

Supplementary information for:

Thermoelectric properties and high-temperature stability of the $\text{Ti}_{1-x}\text{V}_x\text{CoSb}_{1-x}\text{Sn}_x$ half-Heusler alloys

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Table S1. Lattice parameters, densities and percentage densities for the preliminary cold-pressed $\text{Ti}_{1-x}\text{V}_x\text{CoSb}_{1-x}\text{Sn}_x$ series. No solid pellets were obtained for the $x = 0.125$ and $x \geq 0.625$ compositions.

x	a_{HH} (Å)	Density (g cm ⁻³)	Density (%)
0	5.8825(1)	5.22	69.9
0.125	5.8779(1)	-	-
0.25	5.8743(1)	5.30	70.7
0.375	5.8692(1)	5.46	72.6
0.5	5.8680(3)	5.65	75.2
0.625	5.8672(3)	-	-
0.75	5.8691(2)	-	-
1	-	-	-

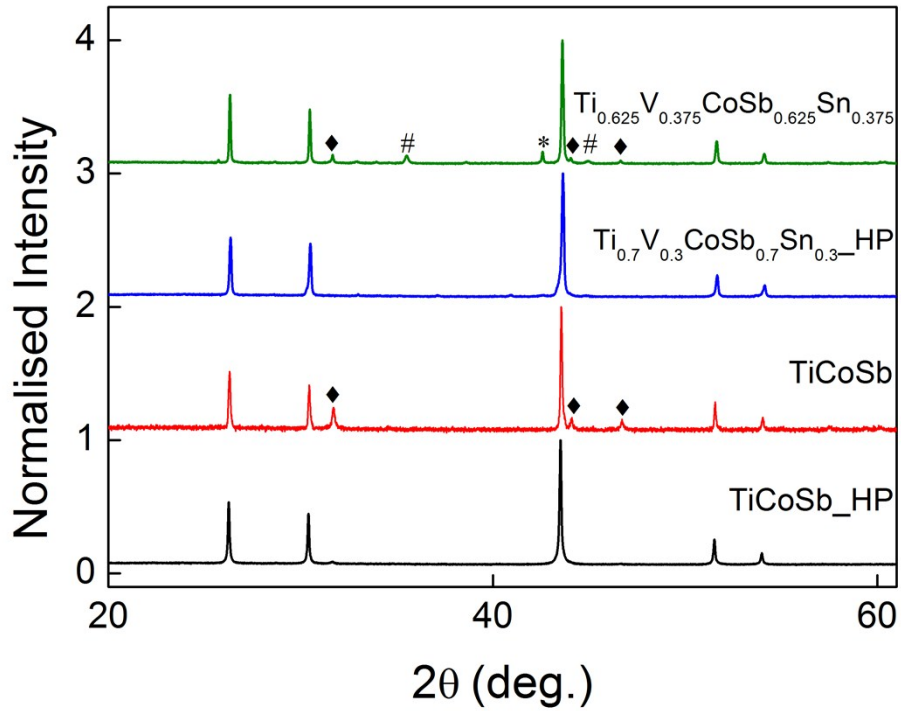


Figure S1. X-ray powder diffraction patterns for hot- and cold-pressed TiCoSb , hot-pressed $\text{Ti}_{0.7}\text{V}_{0.3}\text{CoSb}_{0.7}\text{Sn}_{0.3}$ and cold-pressed $\text{Ti}_{0.625}\text{V}_{0.375}\text{CoSb}_{0.625}\text{Sn}_{0.375}$ after repeat thermoelectric property measurements. Diffraction patterns of the cold- and hot-pressed samples before measurement can be found in Fig. 1 and Fig. 3 of the manuscript, respectively. (Data have been normalised and offset by 1; ♦: CoSb , *: VCo_2Sn , #: CoSn_2).

