

Electronic Supplementary Information

Polymeric di- and discrete trinuclear silver(I) assemblies incorporating γ -carbon bonded neutral acetylacetonimine motifs assembled from racemic and diastereopure *N,N'*-bis(acetylacetonimine)cyclohexanediiimine units

Bi-Xue Zhu,^{*a} Qi-Long Zhang,^a Yun-Qian Zhang,^a Tao Zhu,^a Jack K. Clegg,^b Jeffery R. Reimers,^b Leonard F. Lindoy^{*b} and Gang Wei^{*c}

^a *Key Laboratory of Macrocyclic and Supramolecular Chemistry, Guizhou University, Guizhou 550025, P. R. China*

^b *School of Chemistry, F11, The University of Sydney, NSW 2006, Australia*

^c *CSIRO Materials Science and Engineering, P.O. Box 218, Lindfield, NSW 2070, Australia*

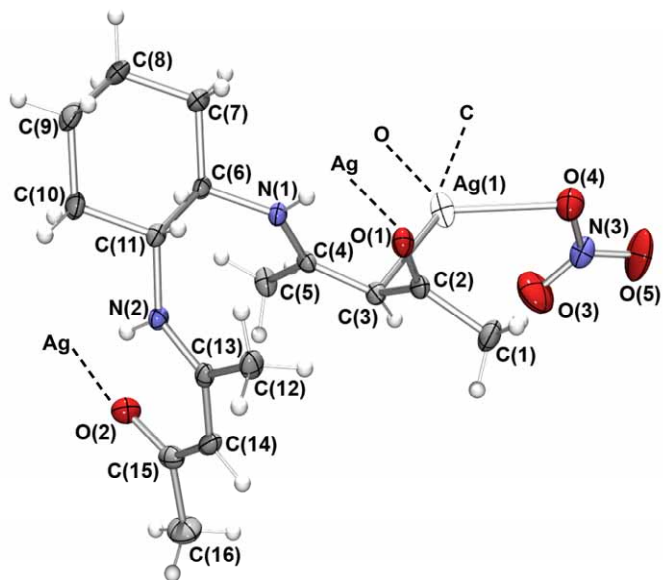


Fig. 1S. Structure of $[\text{Ag}_2(\text{L}^1)(\text{L}^2)(\text{NO}_3)_2]_n$ (**1**), showing the smallest repeating unit

Table 1S. Hydrogen Bond Geometry for **2**

Donor	Hydrogen	Acceptor	D-H(Å)	H-A(Å)	D-A(Å)	DHA Angle (°)
N(1)	H(1)	O(1)	0.86	1.96	2.645(4)	135.7
N(2)	H(2)	O(2)	0.86	2.02	2.674(4)	132.5
O(3)	H(10)	O(10)	0.90(3)	2.05(5)	2.767(10)	135(6)
O(3)	H(20)	O(1) ²	0.90(3)	2.10(4)	2.792(5)	133(4)
O(6)	H(30)	O(2) ¹	0.89(8)	2.13(6)	2.903(5)	143(9)
O(6)	H(30)	O(8)	0.89(8)	2.91(10)	3.007(9)	87(6)

