

## Electronic Supplementary Information (ESI) for

# Supramolecular hexagonal nano tubes assembled by vanadium diamine 5 complexes with thiogermanates

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15 dap solvent molecule loss.

**Figure S3.** (a) Six molecules of **2** are arranged in a two layer mode forming a hexagonal cycle structure (side view), showing the N–H···S hydrogen bonds. (b) The N–H···O hydrogen bonds in **2** that connect the compactly packed nano-tubes.

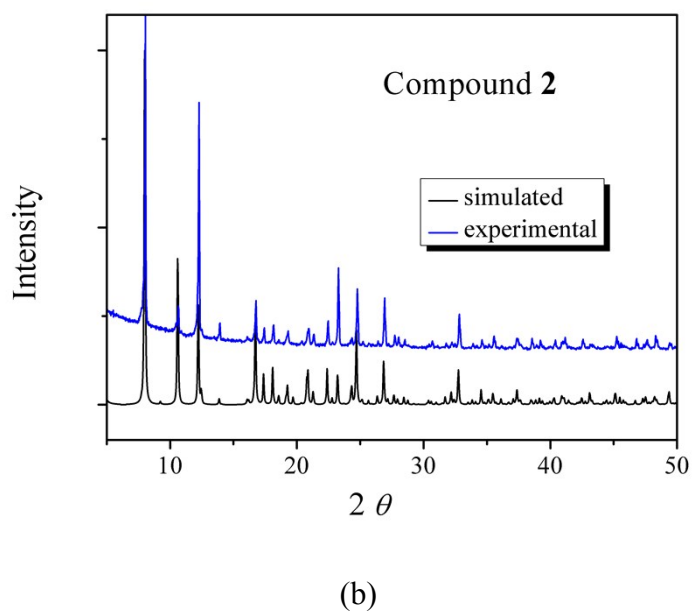
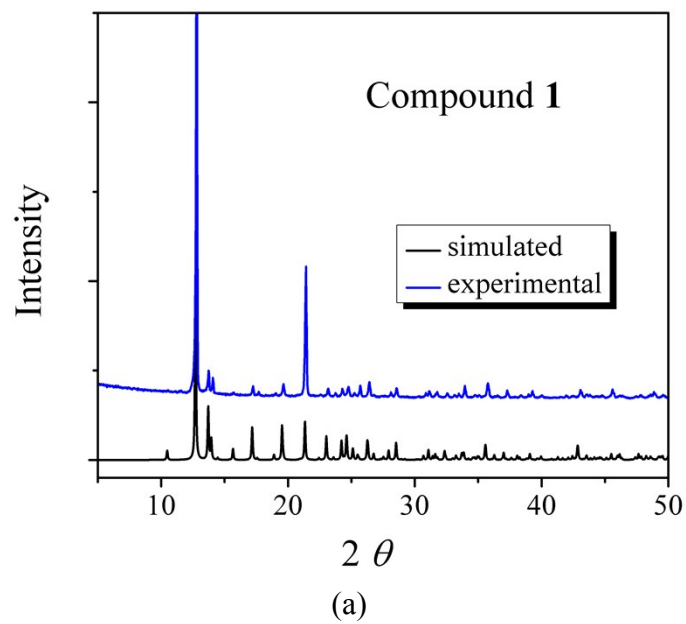
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**Figure S4.** Spacefilling display of self-assembled supramolecular hexagonal nanotube of **2**.

25 **Table S1.** Crystallographic Data and Structural Refinement Parameters for **1** and **2**.

