Electronic Supplementary Material (ESI) for Dalton Transactions.

Balancing Connectivity with Function in Silver(I) networks of Pyridyltriazole (tzpa) Ligands Results in the Formation of a Metallogel

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Supporting Information

Table S1 *Crystal and refinement parameters for structures* ***4, 1*** *and* $\{[Ag_2(\mathbf{1})_2](CF_3SO_3)_2\}_n$

Identification code	**4**	**1**	$\{[Ag_2(\mathbf{1})_2](CF_3SO_3)_2\}_n$
Empirical formula	$C_{18}H_{20}N_2OSi$	$C_{21}H_{18}N_6O$	$C_{22}H_{18}AgF_3N_6O_4S$
Formula weight	308.45	370.41	627.35
Temperature/K	100(2)	100(2)	100(2)
Crystal system	triclinic	orthorhombic	monoclinic
Space group	*P*-1	$P2_12_12$	$P2_1/n$
a/Å	5.8838(2)	14.781(2)	17.0839(18)
b/Å	11.1708(4)	19.903(2)	9.8330(11)
c/Å	13.3912(5)	6.1151(6)	27.626(3)
α/°	84.6200(10)	90	90
β/°	80.2820(10)	90	92.821(2)
γ/°	77.1310(10)	90	90
Volume/Å^3	844.29(5)	1798.9(4)	4635.1(9)
Z	2	4	8
ρ_{calc}g/cm^3	1.213	1.368	1.798
μ/mm^{-1}	0.142	0.721	1.028
F(000)	328.0	776.0	2512.0
Crystal size/mm^3	0.28 × 0.2 × 0.07	0.22 × 0.06 × 0.05	0.4 × 0.07 × 0.06
Radiation	MoKα (λ = 0.71073)	CuKα (λ = 1.54178)	MoKα (λ = 0.71073)
2Θ range for data collection/°	3.746 to 55.302	10.718 to 136.618	2.744 to 52.186
Index ranges	-7 ≤ h ≤ 7, -14 ≤ k ≤ 14, -17 ≤ l ≤ 17	-16 ≤ h ≤ 17, -22 ≤ k ≤ 23, -7 ≤ l ≤ 5	-16 ≤ h ≤ 21, -12 ≤ k ≤ 12, -34 ≤ l ≤ 34
Reflections collected	10456	10412	39534
Independent reflections	3925 [R_{int} = 0.0194, R_{sigma} = 0.0219]	3248 [R_{int} = 0.1015, R_{sigma} = 0.0898]	9198 [R_{int} = 0.0647, R_{sigma} = 0.0607]
Data/restraints/parameters	3925/0/202	3248/65/320	9198/2/673
Goodness-of-fit on F^2	1.038	1.056	1.009
Final R indexes [I>=2σ (I)]	R_1 = 0.0317, wR_2 = 0.0776	R_1 = 0.0823, wR_2 = 0.2140	R_1 = 0.0545, wR_2 = 0.1191
Final R indexes [all data]	R_1 = 0.0392, wR_2 = 0.0817	R_1 = 0.1011, wR_2 = 0.2264	R_1 = 0.0918, wR_2 = 0.1355
Largest diff. peak/hole / e Å^{-3}	0.31/-0.24	0.23/-0.25	2.01/-0.88
Flack parameter	n/a	0.1(12)	n/a
CCDC No.	1994746	1994747	1994748

