横浜国立大学

横浜国立大学 大学院
ナノリサーチクラブ(NRC)
Nano Research Club

第19回ナノテク交流シンポジウム　2024年3月5日 横浜市立大学 金沢八景キャンパス

【P33】ハーフ・ホイスラー合金$TiNi_{1-x}Co_xSn$（$0 \leqq x \leqq 0.15$）のp型熱電特性

P-type thermoelectric properties of half-Heusler alloys $TiNi_{1-x}Co_xSn(0 \leq x \leq 0.15)$

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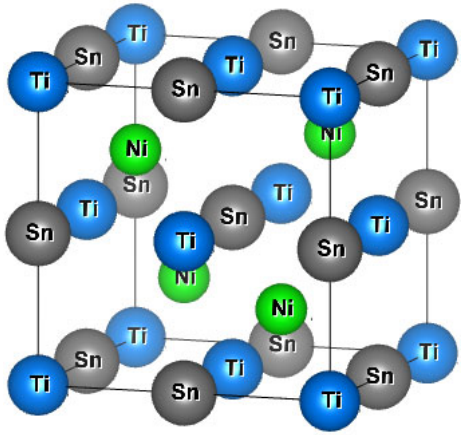
P33 : Contents

- **Converting TiNiSn, an n-type thermoelectric material with environmentally friendly and low cost, to p-type**



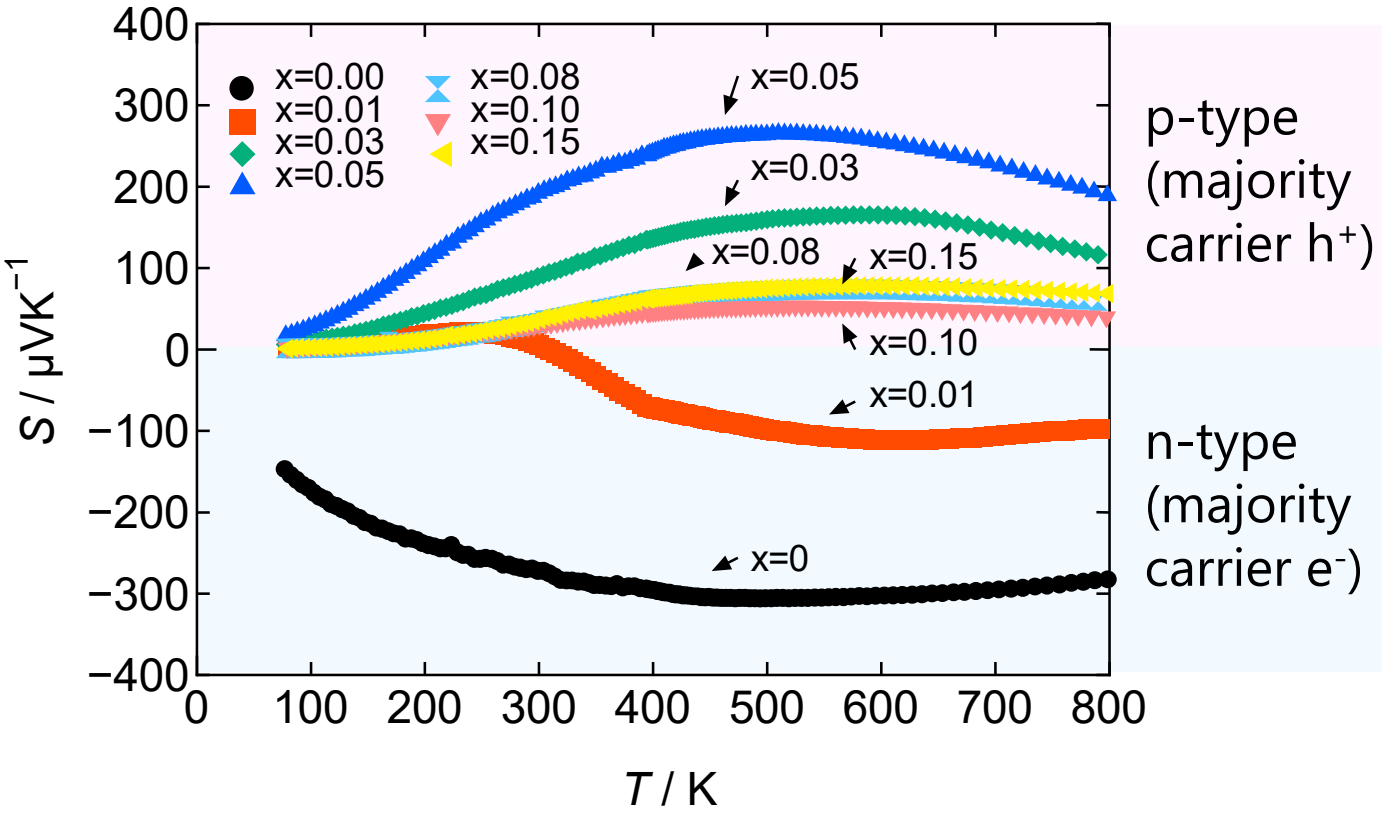
half-Heusler alloy TiNiSn with $C1_b$ structure (F-43m)