**CCDC 1402143 & 1402144** contain the supplementary crystallographic data for **1** and **2** in this paper.

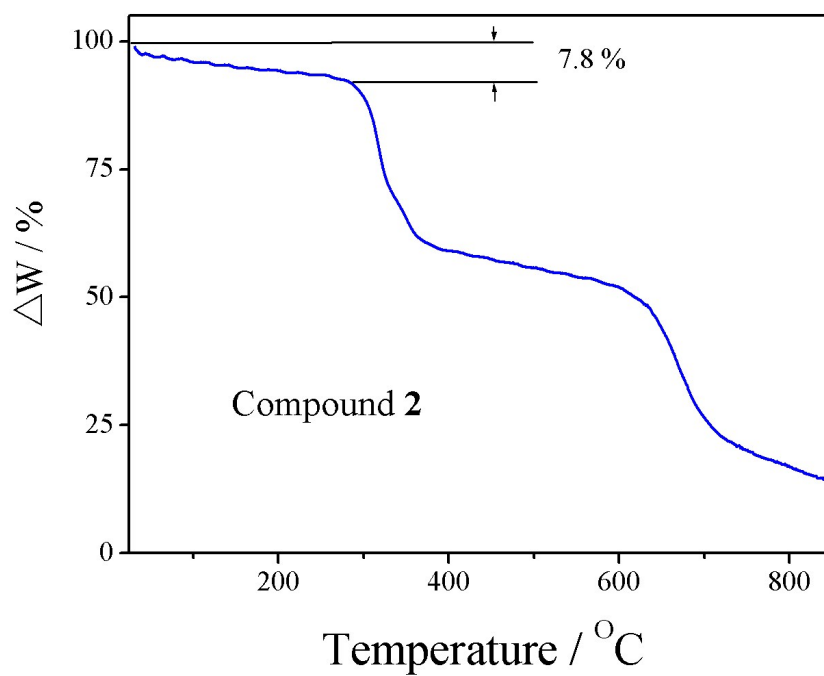
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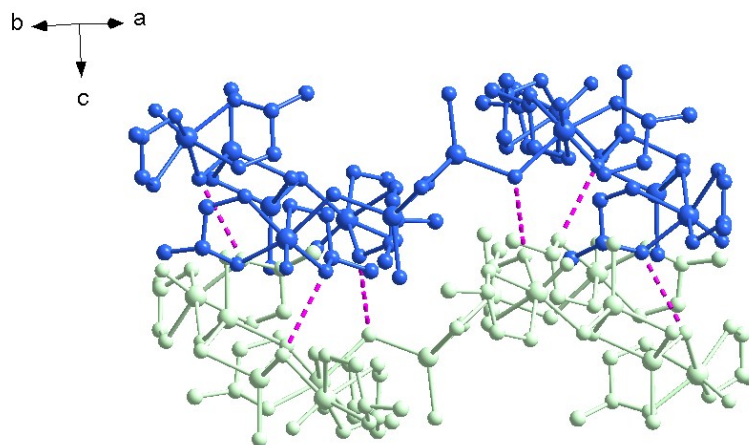
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**Figure S1.** Experimental and calculated XRD patterns of compounds **1** and **2**.

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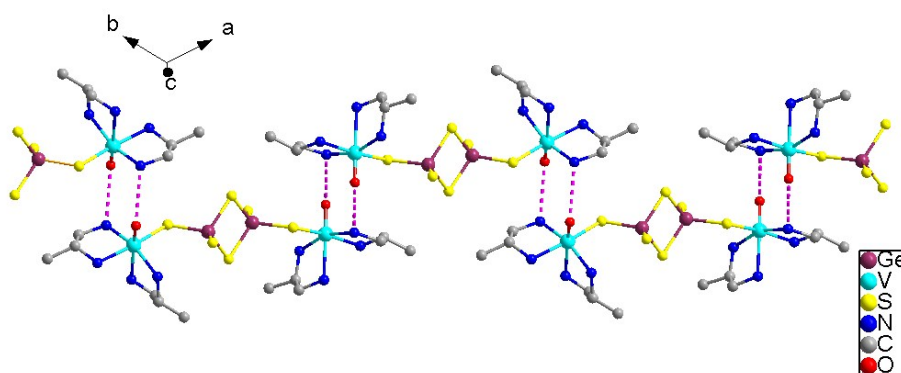


**Figure S2.** Thermogravimetric analysis of compound **2** in the range of 25-200 °C, suggesting one  
5 dap solvent molecule loss.



