Supporting Information

Constructing anisotropic conical graphene aerogels with concentric annular structures for highly thermally conductive phase change composites towards efficient solar-thermal-electric energy conversion

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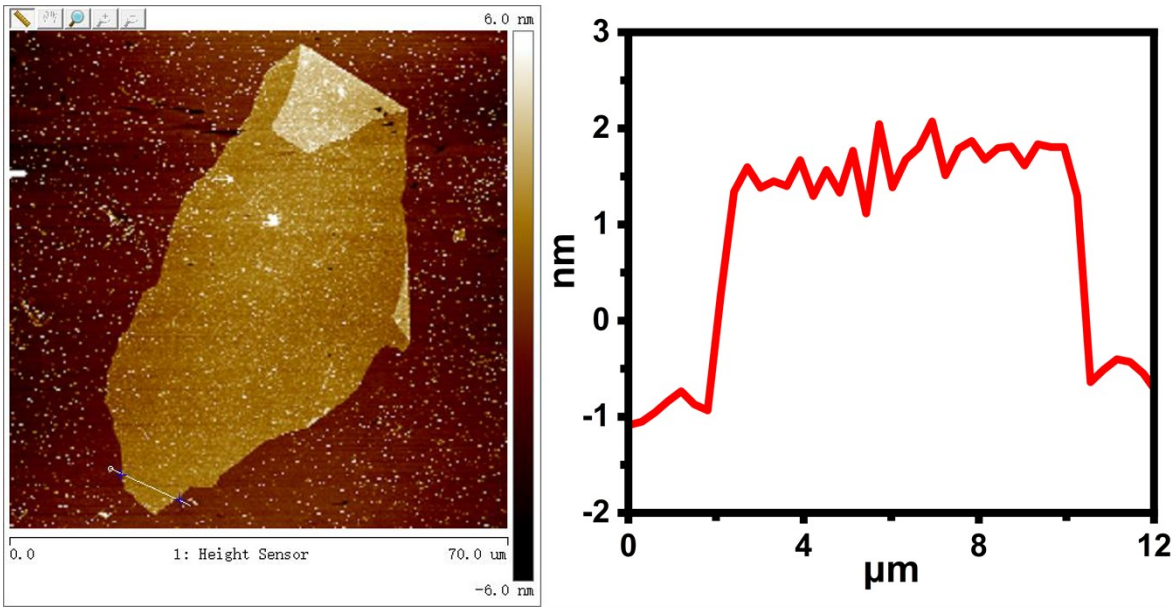

Fig. S1 AFM image and height profile of GO.

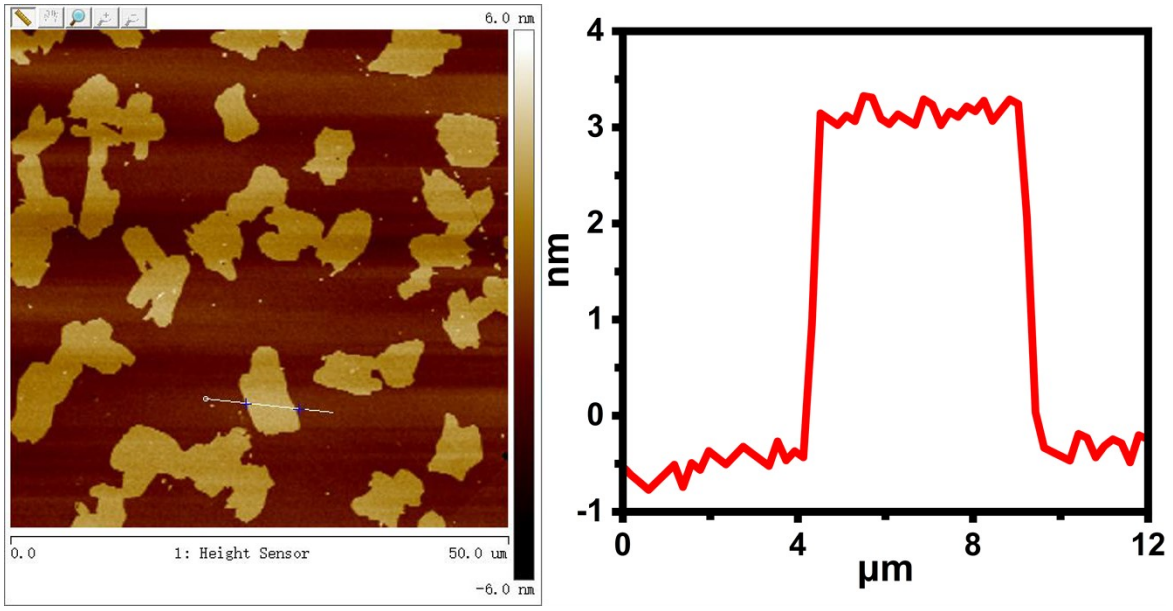

Fig. S2 AFM image and height profile of GNPs.

