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Title *Electronic and Thermal Properties of Sn Added-Zn₄Sb₃*

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Abstract: β -Zn₄Sb₃ is a promising high temperature thermoelectric materials with a high power factor $S^2\sigma$ where S is the thermopower and σ is electrical conductivity. It is found that the properties of β -Zn₄Sb₃ can be altered by addition of Sn. In this paper the electronic and thermal properties of β -Zn₄Sb₃ are given in detail. Electrical resistivity and absolute thermopower are measured as a function of temperature from room temperature to 300°C. Both electrical resistivity and thermopower values are found to increase with addition of tin. It is observed experimentally that at lower tin concentrations (<1weight %) power factor remains close to that of β -Zn₄Sb₃ and at higher concentration of Sn power factor decreases. Thermal conductivity κ , of these Sn added Zn₄Sb₃ was found to be lower than that of β -Zn₄Sb₃ showing a noticeable enhancement in ZT ($=S^2\sigma T/\kappa$) at low concentration of tin.