

Supplementary Information

From a versatile arsenotungstate precursor to a large lanthanide-containing polyoxometalate-carboxylate hybrid

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Figure S1 Ball-and-stick representation of the macroanion $[\text{As}_6\text{W}_{58}\text{O}_{206}\text{Ce}_4(\text{pydc})_2(\text{H}_2\text{O})_6]^{38-}$ in **1**.

Figure S2 Wires and sticks representation of the 3D structure of **1**.

Table S1 The selective bond length of **1**.

Table S2 The bond valence sum calculations of W, As and Ce atoms in **1**.

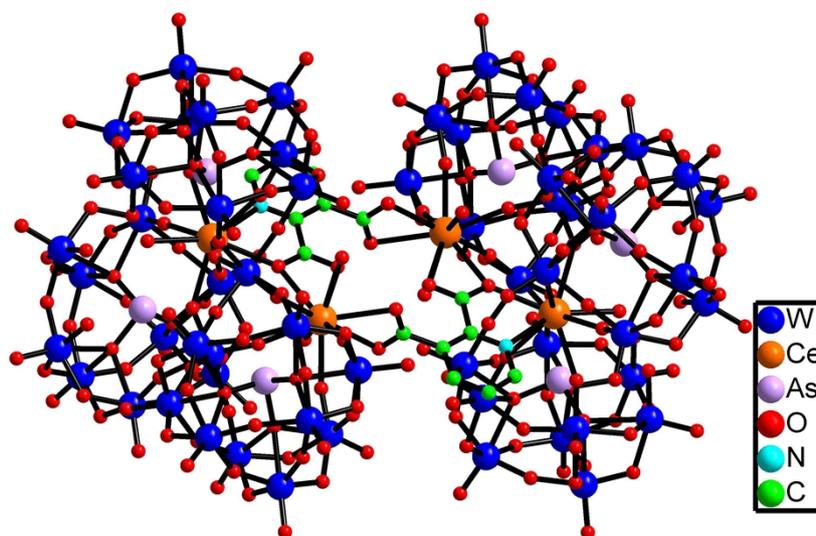


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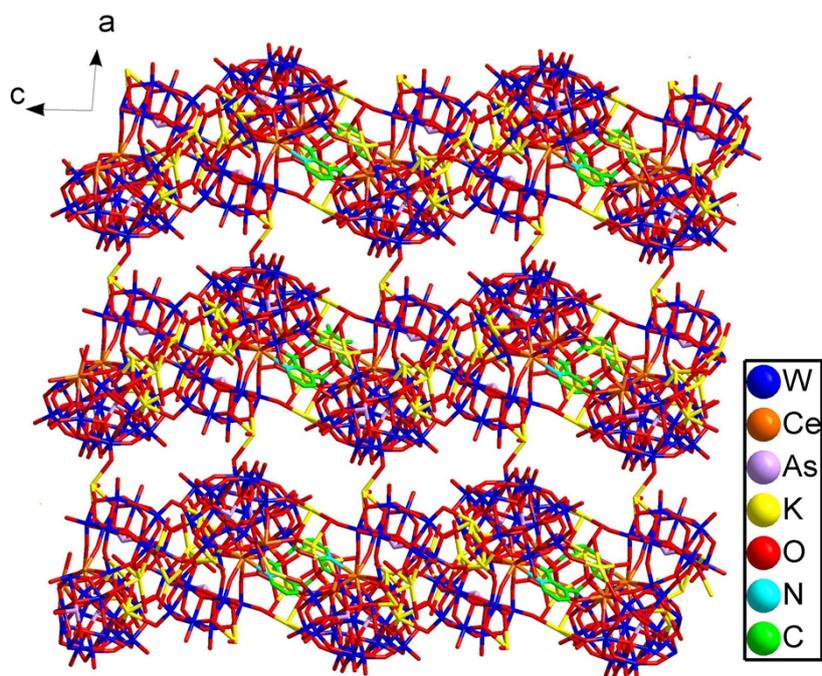


Figure S2 Wires and sticks representation of the 3D structure of **1**.

Table S1 The selective bond length of **1**, symmetry transformation: # = 1-x, -y, 1-z.

