Supporting Information

Metal-Centered Deltahedral Zintl Ions: Synthesis of $[Ni@Sn_9]^{4-}$ by Direct Extraction from Intermetallic Precursors and of the Vertex-Fused Dimer $[\{Ni@Sn_8(\mu\text{-}Ge)_{½}\}_2]^{4-}$

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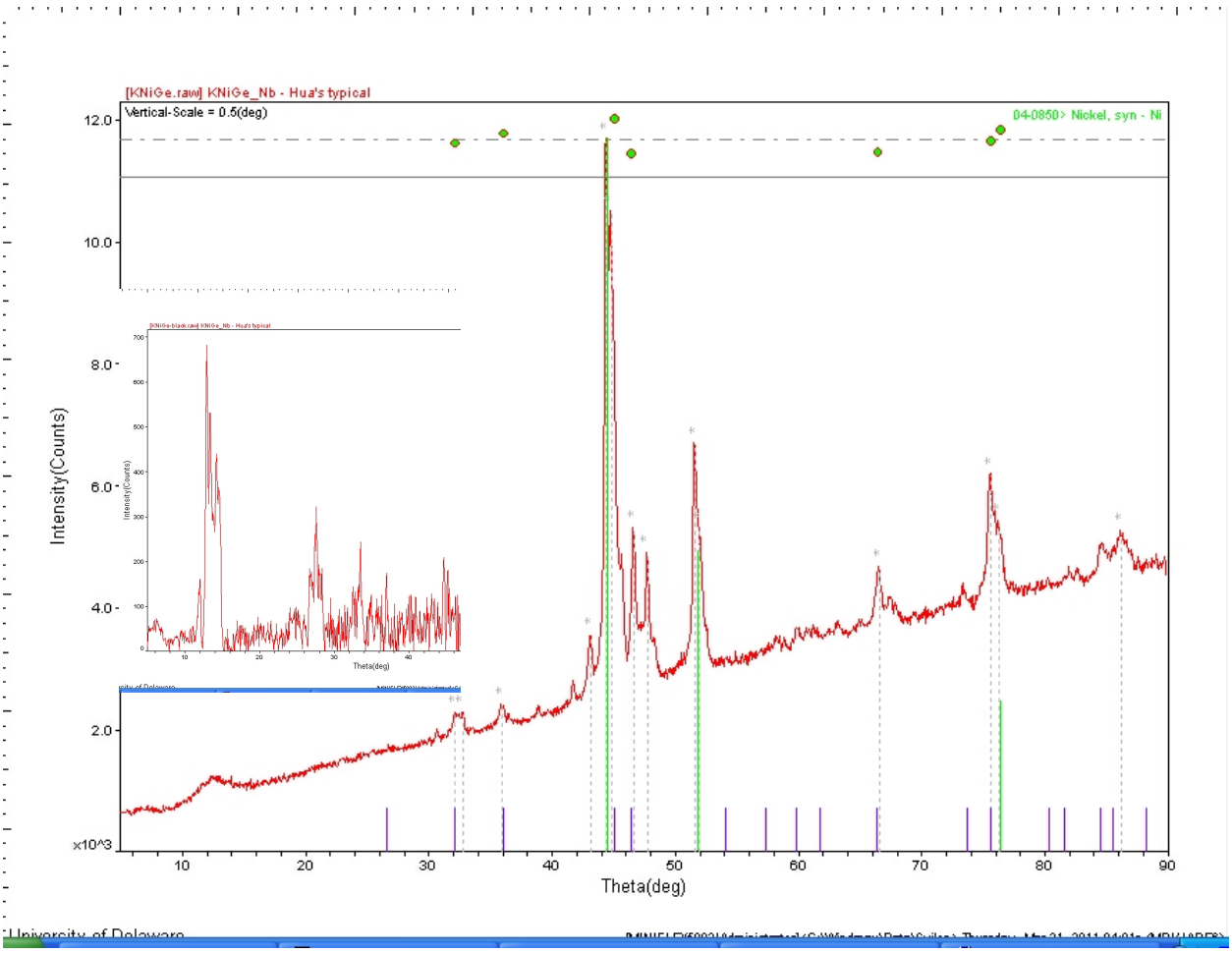

Figure S1. PXRD of an intermetallic precursor with a nominal composition "$K_4Ge_9Ni_3$": green lines - elemental Ni, blue lines - $GeNi_2$ ($InNi_2$ type, P*6(3)/mmc*, a=3.95Å; c=5.04Å), smudge at ~13° corresponds to K_4Ge_9. Insert: closer view of the region around 13°.