X-Ray Powder Diffraction

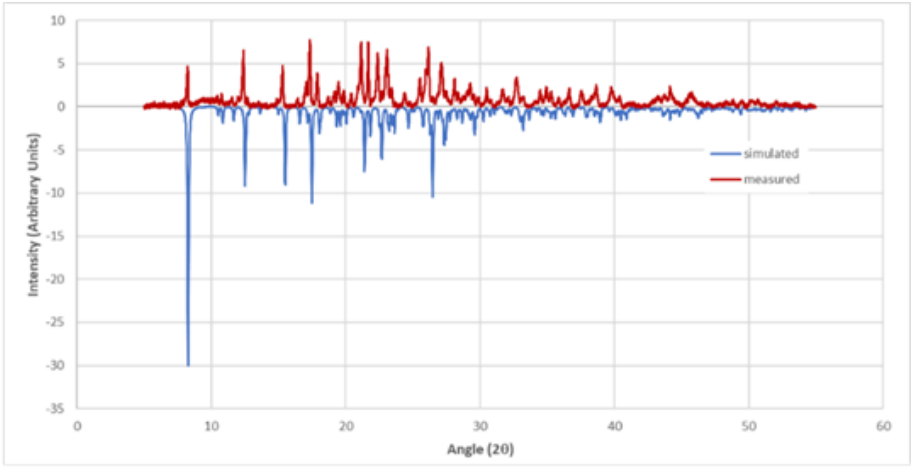

Figure S1 *X-ray diffraction pattern for* $\{[Ag_2(\mathbf{1})_2](CF_3SO_3)_2\}_n$ *measured at (100 K) (blue) compared to the pattern simulated from the single crystal X-ray data obtained at (100K) (red)*

Thermogravimetric Analysis

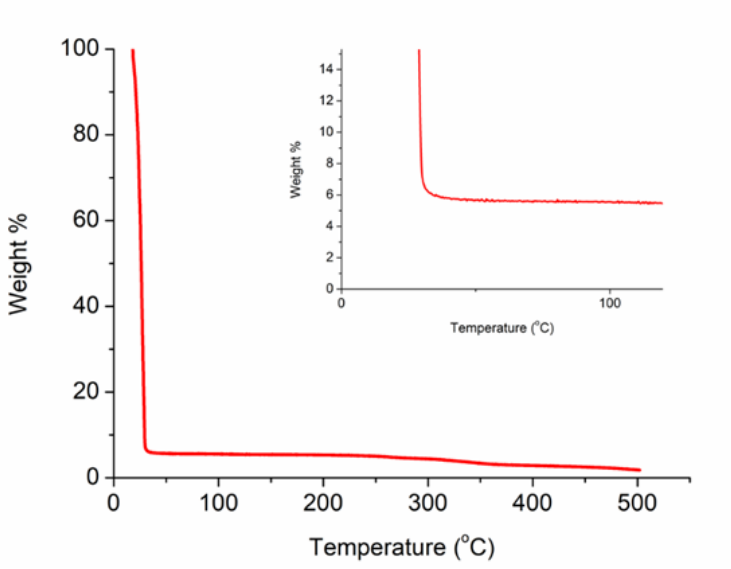

Figure S2 *TGA thermograph of* ***2.*** $AgBF_4$ *gel showing weight loss of 5.5% before 50 ˚C.*

