Supporting Information

A Dynamic Tetranuclear Gold(I)-Cyclophane – Gold(I)-Centred Chirality and Fluxionality Arising from Intramolecular Shift of Au-S Bonds

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Table S1 Crystal data of **1**·2Et_2O	
Compounds	**1**·2Et_2O
Empirical formula	$C_{96}H_{84}Au_4O_2P_4S_4$
Formula weight	2309.61
Crystal system	triclinic
Space group	$P\bar{1}$
Unit cell dimensions	
a (Å)	12.8550(6)
b (Å)	13.0540(7)
c (Å)	13.8019(7)
α (°)	109.2250(16)
β (°)	99.6320(17)
γ (°)	100.9310(16)
Volume (Å^3)	2080.26(18)
Z	1
Calculated density (g cm^{-3})	1.844
Absorption coefficient (mm^{-1})	7.258
F(000)	1116
Crystal size (mm^3)	0.060 × 0.070 × 0.200
θ range for data collection (°)	2.05 to 28.34
Index ranges	$-17 \le h \le 17$, $-14 \le k \le 17$, $-18 \le l \le 18$
Reflections collected	45591
Independent reflections [*R*(int)]	10343 0.0401
Max. and min. transmission	0.7457 and 0.5648
Data/restraints/parameters	10343 / 0 / 498
Goodness-of-fit	1.036
Final R indices [$I>2\sigma(I)$]	*R1* = 0.0272, *wR2* = 0.0596
Largest diff. peak and hole (e.Å^{-3})	2.582 and -1.412

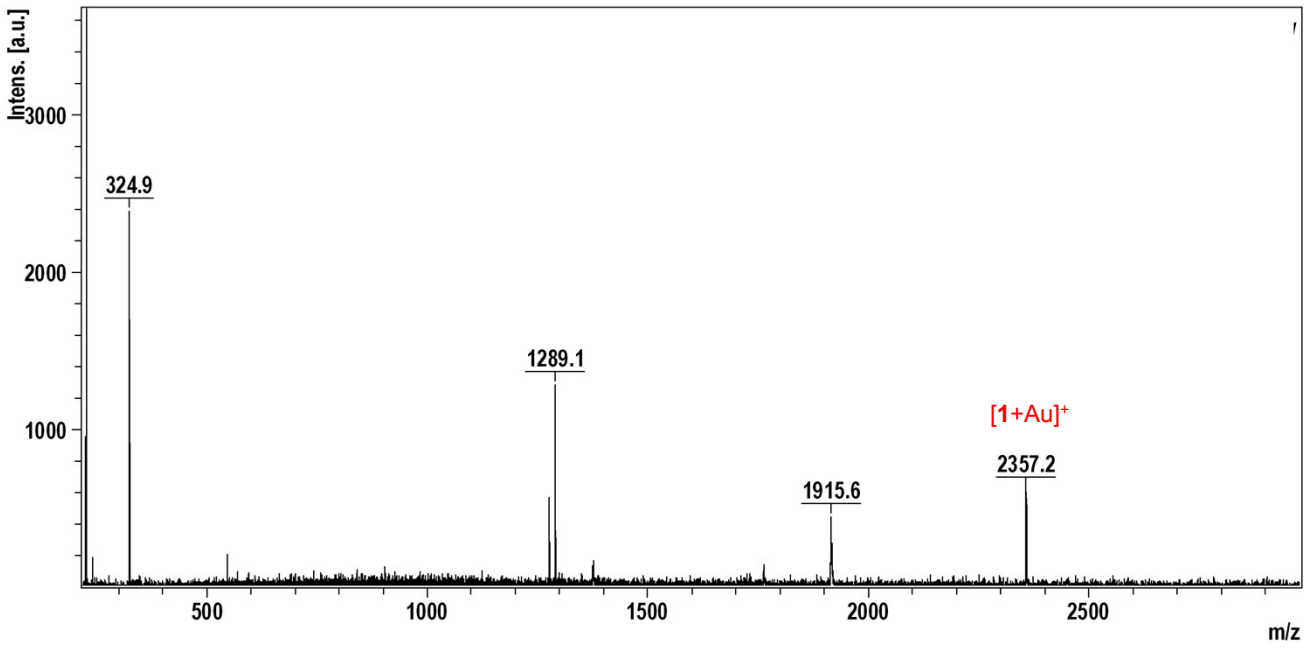

Figure S1 MALDI-TOF mass spectrum of **1**.

