134(10)	Ag1–Ag1#2	3.250(11)	Ag1–Ag2	2.964(9)
Ag1–Ag2#2	3.108(9)	Ag2–Ag3#2	3.268(9)		
			2		
C1≡C2	1.207(11)	Ag1–C1	2.169(7)	Ag2–C1	2.227(7)
Ag2–C2	2.999(6)	Ag3–C1	2.672(7)	Ag3–C2	2.845(6)
Ag4–C1	2.455(7)	Ag4–C2	2.644(8)	Ag5–C1	2.348(7)
Ag5–C2	3.049(5)	Ag6–C4	2.894(2)	Ag6–C5	2.912(1)
Ag3#1–C12	2.776(11)	Ag6#1–C14	3.029(11)	Ag1⋯Ag2	2.787(11)
Ag1⋯Ag3	3.162(13)	Ag1⋯Ag4	2.907(12)	Ag1⋯Ag5	2.983(12)
Ag2⋯Ag3	3.185(17)	Ag2⋯Ag5	3.073(14)	Ag4⋯Ag5	3.324(17)
Ag3⋯Ag6	2.938(16)				
			3		
C1≡C2	1.211(9)	C16≡C17	1.216(7)	C31≡C32	1.198(9)
C46≡C47	1.204(9)	Ag1–C1	2.089(6)	Ag1–C46	2.093(6)
Ag2–C1	2.306(7)	Ag2–C2	2.676(7)	Ag2–C16#4	2.273(7)
Ag3–C46	2.216(7)	Ag3–C16#2	2.277(7)	Ag3–C17#2	2.547(6)
Ag3–C47	2.685(7)	Ag4–C46	2.275(7)	Ag4–C31	2.291(7)
Ag5–C31	2.100(7)	Ag5–C16	2.105(6)	Ag6–C1#2	2.256(7)
Ag6–C32	2.571(7)	Ag6–C2#2	2.673(6)	Ag6–C31	2.262(7)
Ag1⋯Ag6#2	2.985(9)	Ag1⋯Ag4	3.061(9)	Ag1⋯Ag5#3	3.231(7)
Ag1⋯Ag2	3.296(8)	Ag1⋯Ag3	2.981(8)	Ag2⋯Ag5#4	3.099 (10)
Ag3⋯Ag5#2	3.053(9)	Ag4⋯Ag5	3.229(10)	Ag5⋯Ag6	2.991(8)
			4		
C1≡C2	1.205(14)	Ag1–C1	2.214(10)	Ag2–C1	2.308(10)
Ag2#3–C1	2.601(10)	Ag2#3–C2	2.591(11)	Ag3#2–C1	2.309(10)
Ag3#2–C2	2.507(11)	Ag4#1–C1	2.429(10)	Ag4#1–C2	2.971(9)
Ag4#1–C5	2.683(12)	Ag4#1–C6	2.684(12)	Ag5#4–C13	2.518(3)
Ag5#4–C14	2.523(2)	Ag1⋯Ag2	2.7941(14)	Ag(1)⋯Ag(4)#1	2.9492(16)
Ag(1)⋯Ag(3)#2	2.9937(14)	Ag(2)⋯Ag(2)#3	2.822(2)	Ag(2)⋯Ag(4)#1	3.2142(19)
Ag2#3⋯Ag3#2	2.226(2)				
			5		

