Supporting Information

Nanoarchitectonics of p-type BiSbTe with improved figure of merit via introducing PbTe nanoparticles

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Fig. S1

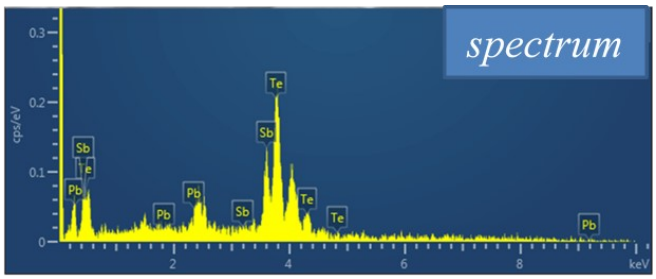

Fig. S2

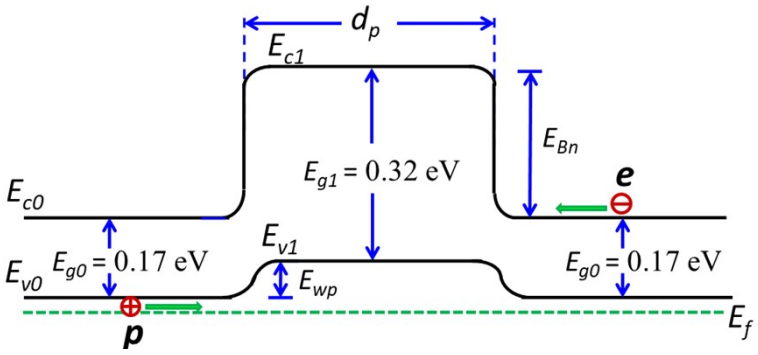

Fig. S2 Schematic of energy bands for PbTe (band gap E_{g1}) and BST (band gap E_{g0}) as well as heterojunction potentials (where E_{C0} and E_{C1} are conduction band bottoms; E_{V0} and E_{V1} are valence band tops).

Table S1

List of the relative density d_r and the Lorenz number L at room temperature for χ(PbTe)/BST (χ = 0, 0.25, 0.5 and 1.0 *wt*.%).

χ(*wt*.%)	d_r(%)[a]	L[b]
0	97	1.46
0.25	97	1.51
0.5	96	1.55
1	98	1.59

[a]d_r is relative density, defined as $d_r = d/d_0$, where d is measured density and d_0 (= 6.76g/cm^3) is theoretical density of BST. For the composite samples χ(PbTe)/BST, its theoretical density is modified as: $d_0 = (1\text{-}f)d_1 + fd_2$, here $d_1 = d_0$ for BST and d_2(= 8.15 g/cm^3) is theoretical density of PbTe.

[b]L is the Lorenz number.

Table S2

Parameters for the calculation of lattice thermal conductivity by using Callaway model

Line	A (10^{-40} S^3)	B (10^{-18} s/K)	C (10^{-16} s)	l (nm)
orange line	0.69	9.92	1.94	-
purple line	0.69	9.92	1.94	126
wine line	1.41	9.92	1.94	126