Electronic Supporting Information

Three Low-Dimensional Open-Germanates Derived from the 4⁴ Net

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Fig. S3. Guest species in SU-73 including water, AEP cations and isolated $\text{Ge}(\text{OH}_6)^{2^-}$.



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Fig. S5. Inversion of orientations of the Ge₇ clusters in JLG-4. a) A projection along the tube of JLG-4. b) A hypothetical structure where the orientations of Ge₇ clusters had been inverted. Terminal axial positions on the trigonal bipyramids collide with neighbours, as indicated by a red circle with a cross, suggesting that the orientation of clusters in this structure are impossible.



Fig. S6. The structures (below) and simplified representations (above) of $(C_8H_{24}N_4)[NbOGe_6O_{13}(OH)_2F]$ and $Ge_7O_{14}F_3 \cdot 0.5[In(dien)_2] \cdot 0.5H_3dien \cdot 2H_2O$.

	SU-71	SU-72	SU-73
GeO ₂ /mg	150	150	150
Pyridine /mL	0.20	4.50	-
AEP /mL	3.00	1.50	-
HF /mL	0.08	0.08	0.12
Water /mL	-	0.40	1.10
DMF /mL	-	-	4.50
PEHA /mL	-	-	1.50
Heating temperature /°C	180	180	170
Heating time /days	9	7	7

Table S1. Comparison of the synthesis conditions of SU-71, SU-72 and SU-73.