Electronic Supplementary Information

Band Structure Engineering in $Sn_{1.03}Te$ Through In-induced Resonant Level

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Content

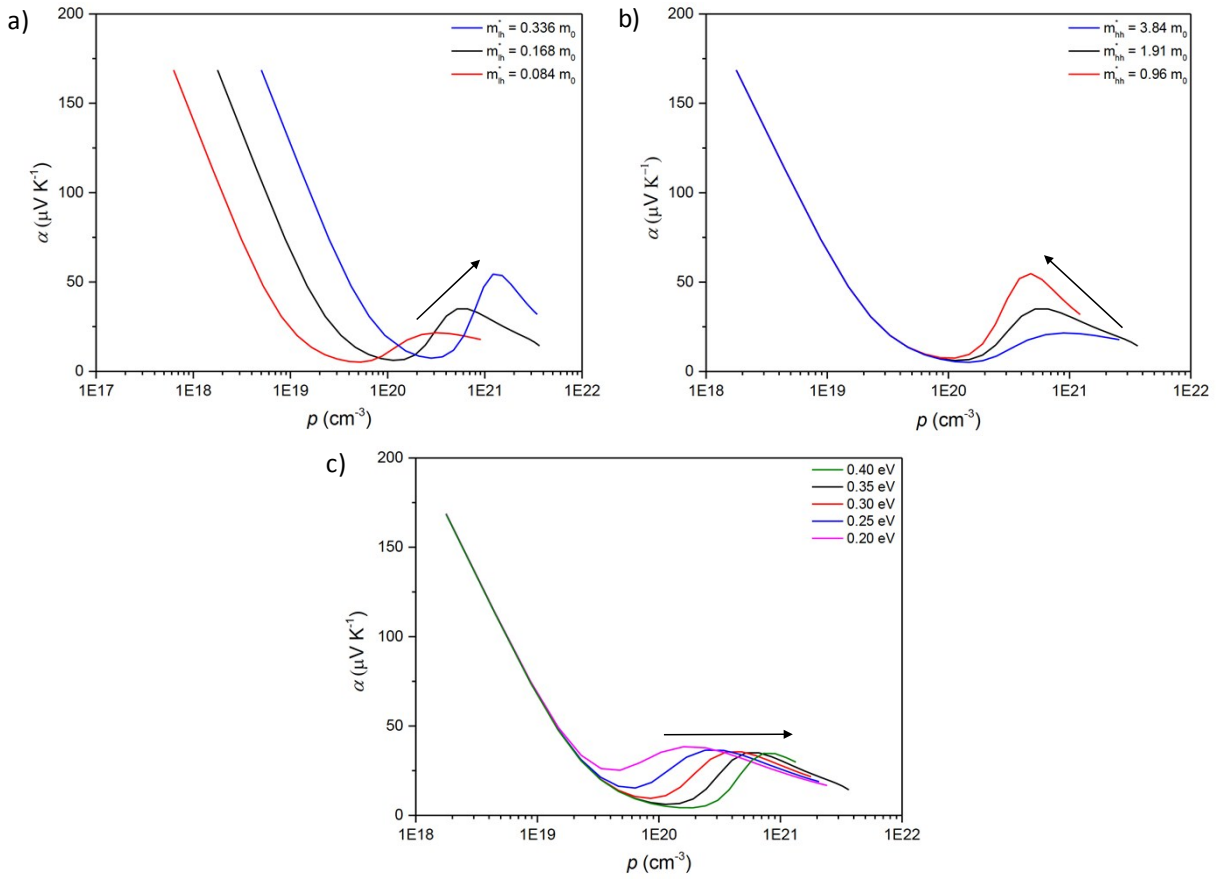

Figure S1. Evolution of the Ioffe-Pisarenko curve calculated by a two-valence-band model upon varying a) the density-of-states effective masses of the light-hole valence band m^*_{lh}, b) of the heavy-hole valence band m^*_{hh}, and c) the energy offset ΔE between the light and heavy-hole valence bands. The black arrows mark the evolution of the curve when the corresponding band parameter increases. The values usually admitted for SnTe at 300 K are $0.168 m_0$, $1.92 m_0$ and 0.30 eV for m^*_{lh}, m^*_{hh} and ΔE, respectively.