C1≡C2	1.206(10)	Ag1–C16	2.120(2)	Ag2–C16	2.400(2)
Ag2–C17	2.796(3)	Ag2–C1	2.220(2)	Ag2–C2	2.603(19)
Ag3–C16	2.200(2)	Ag3–C17	2.650(2)	Ag3#2–C8	2.744(4)
Ag3#2–C9	2.868 (3)	Ag4–C1	2.160(2)	Ag2–C24	2.954(2)
Ag4–C20	2.815(2)	Ag5#1–C16	2.884(2)	Ag1···Ag2	3.101(3)
Ag1···Ag3	2.989(3)	Ag1···Ag5	3.236(3)	Ag1···Ag5#1	3.142(3)
Ag2···Ag4	3.240(3)	Ag2···Ag5	3.322(3)	Ag3···Ag4	3.118(3)
		6			
C1≡C2	1.195(4)	Ag1–C1	2.381(3)	Ag1–N1	2.343(2)
Ag1–N2	2.384(2)	Ag2–C1	2.205(3)	Ag3–C1	2.417(3)
Ag3–C2	2.646(3)	Ag4–C1	2.184(3)	Ag4–C2	2.974(4)
Ag4–N3	2.185(3)	Ag4–N4	2.371(3)		
Ag1···Ag2	2.927(4)	Ag1···Ag3	2.941(4)	Ag1···Ag4	2.859(5)
Ag2···Ag3	3.015(4)	Ag2···Ag4	2.828 (6)	Ag2···Ag3#1	3.091 (4)

[a]Symmetry transformations used to generate equivalent atoms: #1 – *x*, – *y*, 2 – *z;* #2 – *x*, *y*, 1.5 – *z* for **1**, #1 2– *x*, 2– *y*, – *z* for **2**; #2 –*x*,–*y*+2,–*z*; #3 – *x* + 1, – *y* + 2, –*z*; #4 *x*, *y* – 1, *z* for **3**; #1 1 + *x*, *y*, *z*; #2 – *x*, 2 – *y*, 1 – *z*; #3 1– *x*, 2 – *y*, 1 – *z* for **4**; #1 1/2 – *x*, – 1/2 + *y*, 1/2– *z* ; #2 1/2 – *x*, 1/2 + *y*, 1/2 – *z* for **5**; #1 – *x*, – *y* + 1, – *z* + 1; #2 *x*, *y*, *z* – 1 for **6**.

Table S4. Emission Maximums and Excitation Wavelengths (nm)

	λ_{ex} (nm)	λ_{em} (nm)
Ligand		
HL1	314	372
HL2	325	375
Compounds		
1	369	396
2	349	373
3	325	367
4	328	396,415
5	321, 357	438
6	301	373

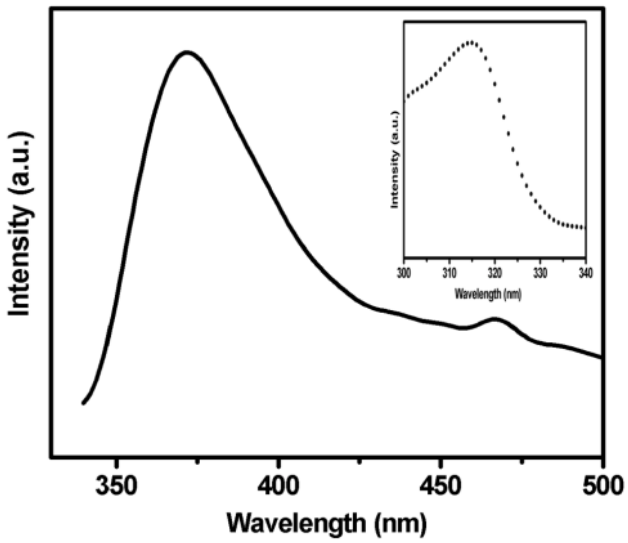

Fig. S1. Solid state excitation and emission spectra of ligand HL1 at room temperature.

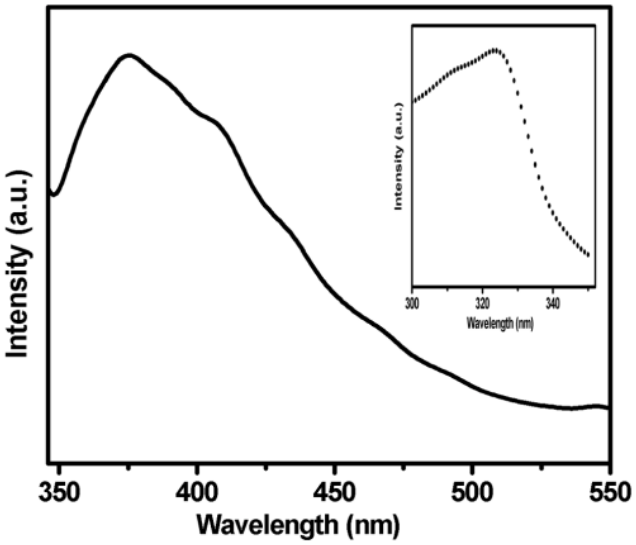

Fig. S2. Solid state excitation and emission spectra of ligand HL2 at room temperature.