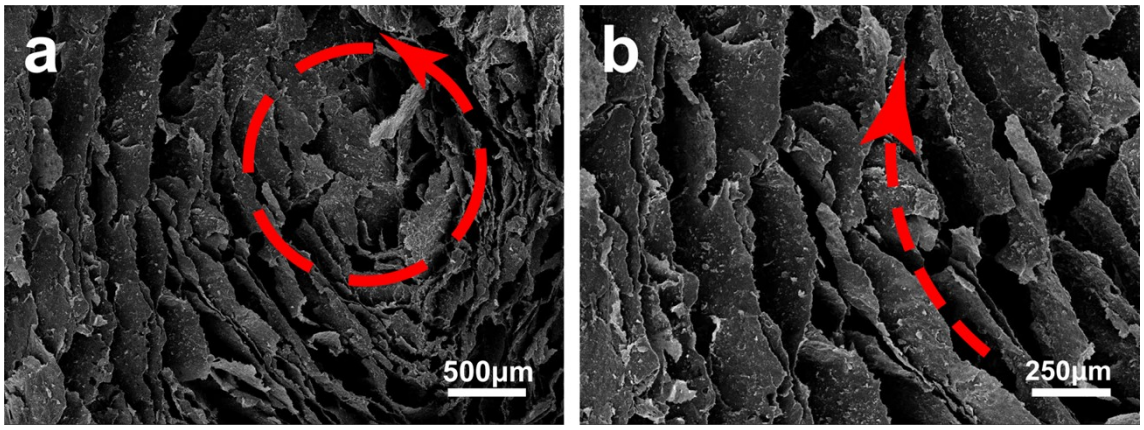

Fig. S3 (a, b) Low-magnification SEM images of HCGA2.

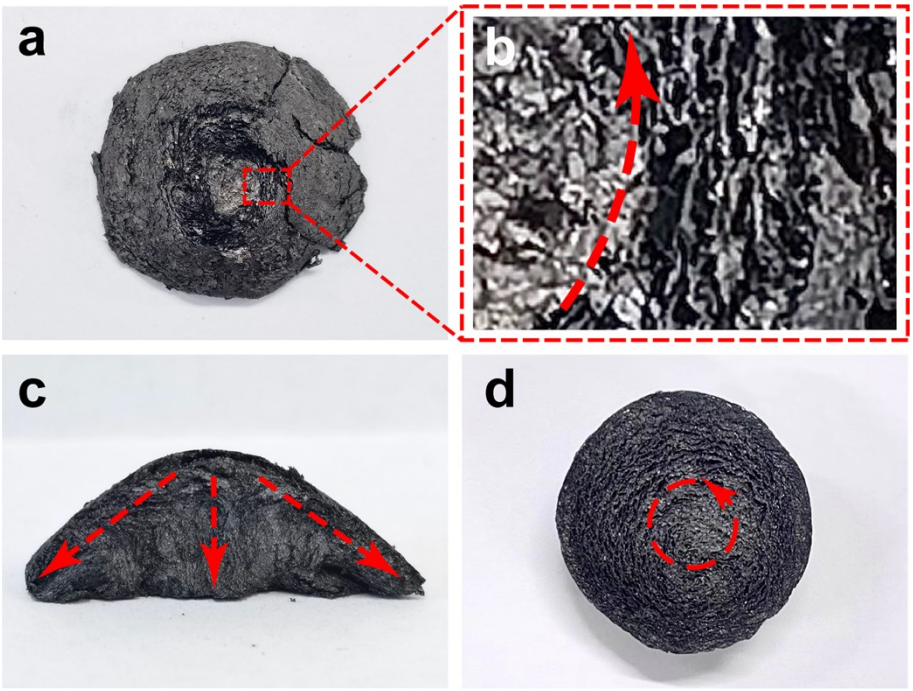

Fig. S4 Digital photographs of (a, b) cross-section, and (c) side-section of HCGA2. (d) Digital photograph of the bottom of HCGA2/tetradecanol.

