Supporting Information

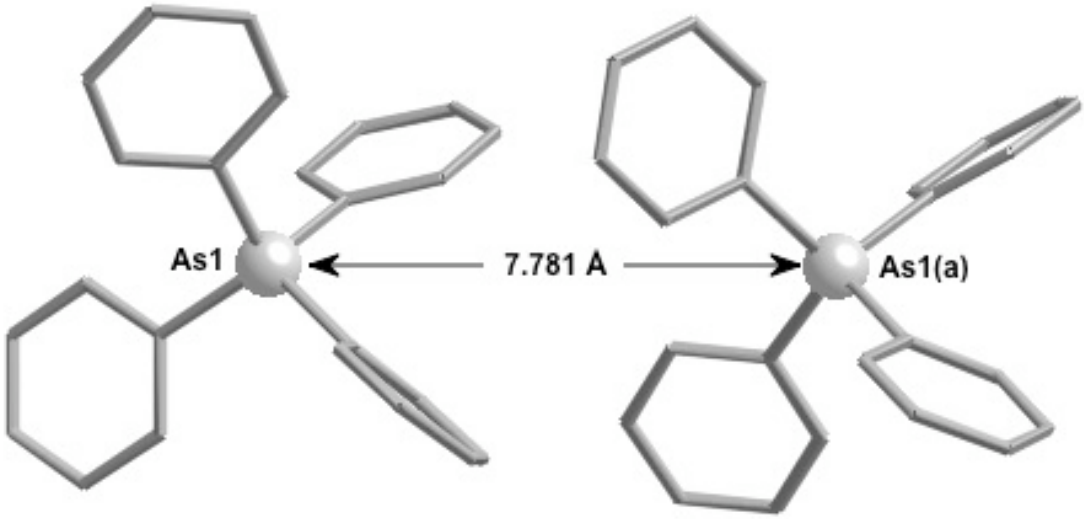

Figure S1. A representation of the translational quadruple phenyl embrace TQPE in **1**.

Symmetry code: (a) = 1 – *x*, 1/2 + *y*, 1/2 – *z*.