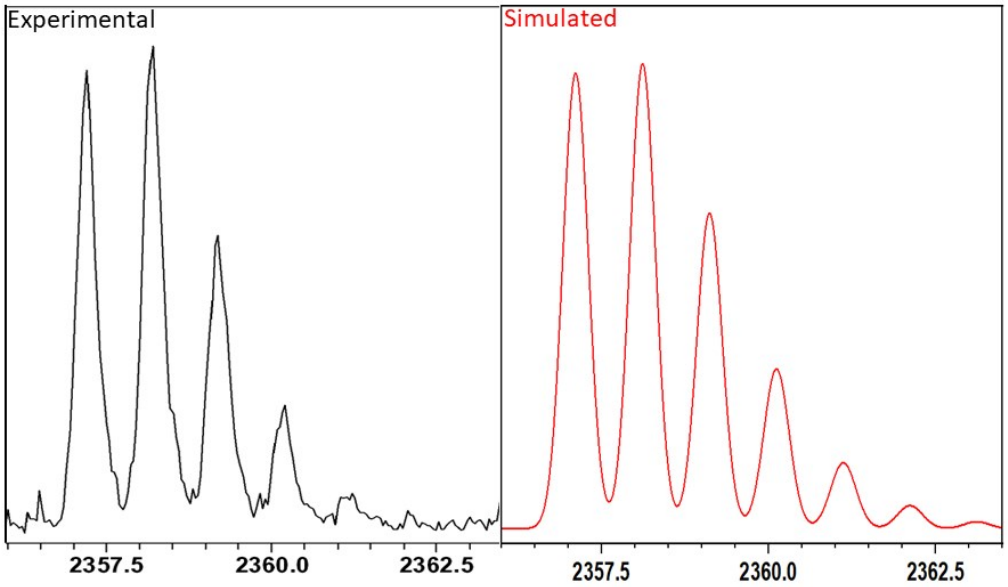

Figure S2 Zoom scan of [**1**+Au]$^+$ cluster peak (left) and simulated isotope distribution (right)

