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Sn vacancies engineering for enhancing the thermoelectric performance of twodimensional SnS

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Figure S1 XRD patterns of as-synthesized powder samples Sn0.7 and Sn1.1.



Fig. S2 XRD patterns of as-synthesized powder samples Snx (x = 1.01, 0.99, 0.98).



Fig. S3 SEM images of as-synthesized powder samples Sn*x*. The scale bar for all images is presented at the right bottom of (h). The polyhedral nanoparticles occurred in powder sample Sn1.0 are marked by blue ellipses.



Fig. S4 HAADF-STEM image and the corresponding elemental mapping images of powder sample Sn0.85.



Fig. S5 XRD patterns of sample Sn1.0 with different developing histories: (a) the assynthesized powder; (b) the powder that grounded from the as-sintered bulk sample; (c) the powder that grounded from the electrical properties measured cuboid bulk sample, which ever underwent 3 times heating and cooling cycles.



Fig. S6 XRD patterns for powder sample Sn0.95 after heat treatment in air at different temperatures: (a) 573 K for 18 h; (b) 673 K for 12 h; (c) 973 K for 12 h.



Figure S7 Heating and cooling test on electrical properties of bulk sample Sn1.0: (a) electrical conductivity; (b) Seebeck coefficient; (c) power factor.



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Fig. S8 Thermal diffusivity of sintered samples Snx.

Table S1 Density of	of sintered	sample	es Snx.
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Sample	Sn1.1	Sn1.05	Sn1.0	Sn0.95	Sn0.9	Sn0.85	Sn0.8
Density (g cm ⁻³)	4.853	4.916	5.160	5.001	5.119	4.744	4.708