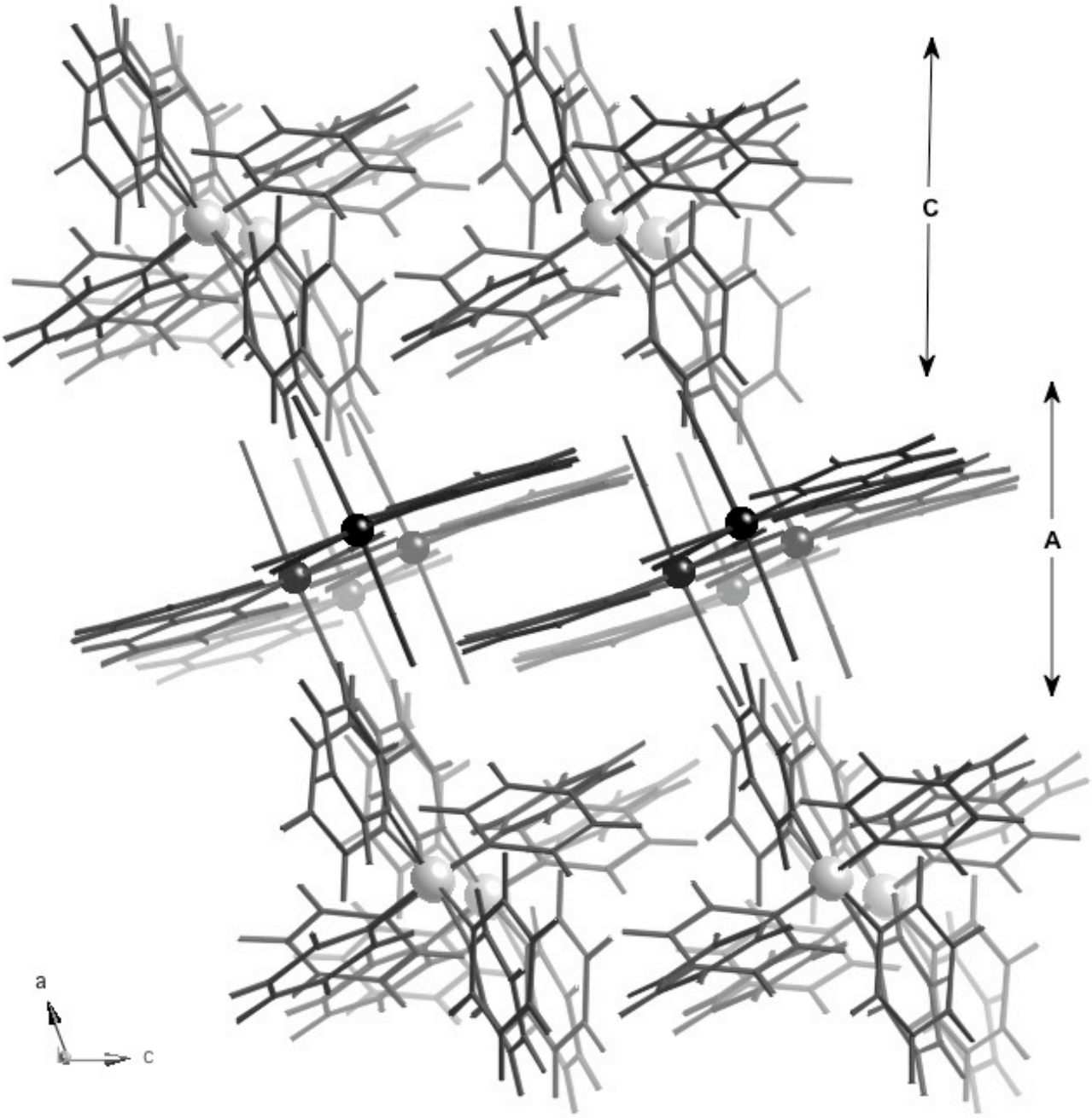

Figure S2. View along the crystallographic *b* axis of the crystal packing of **1** showing the alternating arrangement of the cations (C) and anions (A).

