

Supplementary Materials

A facile *in-situ* reaction method for preparing flexible Sb₂Te₃ Thermoelectric thin films

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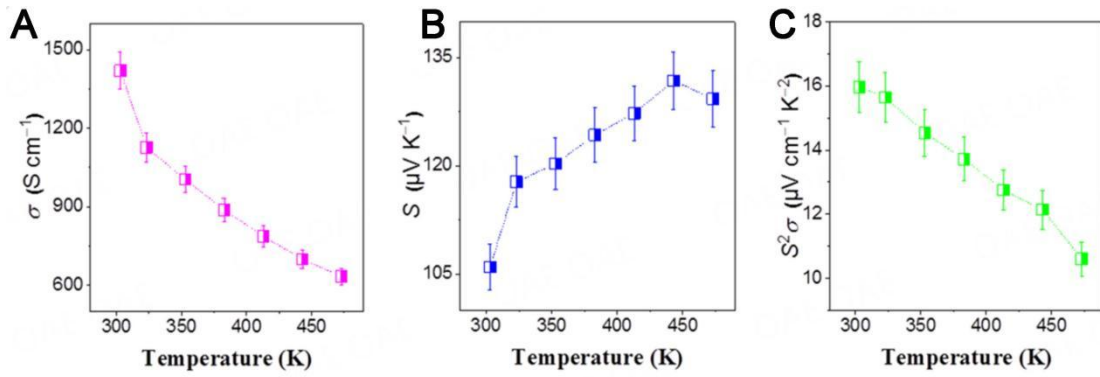
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Supplementary Figure 1. (A)-(C) The measured σ , S , and $S^2\sigma$ as a function of temperature in Sb_2Te_3 f-TF prepared at $T_{\text{diff}} = 623$ K.

Supplementary Figure 1 shows the TE performance (S , σ , and $S^2\sigma$) of typical Sb_2Te_3 f-TFs prepared at 623 and 643 K as a function of temperature from 300 to 473 K. The S increases and σ decreases with increasing T . Finally, the highest $S^2\sigma$ is obtained near room temperature.

Supplementary Table 1. A summary of the $S^2\sigma$ of Sb_2Te_3 -based thermoelectric films

Materials	Substrate	$S^2\sigma$ ($\mu\text{W}\cdot\text{cm}^{-1}\cdot\text{K}^{-2}$)	Ref.
Sb_2Te_3	PI	16.0	This work
$(\text{Sb}_2\text{Te}_3)(\text{Te})_{1.5}$	PI	18.3	[1]
Sb_2Te_3 + PEDOT:PSS	PI	~ 2.75	[2]
Sb_2Te_3 + SWCNTs	PI	0.55	[3]
$\text{Bi}_{0.5}\text{Ag}_{0.005}\text{Sb}_{1.5}\text{Te}_3$	PI	~ 12.4	[4]
$\text{Cu-Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$ + PEDOT:PSS	PI	3.12	[5]
$\text{Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$	PI	~ 1.8	[6]
Sb_2Te_3	PI	~ 1.6	[7]
$\text{Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$ + PEDOT:PSS	Kapton sheet + glass	0.083	[8]

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