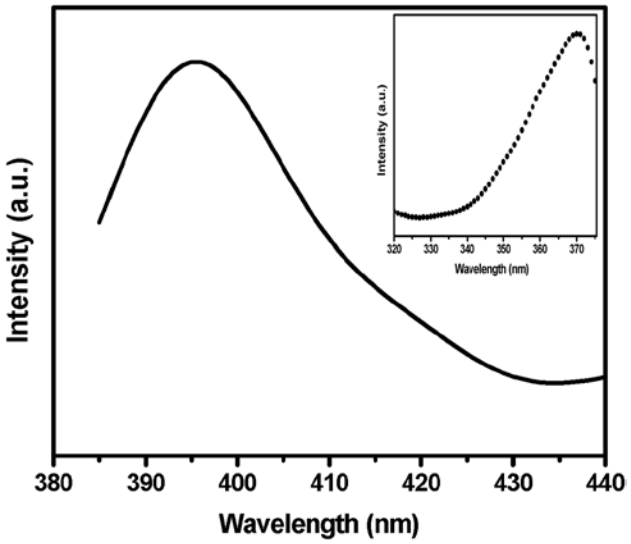

Fig. S3. Solid state excitation and emission spectra of complex **1** at room temperature.

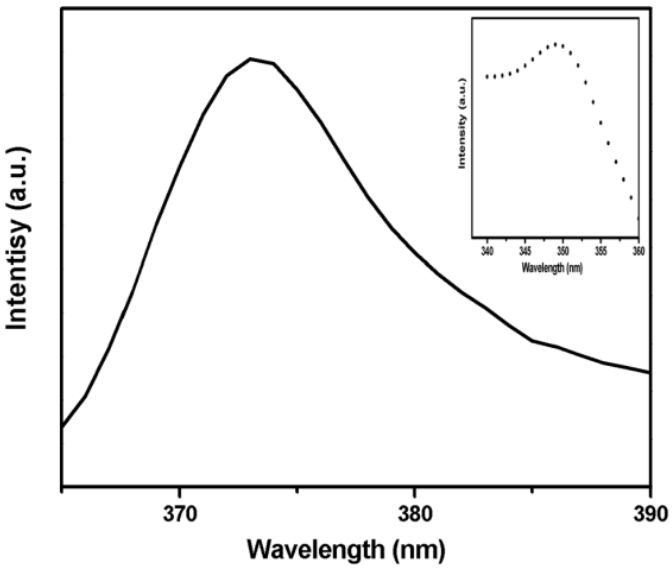

Fig. S4. Solid state excitation and emission spectra of complex **2** at room temperature.

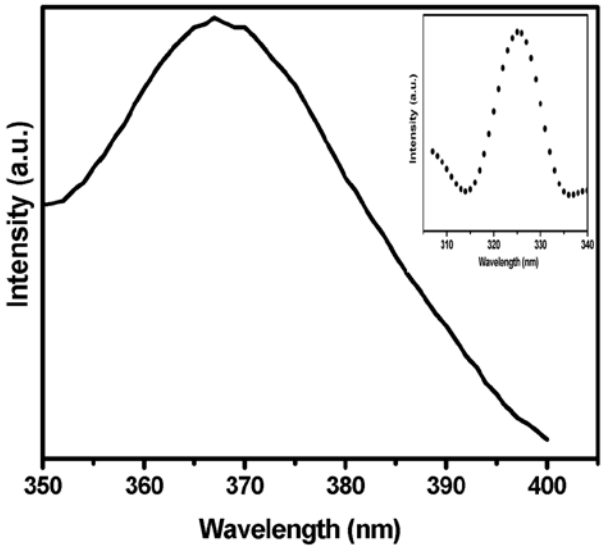

Fig. S5. Solid state excitation and emission spectra of complex **3** at room temperature.