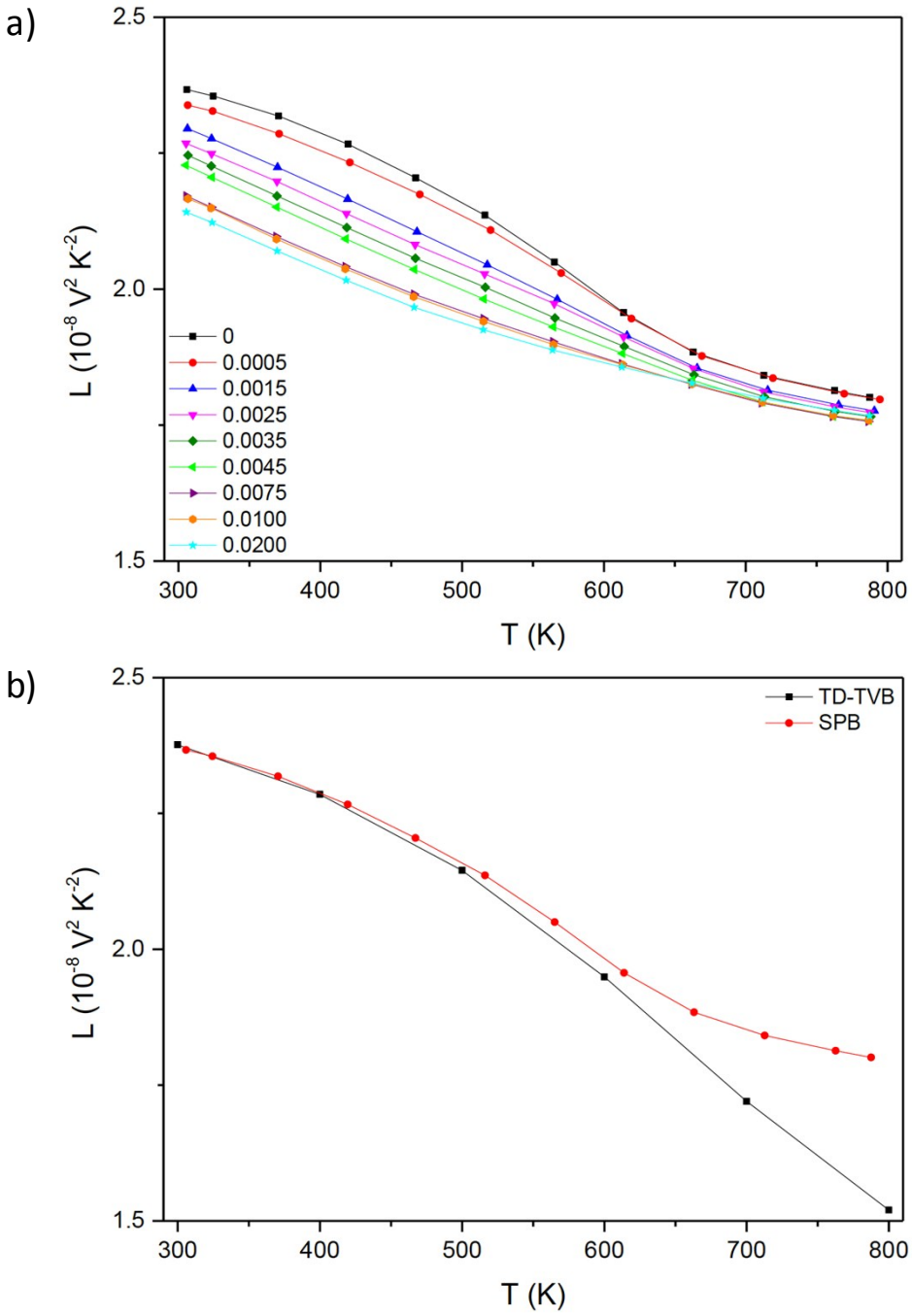

Figure S2. Temperature dependence of the Lorenz number L a) for the series $Sn_{1.03-x}In_xTe$ calculated by a single parabolic band (SPB) model and b) by a two-valence-band model with temperature-dependent band (TD-TVB) parameters for the $x = 0$ composition. Both models give very similar results below 500 K for the $x = 0$ compound. Above this temperature, L further decreases upon taking into account the temperature dependence of the band parameters.

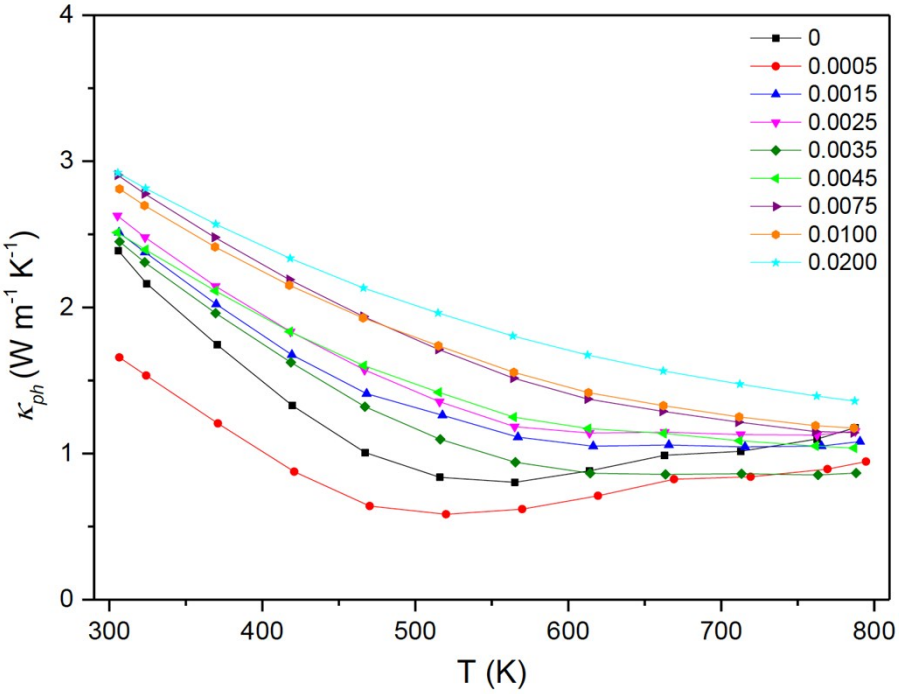

Figure S3. Temperature dependence of the lattice thermal conductivity κ_{ph} of the series $Sn_{1.03-x}In_xTe$ determined by using the Lorenz numbers calculated by a single parabolic band model.