

Tuning the carrier concentration using Zintl chemistry in Mg_3Sb_2 and, its implications on thermoelectric figure-of-merit

A. Bhardwaj^{1,2}, N. S. Chauhan^{1,2}, S. Goel^{1,2}, Vijeta Singh^{1,3}, J. J. Pulikkotil^{1,3,4}, T.D. Senguttuvan^{1,2}, and D. K. Misra^{1,2*}

¹Academy of Scientific & Innovative Research (AcSIR), CSIR-National Physical Laboratory (CSIR-NPL) campus, New Delhi-110012, India.

²Physics of Energy Harvesting Division, National Physical Laboratory, Council of Scientific and Industrial Research, New Delhi 110012, India.

³Quantum Phenomena & Applications Division, National Physical Laboratory, Council of Scientific and Industrial Research, New Delhi 110012, India.

⁴Computational and Networking facility, National Physical Laboratory, Council of Scientific and Industrial Research, New Delhi 110012, India

Supplementary Information:

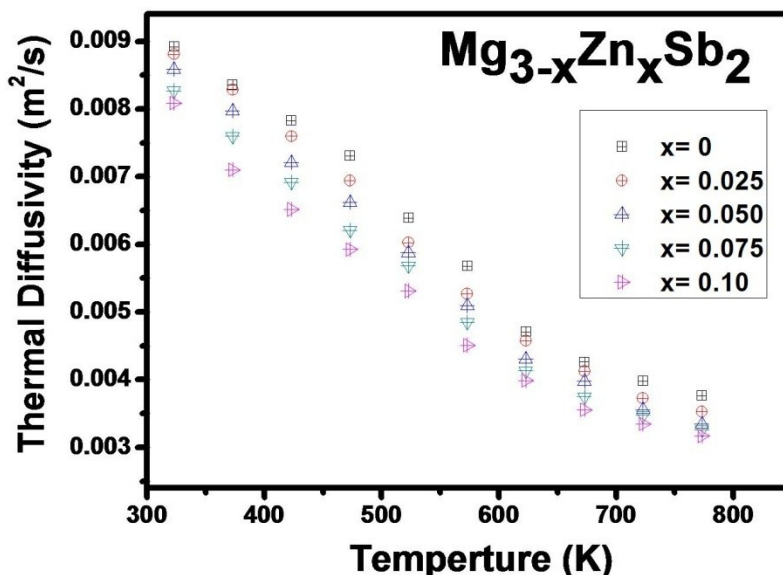


Figure S1: Temperature dependence of thermal diffusivity for $\text{Mg}_{3-x}\text{Zn}_x\text{Sb}_2$ ($0 \leq x \leq 0.1$).

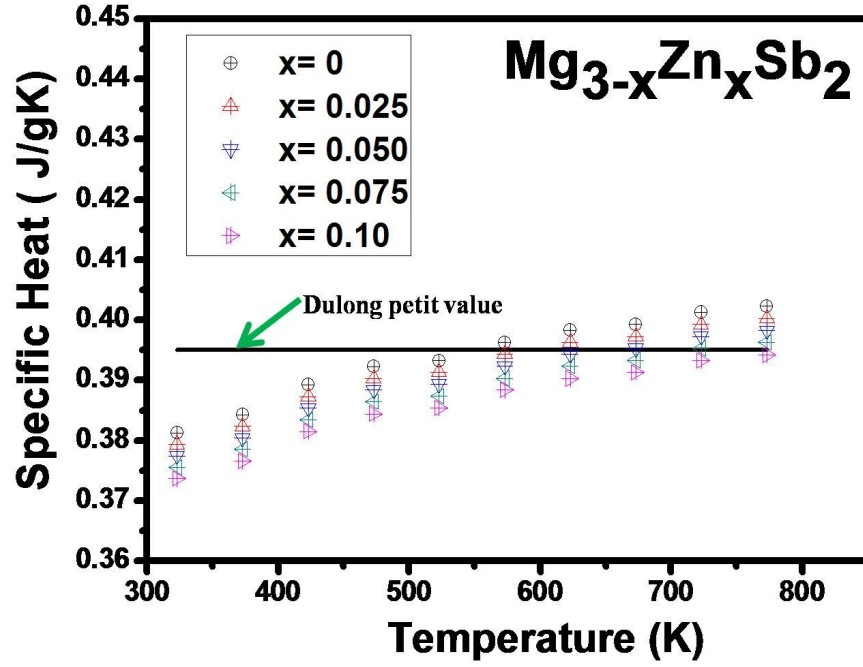


Figure S1: Temperature dependence of specific heat for Mg_{3-x}Zn_xSb₂ (0 ≤ x ≤ 0.1).

Table T1. Density of Mg_{3-x}Zn_xSb₂ (0 ≤ x ≤ 0.1) materials

Compositions	Mg ₃ Sb ₂	Mg _{2.975} Zn _{0.025} Sb ₂	Mg _{2.95} Zn _{0.050} Sb ₂	Mg _{2.925} Zn _{0.075} Sb ₂	Mg _{2.9} Zn _{0.10} Sb ₂
Density (g/cm ³)	3.93	3.90	3.96	3.94	3.89