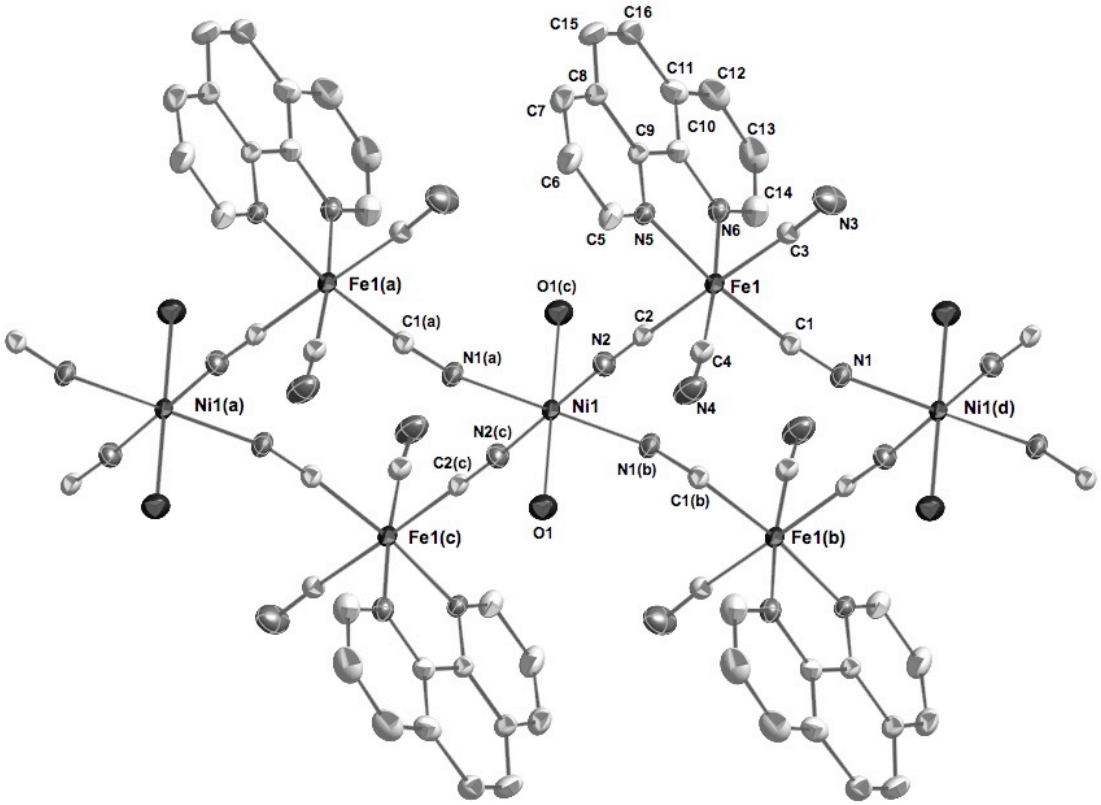

Figure S3. Perspective drawing along the crystallographic *a* axis of a fragment of the double zigzag chain of **3**. The thermal ellipsoids are drawn at the 50% probability level and the hydrogen atoms are omitted for clarity. Symmetry code: (a) = *x* - 1, *y*, *z*; (b) = -*x* +1, -*y*, -*z* +1; (c) = -*x*, -*y*, -*z* + 1; (d) = *x* + 1, *y*, *z*.

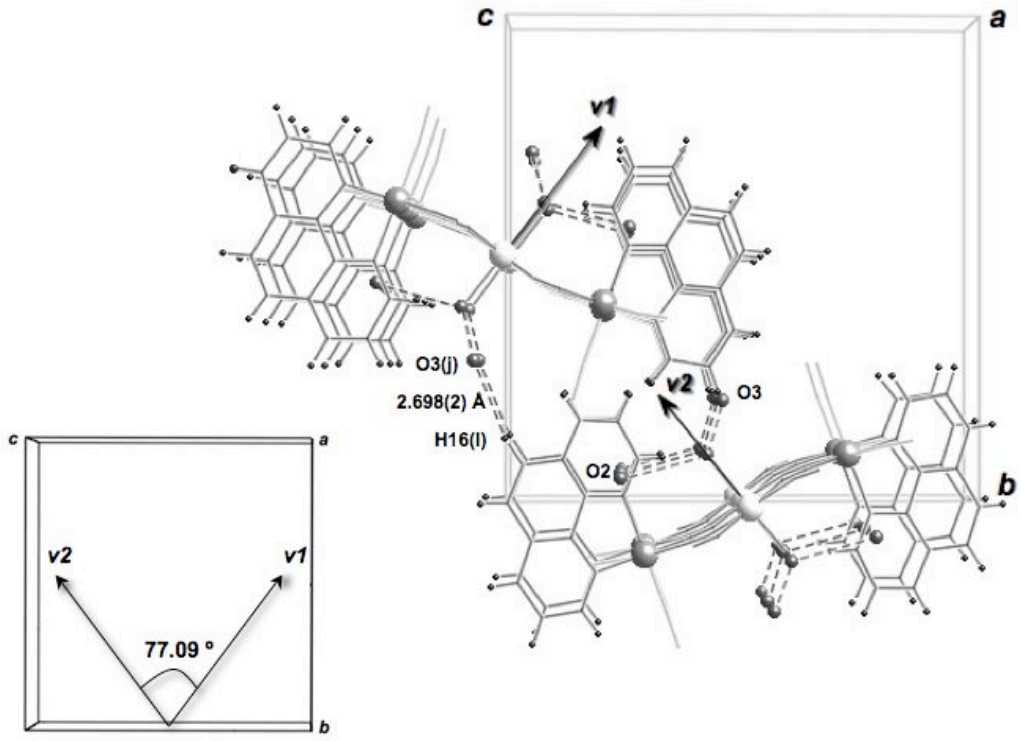

Figure S4. Perspective view in the plane *bc* of two neighboring chains of **3** showing the orientation of the vectors (*v1* and *v2*) of the ribbon-like structure. Hydrogen bonds are drawn as broken lines. Symmetry code: (j) = *x*–!/2, -*y* +1/2, *z* –1/2; (l) = -*x*, -*y*, -*z* + 1.