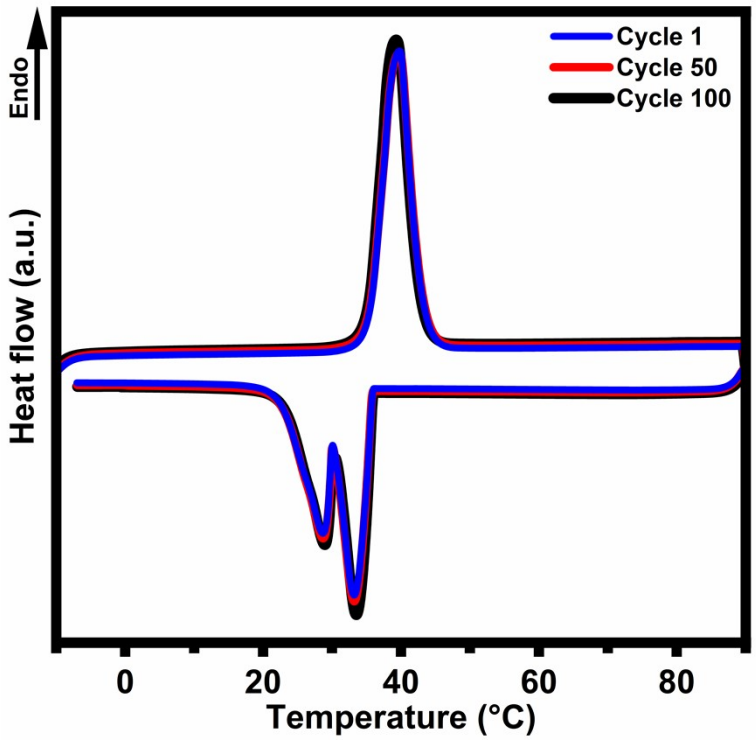

Fig. S5 DSC curves of the HCGA2/tetradecanol at 1st, 50th and 100th heating-cooling cycles.

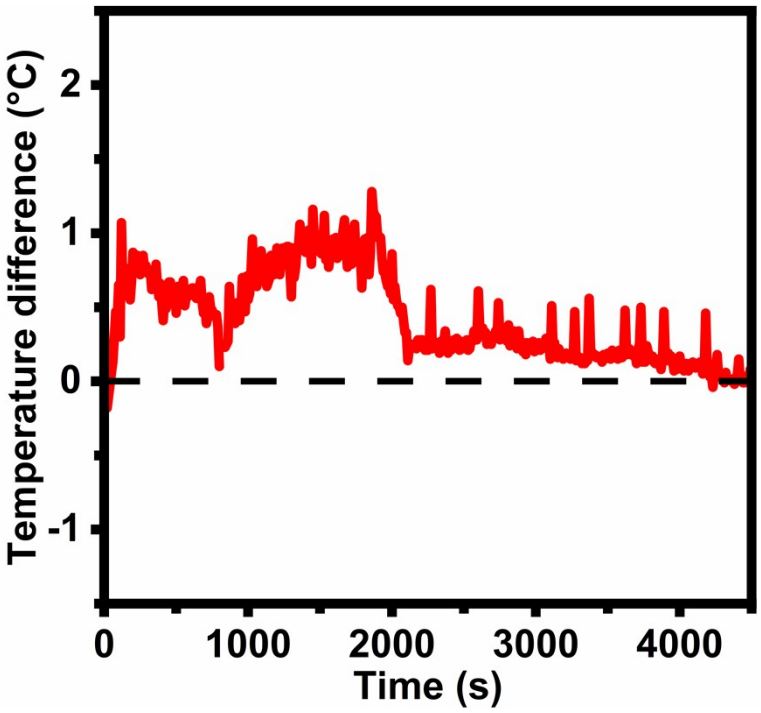

Fig. S6 Temperature differences between the bottom and the top of the HCGA2/tetradecanol during the solar-thermal energy conversion measurement.