Bond	Length (Å)	Bond	Length (Å)	Bond	Length (Å)
W(1)-O(1)	1.72(2)	W(14)-O(53)	2.327(16)	W(28)-O(98)	1.76(2)
W(1)-O(6)	2.373(17)	W(15)-O(54)	1.731(18)	W(28)-O(96)	2.357(18)
W(2)-O(9)	1.750(15)	W(15)-O(53)	2.309(16)	W(29)-O(102)	1.73(2)
W(2)-O(6)	2.296(15)	W(16)-O(57)	1.724(19)	W(29)-O(96)	2.270(18)
W(3)-O(11)	1.750(17)	W(16)-O(53)	2.337(19)	Ce(1)-O(14)	2.503(16)
W(3)-O(6)	2.355(15)	W(17)-O(60)	1.774(18)	Ce(1)-O(1W)	2.508(19)
W(4)-O(15)	1.732(16)	W(17)-O(63)	2.334(18)	Ce(1)-O(103)	2.538(19)
W(4)-O(18)	2.314(16)	W(18)-O(64)	1.781(19)	Ce(1)-O(104)	2.545(18)
W(5)-O(19)	1.709(18)	W(18)-O(63)	2.285(17)	Ce(1)-O(9)	2.539(16)
W(5)-O(18)	2.364(14)	W(19)-O(67)	1.692(19)	Ce(1)-O(89)	2.551(19)
W(6)-O(22)	1.74(2)	W(19)-O(63)	2.396(19)	Ce(1)-O(70)	2.568(15)
W(6)-O(18)	2.388(17)	W(20)-O(69)	1.729(18)	Ce(1)-O(34)	2.600(16)
W(7)-O(25)	1.727(16)	W(20)-O(68)	2.185(19)	Ce(1)-N(1)	2.66(2)
W(7)-O(28)	2.291(16)	W(21)-O(72)	1.73(2)	Ce(2)-O(35)	2.408(16)
W(8)-O(29)	1.725(16)	W(21)-O(76)	2.282(19)	Ce(2)-O(69)	2.451(18)
W(8)-O(28)	2.297(18)	W(22)-O(77)	1.66(3)	Ce(2)-O(44)	2.467(18)
W(9)-O(32)	1.732(18)	W(22)-O(76)	2.326(18)	Ce(2)-O(65)	2.464(15)
W(9)-O(28)	2.355(18)	W(23)-O(81)	1.72(2)	Ce(2)-O(2W)	2.602(18)
W(10)-O(34)	1.749(17)	W(23)-O(76)	2.328(18)	Ce(2)-O(3W)	2.628(16)
W(10)-O(36)	2.169(18)	W(24)-O(85)	1.67(2)	Ce(2)-O(104)	2.648(18)
W(11)-O(37)	1.726(18)	W(24)-O(88)	2.38(2)	Ce(2)-O(105)	2.674(16)
W(11)-O(41)	2.437(17)	W(25)-O(90)	1.71(2)	Ce(2)-O(106) [#]	2.672(19)
W(12)-O(42)	1.71(2)	W(25)-O(88)	2.26(2)	Ce(2)-O(107) [#]	2.678(19)
W(12)-O(41)	2.29(2)	W(26)-O(93)	1.723(19)	As(1)-O(18)	1.756(16)
W(13)-O(46)	1.730(18)	W(26)-O(88)	2.367(16)	As(1)-O(28)	1.801(16)
W(13)-O(41)	2.382(18)	W(27)-O(95)	1.72(2)	As(2)-O(63)	1.826(16)
W(14)-O(50)	1.695(18)	W(27)-O(96)	2.333(18)	As(3)-O(76)	1.796(17)

Table S2 The bond valence sum calculations of W, As and Ce atoms in **1**.

Atom	BVS	Atom	BVS
W1	6.11	W2	6.18
W3	6.38	W4	6.03
W5	6.35	W6	6.11
W7	6.44	W8	6.09
W9	6.06	W10	6.11
W11	6.39	W12	5.96
W13	6.21	W14	6.28
W15	6.14	W16	6.07
W17	6.32	W18	5.93
W19	6.64	W20	6.30
W21	6.01	W22	6.31
W23	6.33	W24	6.75
W25	6.48	W26	6.35
W27	6.54	W28	6.09
W29	6.07	Ce1	2.78
Ce2	3.36	As1	3.29
As2	3.23	As3	3.14