□ Features of TiNiSn

- High |S| (V/K)
- Low ρ (Ωm)

⇒ High PF(=High ZT)

Characteristics required for TE materials



Temperature dependence of Seebeck coefficient for $TiNi_{1-x}Co_xSn$ (0≤x≤0.15)

- **Changed to p-type at x≥0.03.**
- **High |S|=265 V/K (x=0.05@500 K).**
- **Highest ZT is 0.12 (x=0.05@700 K).**

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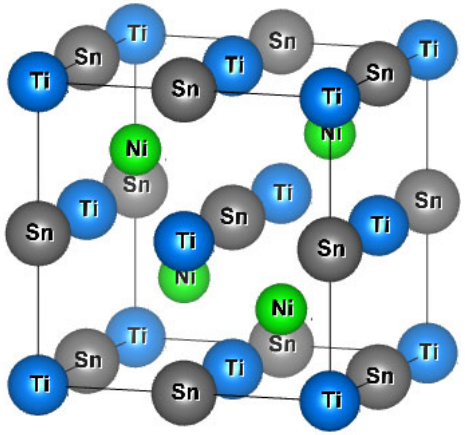

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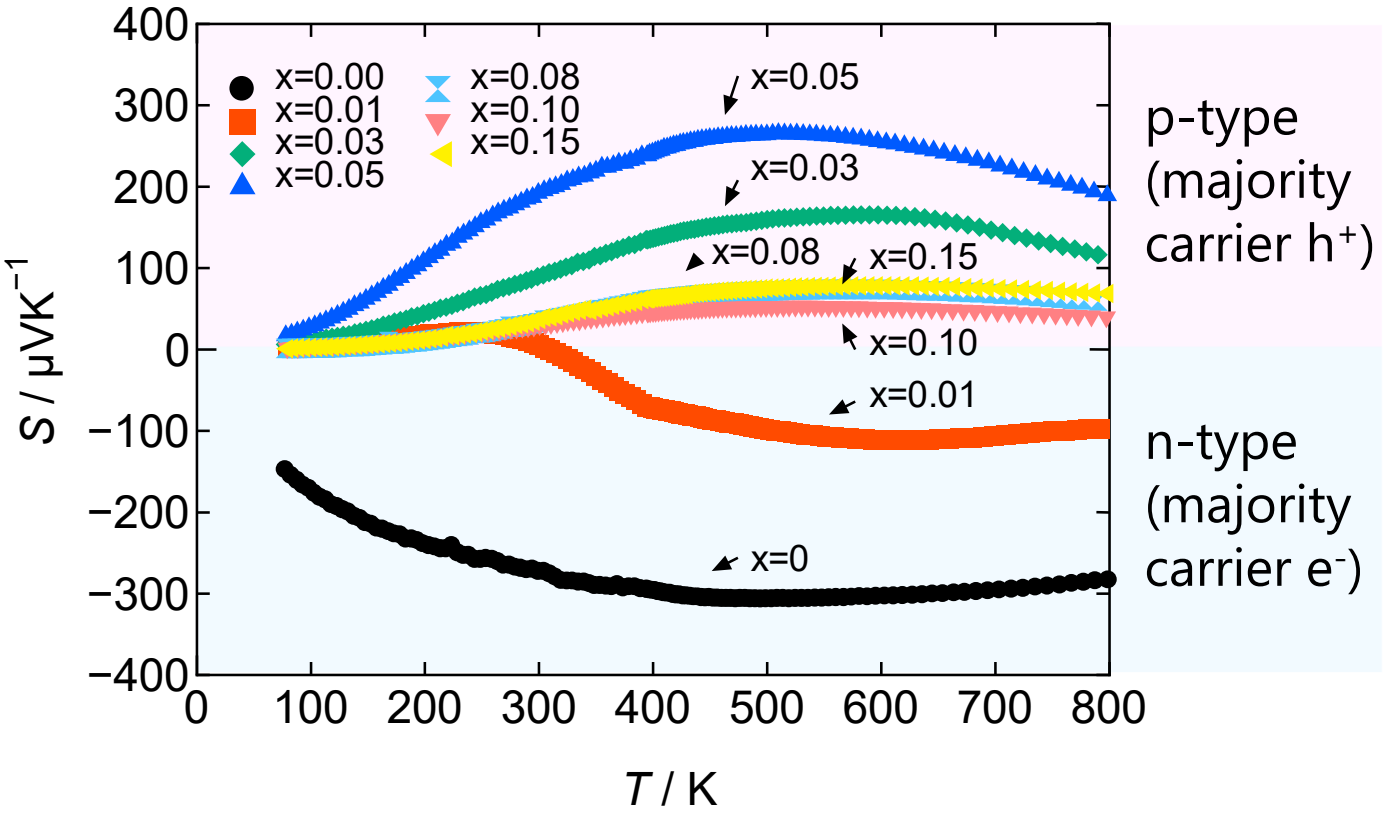

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