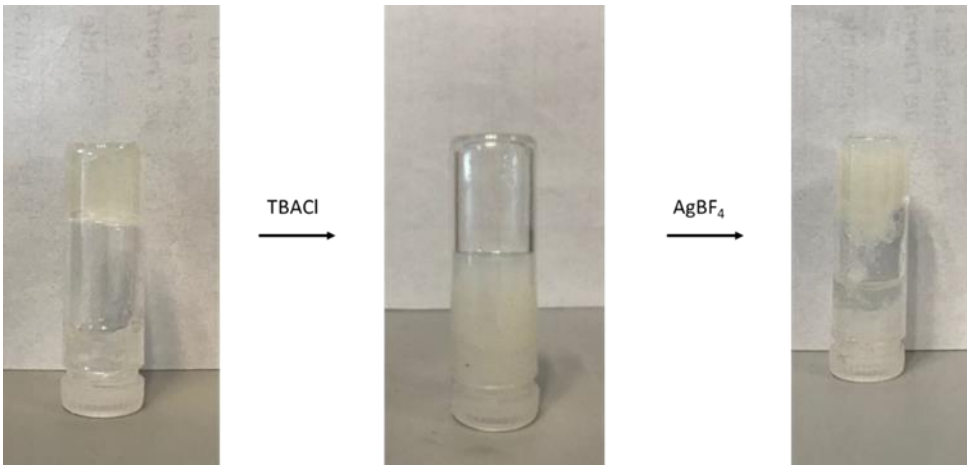

Figure S3 *(Left) Inversion test of $AgBF_4$ gel of **2** in CH_3CN in 1:1 molar ratio. (Middle) Addition of TBACl resulting in destruction of the gel network. (Right) Addition of $AgBF_4$ to re-form the $AgBF_4$ gel of **2** demonstrating chemoreversibility of the system.*