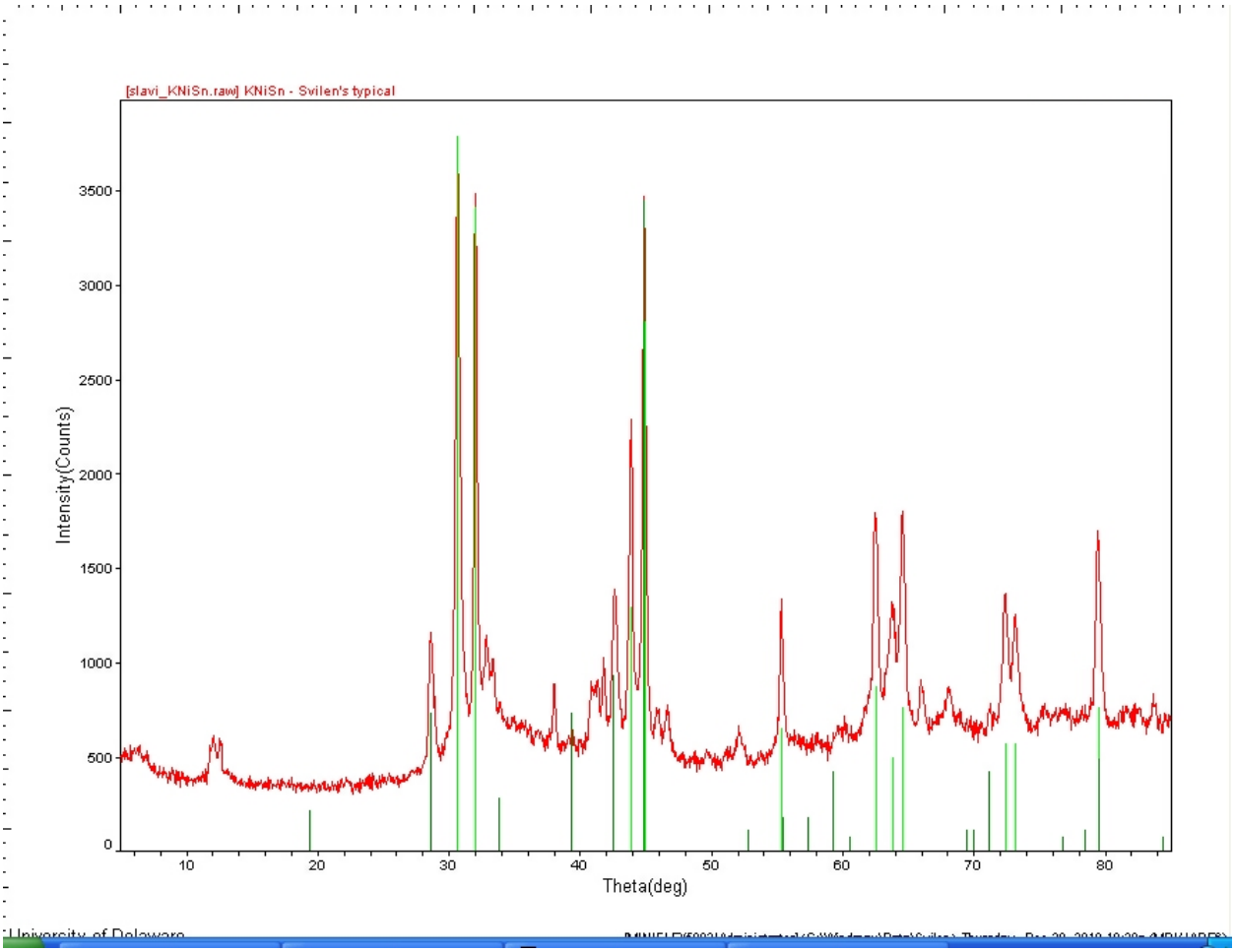

Figure S2. PXRD of an intermetallic precursor with a nominal composition "$K_4Sn_9Ni_3$" with unidentified phase or phases, but no elemental Ni or any Sn-Ni binary phases are present.