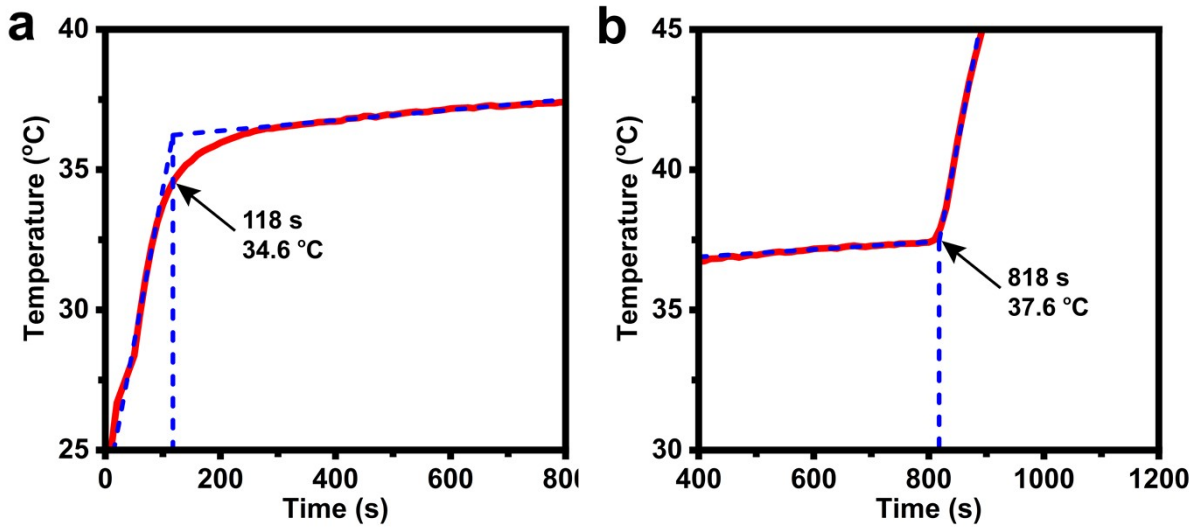

Fig. S7 Determination of (a) beginning position and (b) ending position of the melting process of HCGA2/tetradecanol during solar-thermal conversion by a linear fitting method.

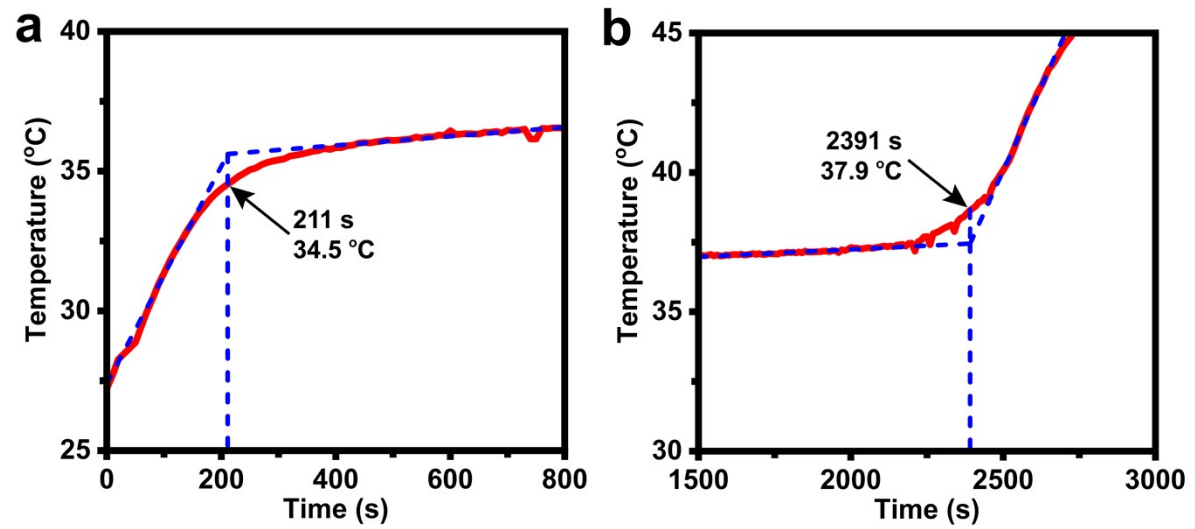

Fig. S8 Determination of (a) beginning position and (b) ending position of the melting process of HGA2/tetradecanol during solar-thermal conversion by a linear fitting method.

