Electronic Supplementary Information

Improved Stability and High Thermoelectric Performance Through Cation Site Doping in n-type La-doped $Mg_3Sb_{1.5}Bi_{0.5}$

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Figure S1. Temperature dependence of Hall carrier concentration of of La-doped sample ($La_xMg_{3.05}Sb_{1.5}Bi_{0.5}$, x=0.005-0.03) and Te-doped sample ($Mg_{3.05}Sb_{1.5}Bi_{0.5}Te_{0.01}$).

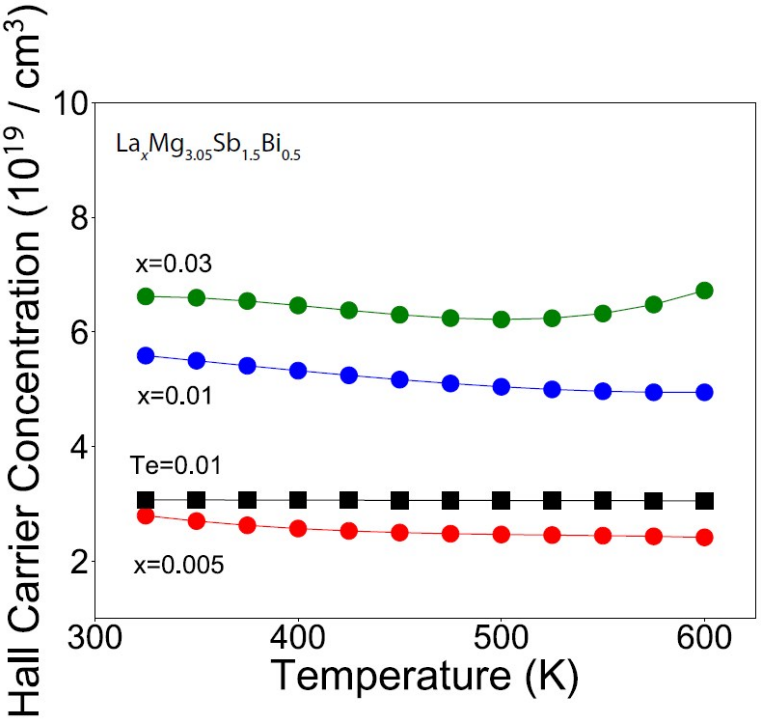

Figure S2 X-ray diffraction peak pattern of La-doped sample ($La_xMg_{3.05}Sb_{1.5}Bi_{0.5}$, x=0.005-0.03). Mg_3Sb_2 (ICSD- 2142) is also shown for comparison. X-ray diffraction of the sample was measured at room temperature on a STOE-STADIMP powder diffractometer equipped with an asymmetrically curved Germanium monochromator (MoKα1 radiation, λ = 0.70930 Å). The line focused X-ray tube was operated at 50 kV and 40 mA. The sample was placed on a metallic holder and measured in reflection geometry in a rotating stage.

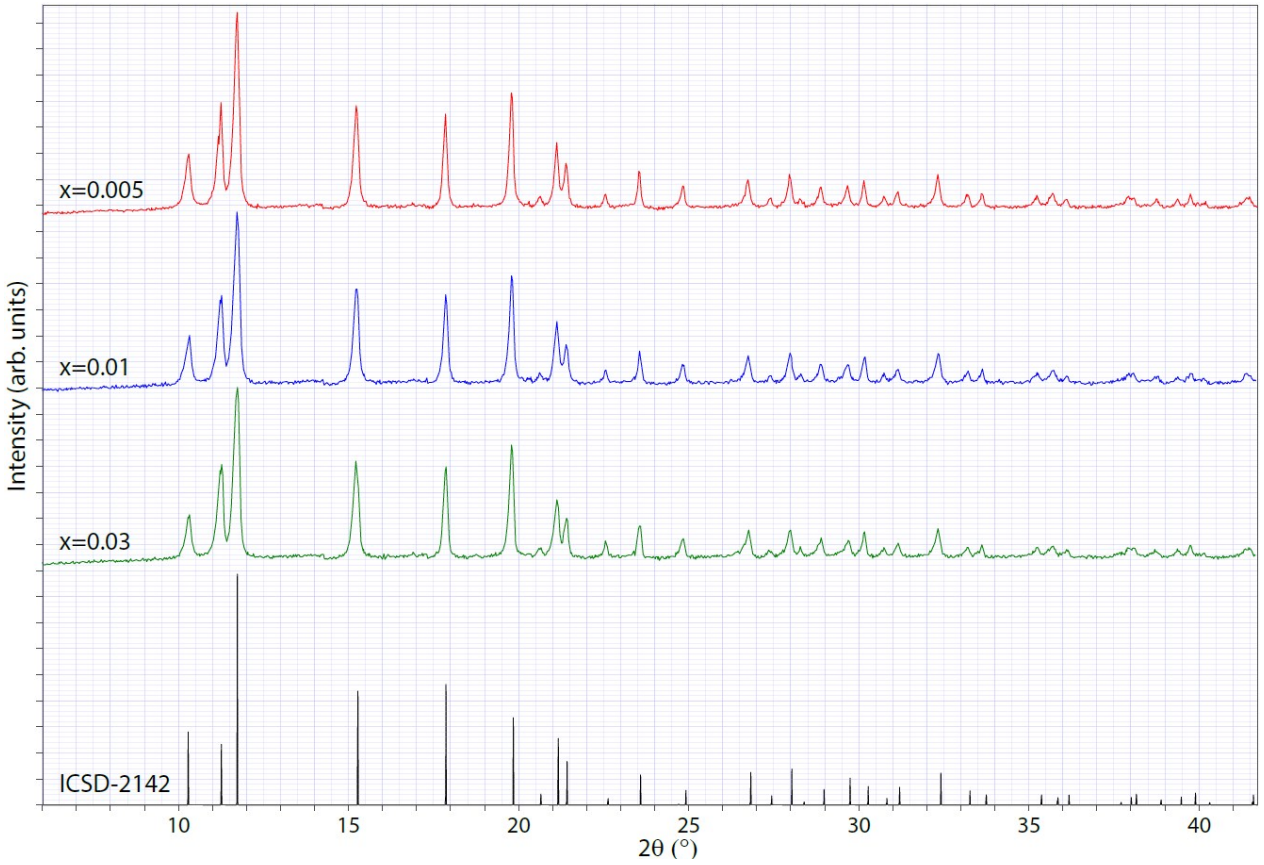

Table S1 Heat capacity values used to calculate thermal conductivities from diffusivity measurements. The value is obtained from a thermodynamic model curve that fits experimental measurements. Details will be published elsewhere.[1]

T(K)	298	323	373	423	473	523	573	623
C_p(J/mol·K)	123.6	124.8	126.9	128.6	130.0	131.2	132.4	133.4

Reference

[1]Agne, M. T. et al. unpublished (2018).