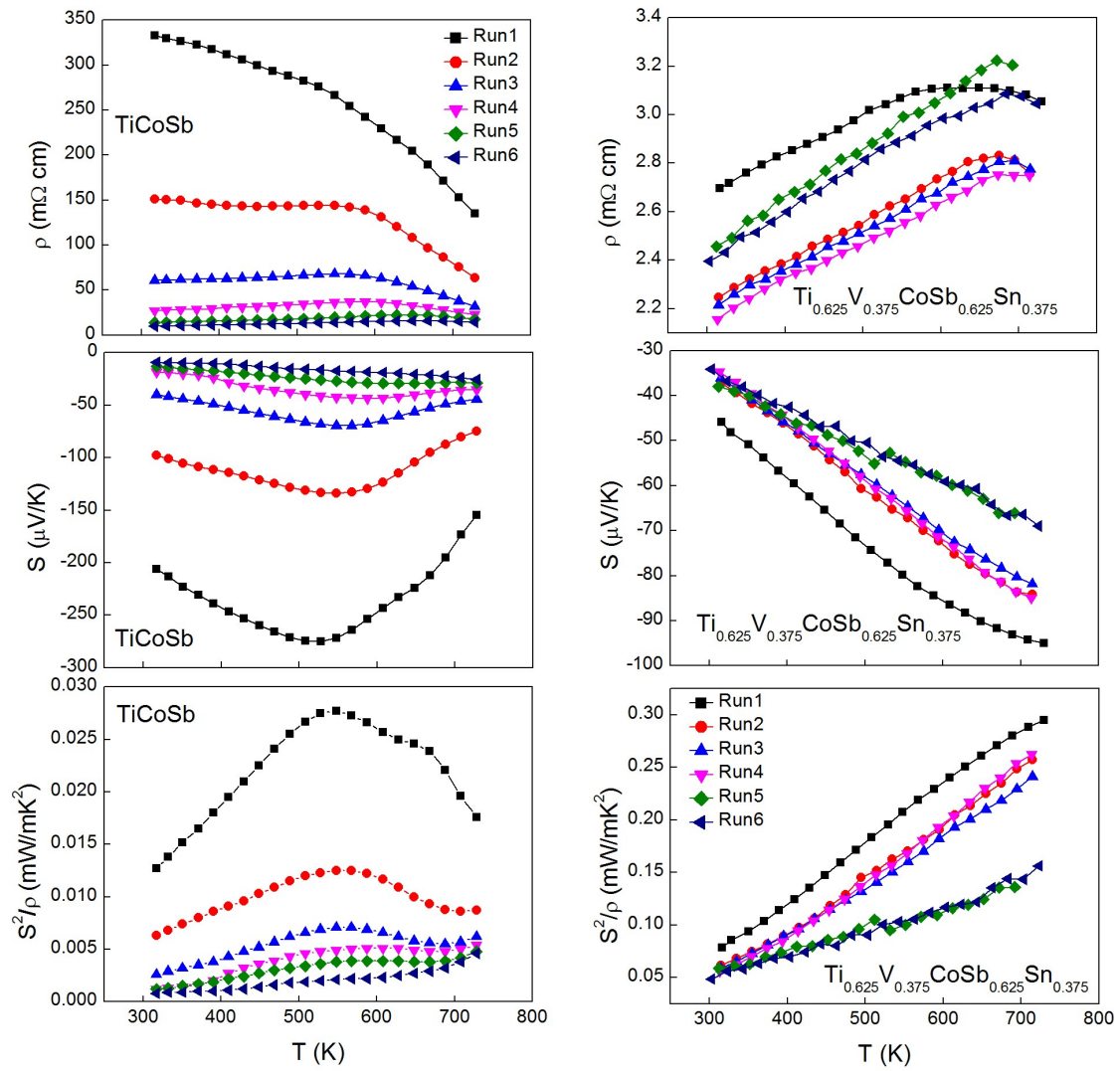


Figure S2. Repeatability tests of the electrical resistivity (ρ), Seebeck coefficient (S), and thermoelectric power factor (S^2/ρ) for cold-pressed TiCoSb and $\text{Ti}_{0.625}\text{V}_{0.375}\text{CoSb}_{0.625}\text{Sn}_{0.375}$. Run 1-6 are consecutive measurements on the same TiCoSb or $\text{Ti}_{0.625}\text{V}_{0.375}\text{CoSb}_{0.625}\text{Sn}_{0.375}$ sample. The samples were taken out of the instrument between individual measurements.