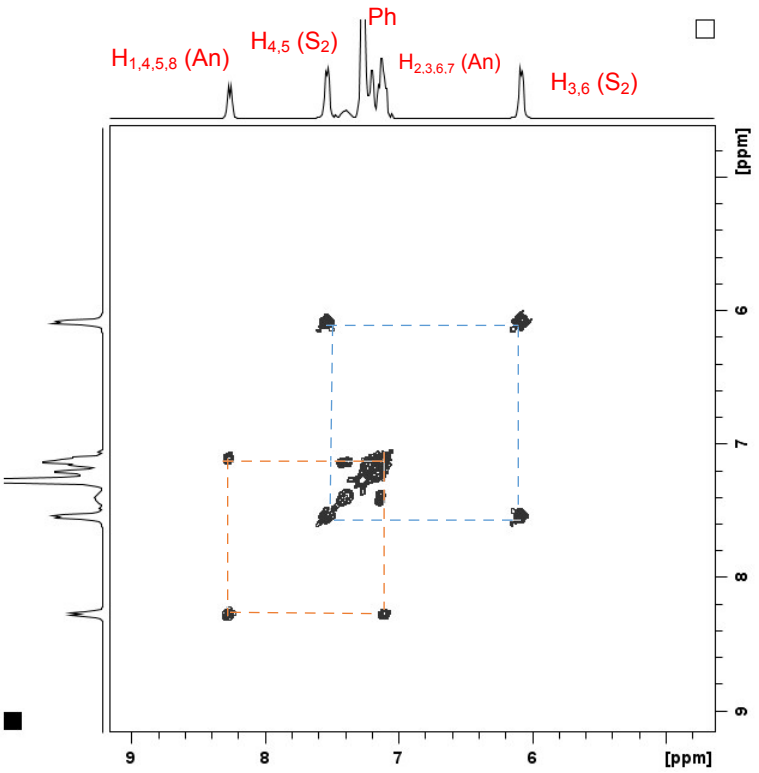

Figure S3 COSY ^{1}H NMR spectrum of **1** ($CDCl_3$, 298 K).

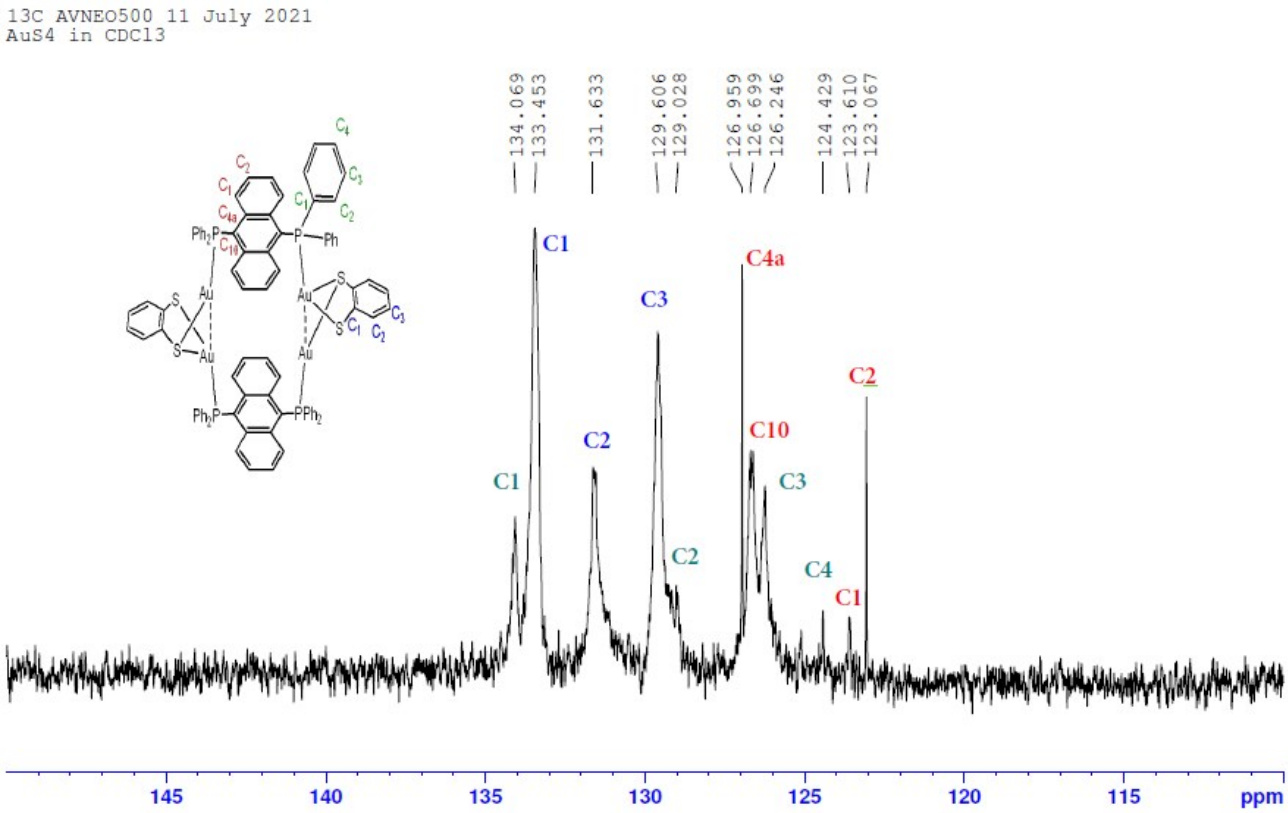

Figure S4 13C{^{1}H} NMR spectrum of **1** ($CDCl_3$, 298 K).