(a)

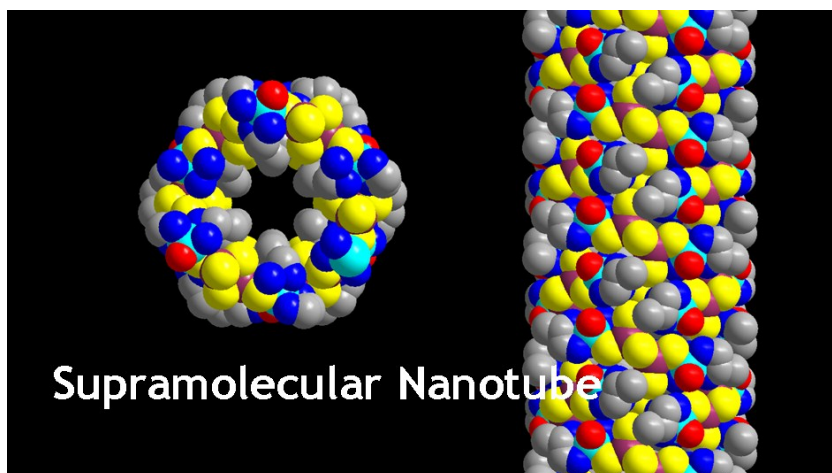
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(b)

10 **Figure S3.** (a) Six molecules of **2** are arranged in a two-layer mode forming a hexagonal cycle structure (side view), showing the N–H···S hydrogen bonds. (b) The N–H···O hydrogen bonds in **2** that connect the compactly packed nano-tubes.

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**Figure S4.** Spacefilling display of self-assembled supramolecular hexagonal nano tube of 2.

**Table S1.** Crystallographic Data and Structural Refinement Parameters for **1** and **2**.

|   | <b>1</b>   | <b>2</b>  |
|---|--|---|
| Formula   | C <sub>8</sub> H <sub>32</sub> Ge <sub>2</sub> N <sub>8</sub> O <sub>8</sub> S <sub>6</sub> V <sub>2</sub> | C <sub>13.5</sub> H <sub>45</sub> Ge <sub>2</sub> N <sub>9</sub> O <sub>2</sub> S <sub>6</sub> V <sub>2</sub> |
| MW  | 695.83   | 804.99  |
| Cryst size (mm <sup>3</sup> )                               | 0.55×0.15×0.10   | 0.65×0.12×0.10  |
| Cryst syst  | monoclinic   | trigonal  |
| Space group   | <i>P</i> 2 <sub>1</sub> / <i>n</i>   | <i>R</i> -3c  |
| <i>a</i> (Å)  | 8.3522(17)   | 38.284(5)   |
| <i>b</i> (Å)  | 12.682(3)  | 38.284(5)   |
| <i>c</i> (Å)  | 11.339(2)  | 11.170(2)   |
| $\alpha$ (deg)  | 90   | 90  |
| $\beta$ (deg)   | 94.75(3)   | 90  |
| $\gamma$ (deg)  | 90   | 120   |
| <i>V</i> (Å <sup>3</sup> )                                  | 1196.9(4)  | 14178(5)  |
| <i>Z</i>  | 2  | 18  |
| $\rho_{\text{calcd}}$ (g cm <sup>-3</sup> )                 | 1.931  | 1.619   |
| <i>F</i> (000)  | 700  | 7020  |
| $\mu$ (mm <sup>-1</sup> )                                   | 3.785  | 2.887   |
| <i>T</i> (K)  | 293(2)   | 293(2)  |
| Reflns collected  | 9910   | 45027   |
| Unique reflns   | 4570   | 3623  |
| Observed reflns   | 4046   | 3559  |
| <i>R</i> <sub>1</sub> [ <i>I</i> >2 $\sigma$ ( <i>I</i> )]  | 0.0618/0.0523  | 0.0894/0.0876   |
| <i>wR</i> <sub>2</sub> [ <i>I</i> >2 $\sigma$ ( <i>I</i> )] | 0.1167/0.1048  | 0.1577/0.1568   |
| GOF on <i>F</i> <sup>2</sup>                                | 1.088  | 1.110   |