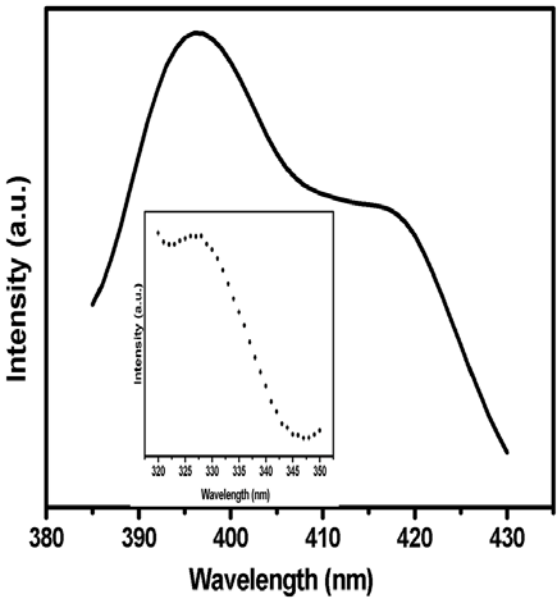

Fig. S6. Solid state excitation and emission spectra of complex **4** at room temperature.

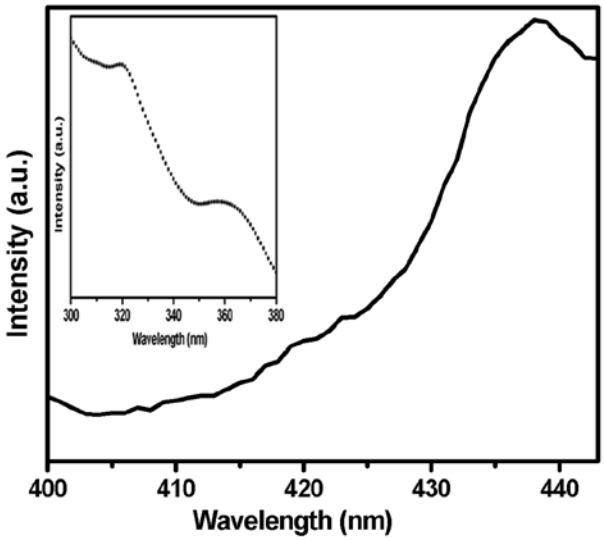

Fig. S7. Solid state excitation and emission spectra of complex **5** at room temperature.

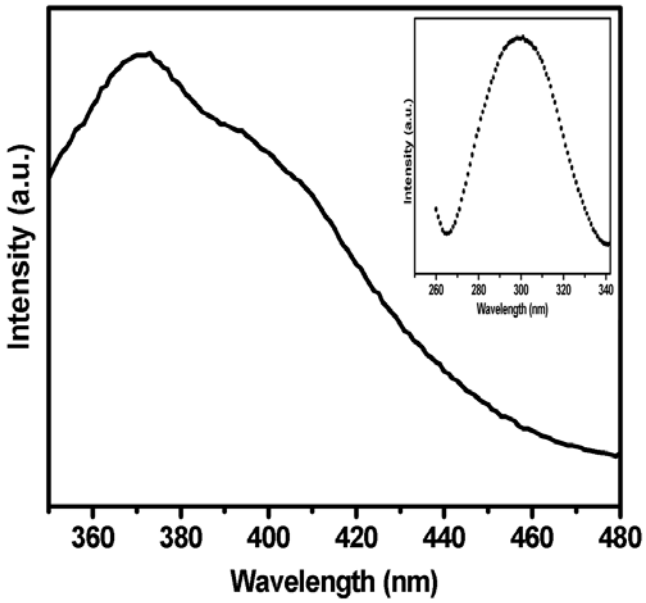

Fig. S8. Solid state excitation and emission spectra of complex **6** at room temperature.