STM Analysis of a Chiral Helical One-dimensional Nickel(II) Coordination Polymer

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\textsuperscript{C2}-symmetric nickel(II) salen complexes [NiL\textsubscript{1}] \textit{I} were deposited on a highly oriented pyrolytic graphite (HOPG) surface from their acetone solutions. They aggregate easily to single, segregated, homochiral polymeric chains of \((M)\)-1D-\textsubscript{1}[NiL]\textsubscript{2} (2) on the substrate as also found in single crystals. In STM topography, the single helical 1D structures \textit{2} found on the surface were in excellent agreement with the dimension of aligned dimeric aggregates of \textit{1} obtained from X-ray crystallography. Weak intermolecular Ni\textsuperscript{II}…OMe coordinations \((d_{\text{MeO–Ni}} = 0.35\text{ nm})\) were found to be responsible for the formation of the chiral, helical and 1D assemblies on the substrate.

\textit{Key words:} Coordination Polymer, Helical Structures, Scanning Tunneling Microscopy, Self-assembly, Chiral Nickel(II) Salen Complexes