

Abstract Submitted
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Thermoelectric properties of Cl-doped $\text{In}_4\text{Pb}_{0.01}\text{Sn}_{0.03}\text{Se}_{2.9}\text{Cl}_x$ polycrystalline compounds¹ JIN-HEE KIM, MIN JAE KIM, SUEKYUNG OH, JONG-SOO RHYEE, Kyung Hee Univ - Suwon Campus, SU-DONG PARK, Advanced Electrical Materials Group, Korea Electrotechnology Research Institute — We investigated thermoelectric properties of Cl-doped polycrystalline compounds of $\text{In}_4\text{Pb}_{0.01}\text{Sn}_{0.03}\text{Se}_{2.9}\text{Cl}_x$ ($x = 0.02, 0.04$ and 0.06). The x-ray diffraction measurement shows gradual change of lattice volume for $x \leq 0.04$ without any impurity phases indicating systemic change of Cl-doping. The Cl-doping in the compounds has an effect of increasing carrier concentration and effective mass of carrier resulting in the increase of power factor near 700 K than $\text{In}_4\text{Pb}_{0.01}\text{Sn}_{0.03}\text{Se}_{2.9}$. Because of the increased electrical conductivity near 700 K, the thermoelectric figure-of-merit ZT is 1.25 at 723 K for $x = 0.04$ Cl-doped compound which is relatively high value as n-type polycrystalline materials.

¹Cl-doping

Jin-hee Kim
Kyung Hee Univ - Suwon Campus

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