NMR Spectra

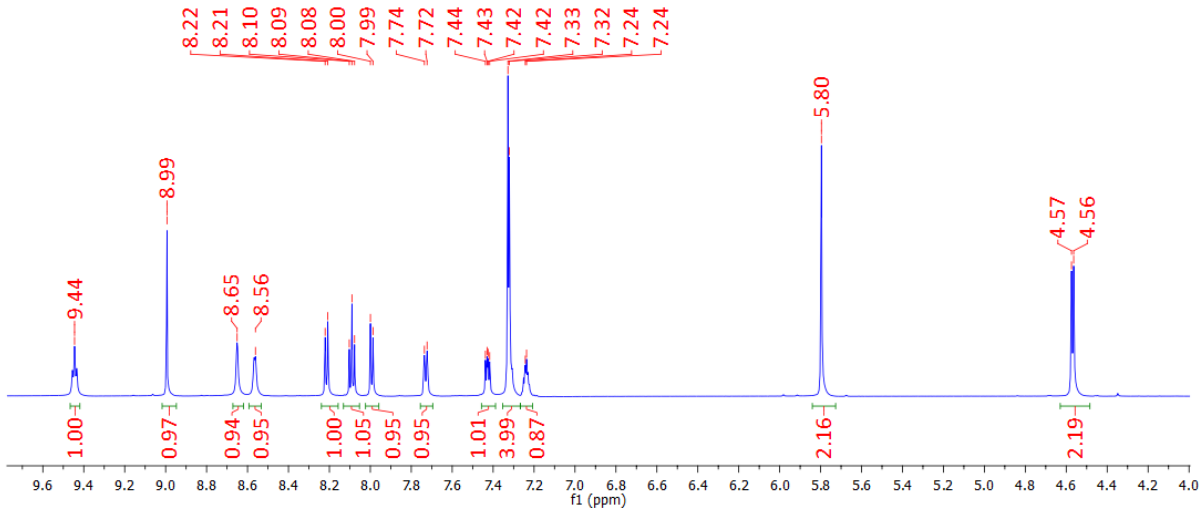

Figure S4 *^{1}H NMR spectrum (600 MHz, DMSO) of* ***1****.*

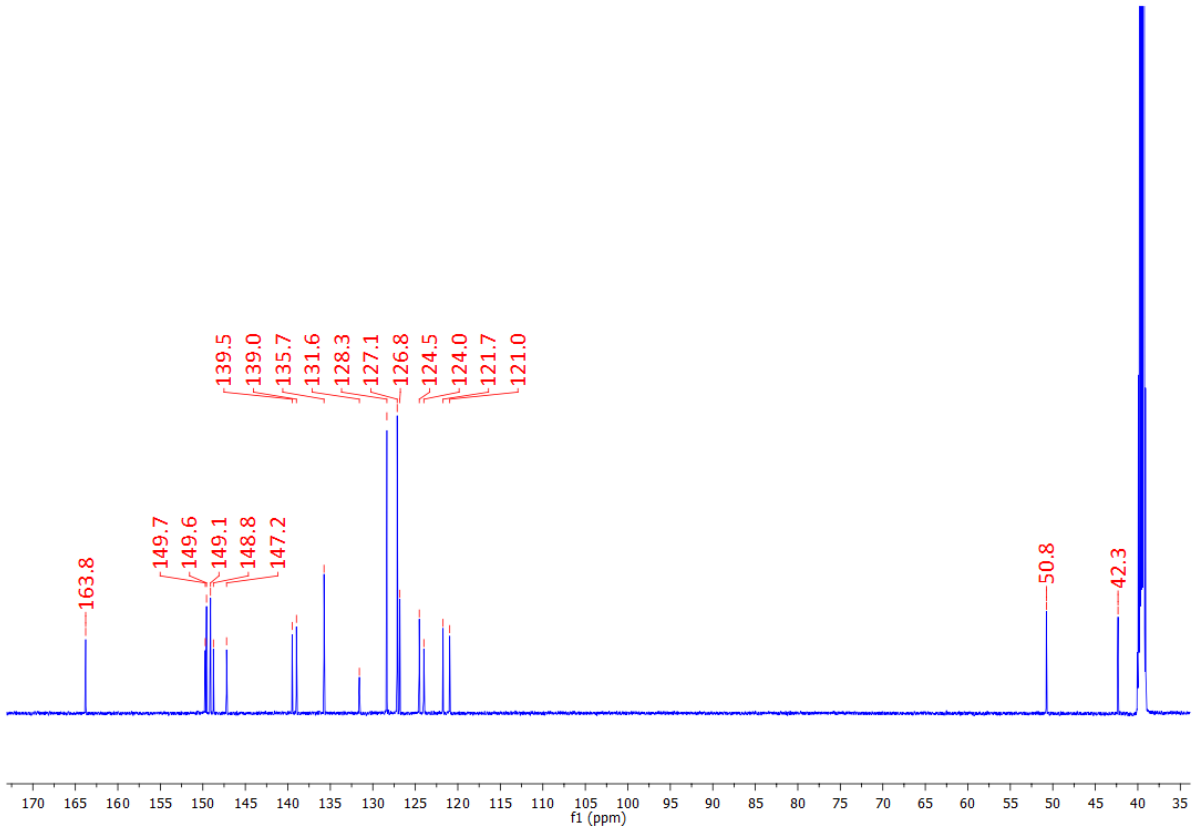

Figure S5 *^{13}C NMR spectrum (150 MHz, DMSO) of* ***1****.*