Symmetry Operators:(1) x, y, z (2) $-y, x-y, z$

Additional views of the structure and crystal packing for 2

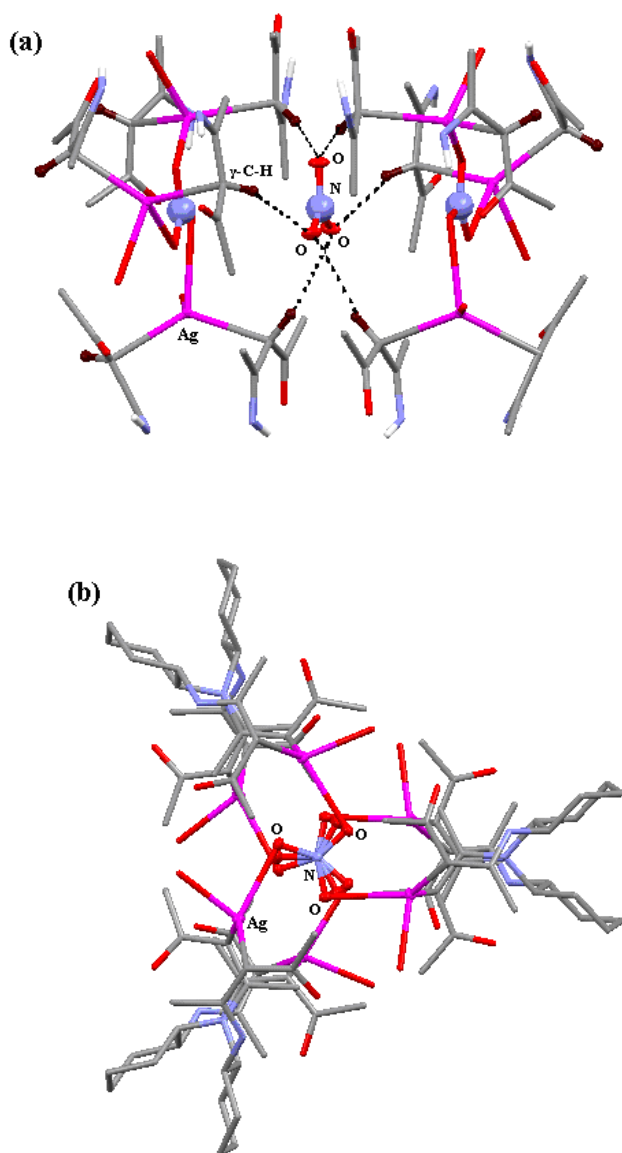


Fig. 2S. Further views of the structure of **2**: (a) Molecular structure and 'dimer-forming' hydrogen bonds between two trinuclear complexes. (b) The structure of two molecular packing via the γ -CH...O^{ix} hydrogen bonding viewed down the c-axis (ix = -y, x-y, z). H atoms are omitted for clarity.

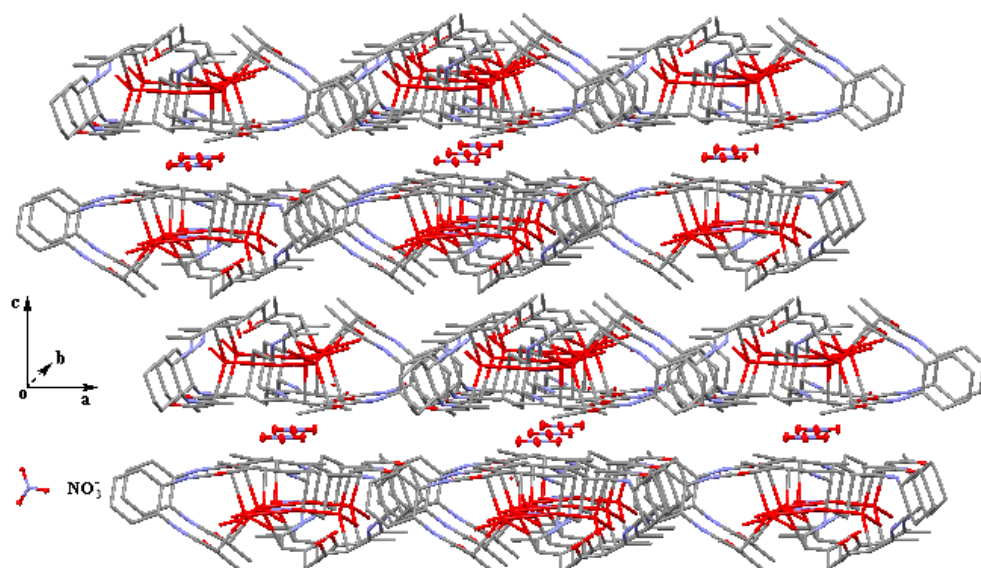


Fig. 3S. The layer structure of **7** viewed slightly off the *b* axis. H atoms and H₂O are omitted for clarity.

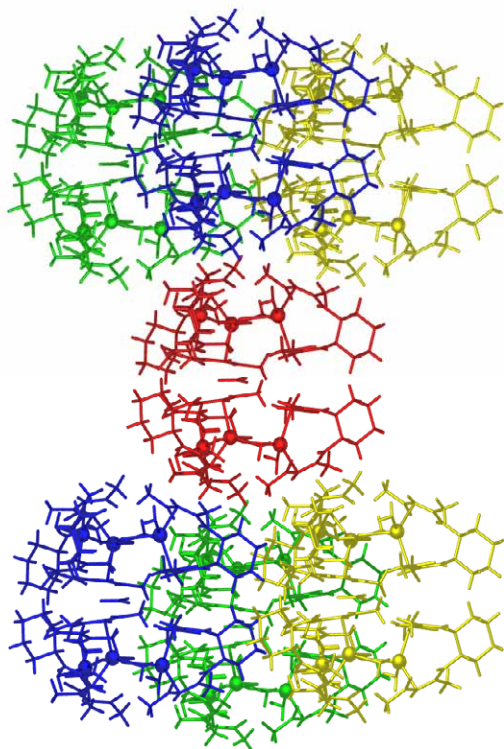


Fig 4S. Schematic representation showing the packing of seven $\{[\text{Ag}_3(\text{L}^1)_3(\text{NO}_3)(\text{H}_2\text{O})_3]_2(\text{NO}_3)\}^{3+}$ cations.