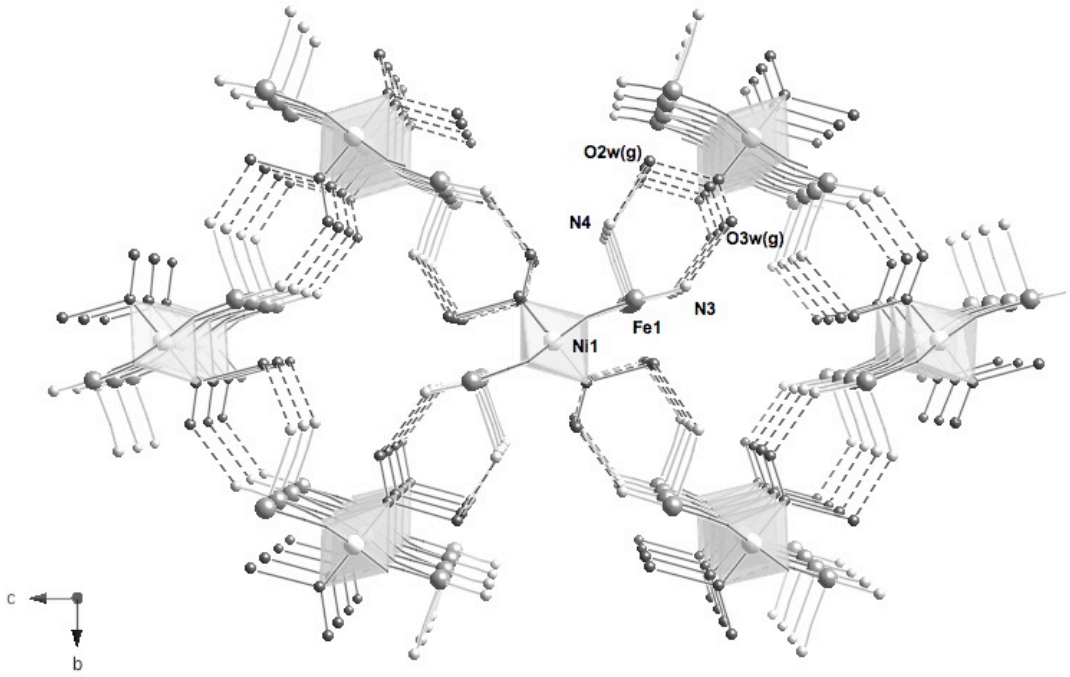

Figure S5. Schematic representation of the 3D structure formed *via* hydrogen bonds (broken lines) between the bimetallic chains of **3**. The phen ligands and the hydrogen atoms were omitted for the sake of clarity. Symmetry code: (g) = $x - 1/2$, $y + 1/2$, $z - 1/2$.

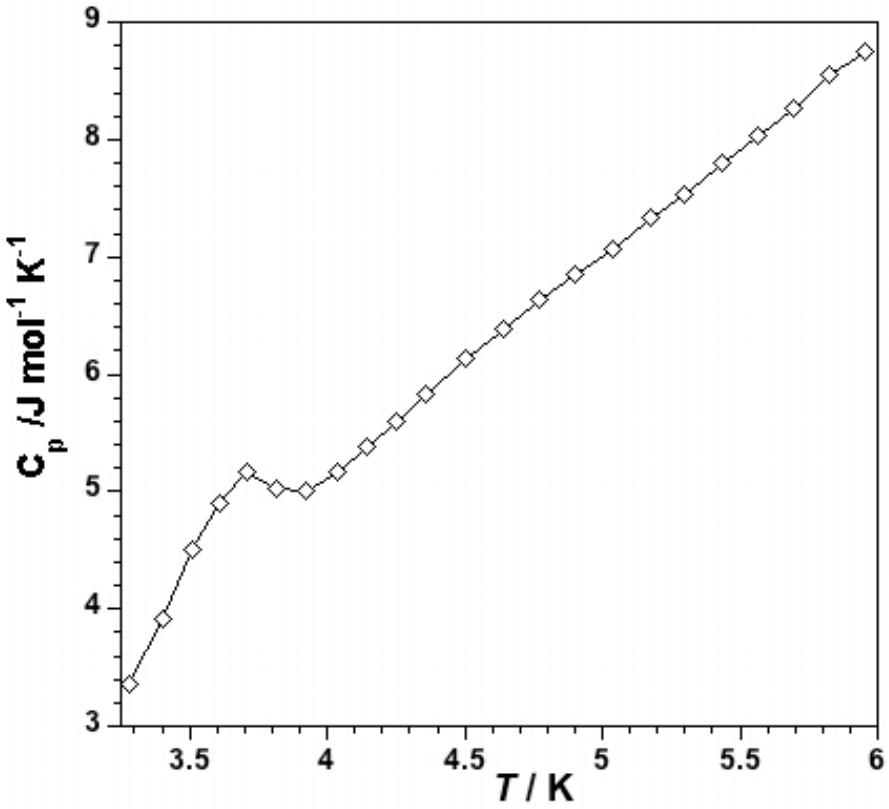

Figure S6. Heat capacity measurements on a pellet of **3** at very low temperatures.