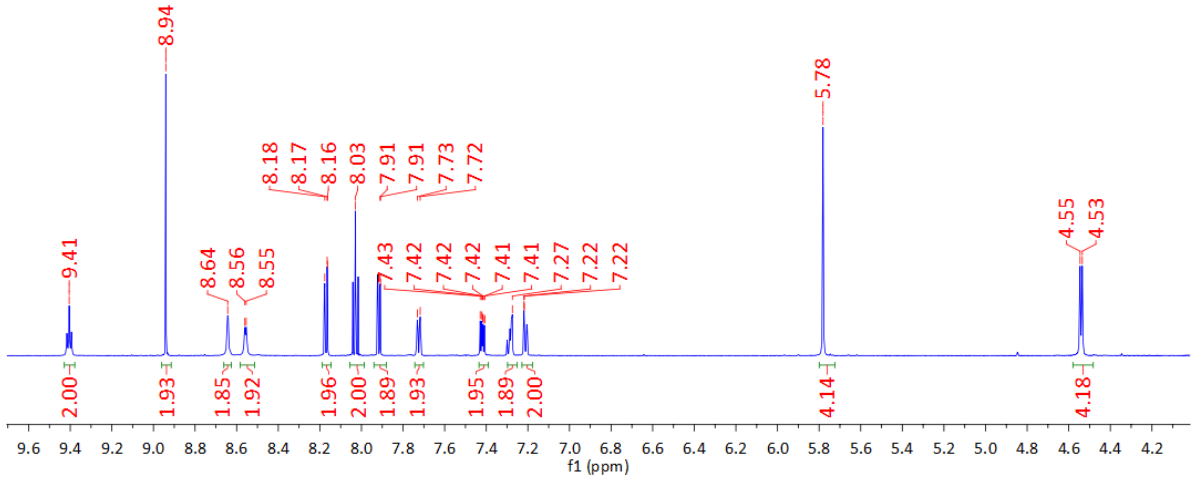

Figure S6 *^{1}H NMR spectrum (600 MHz, DMSO) of* ***2****.*

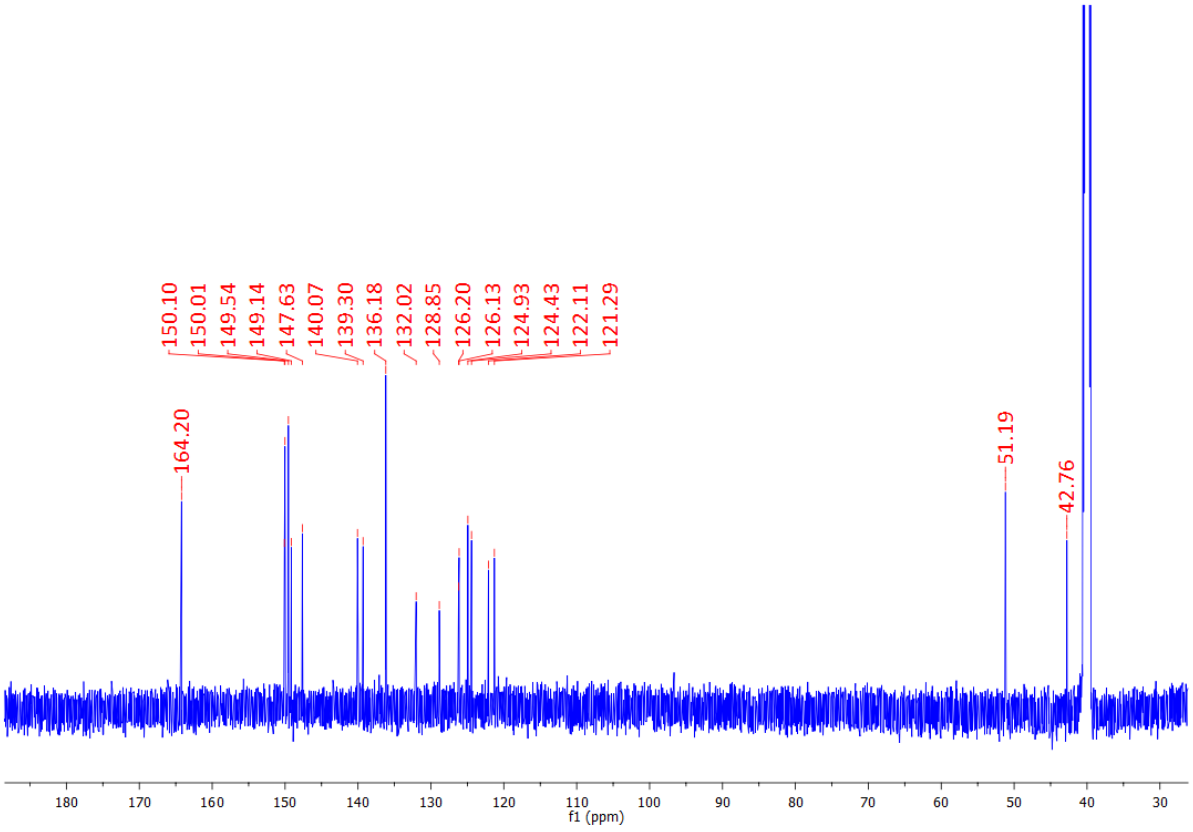

Figure S7 *^{13}C NMR spectrum (150 MHz, DMSO) of* ***2****.*