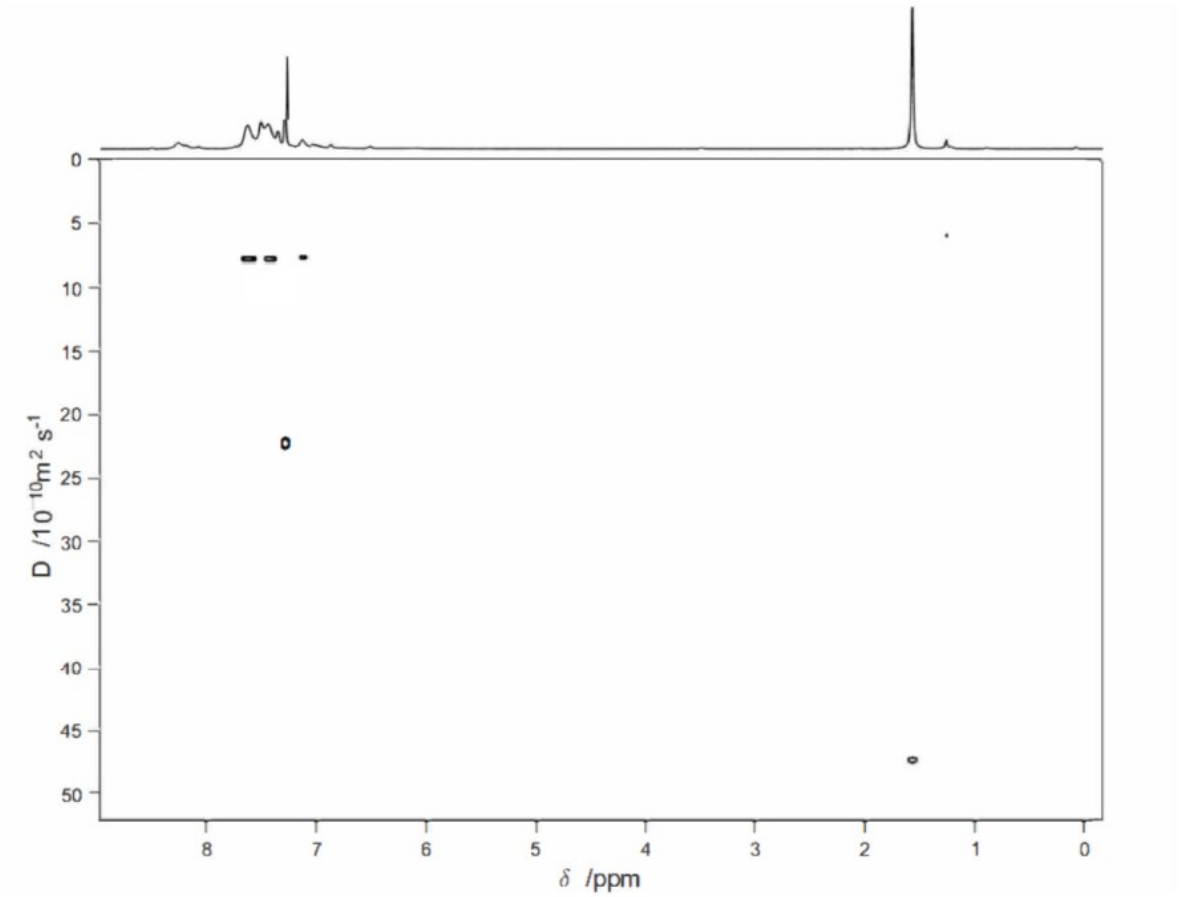

Figure S5 ^{1}H DOSY NMR spectrum of **1** ($CDCl_3$, 298 K)