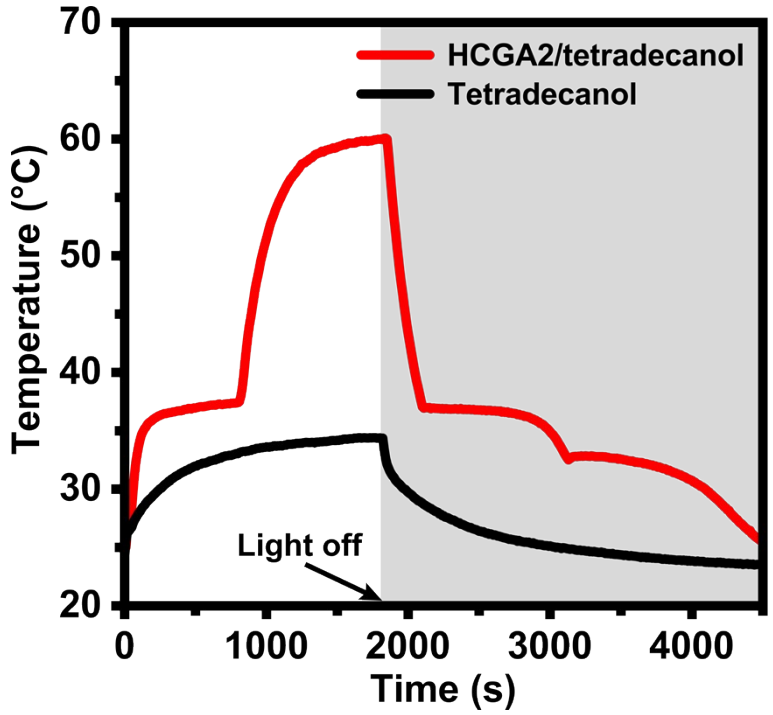

Fig. S9 Temperature-time curves of the bottom of HCGA2/tetradecanol and tetradecanol under a solar light intensity of 100 mW cm^{-2}.

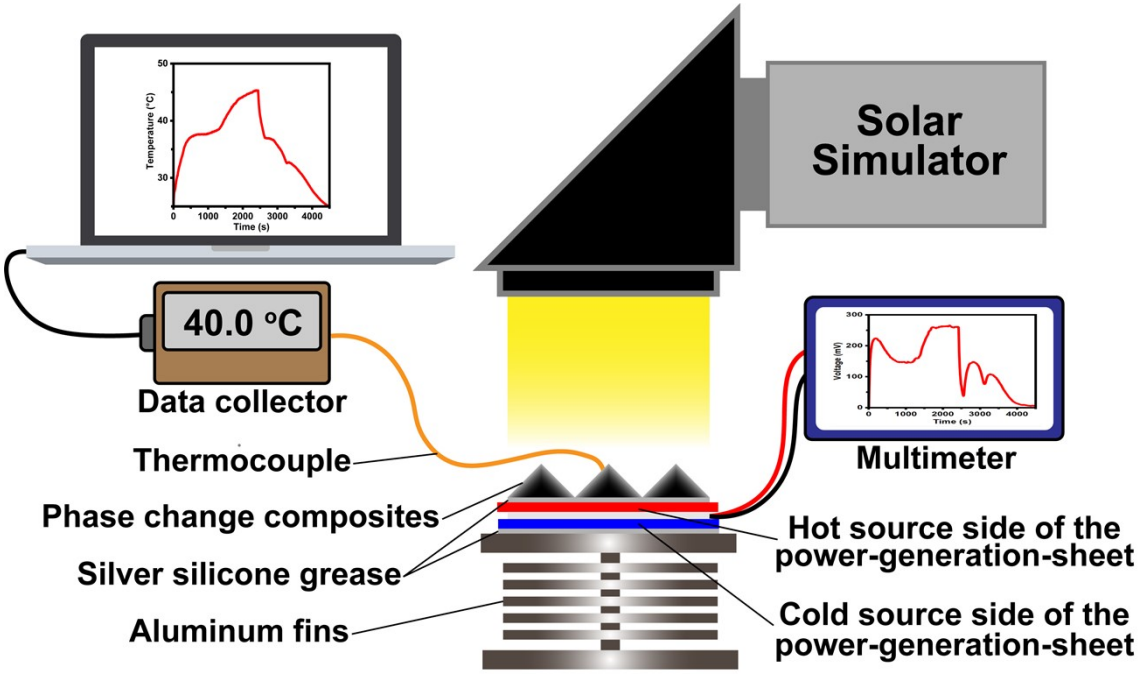

Fig. S10 Schematic of the components and their connections in the solar-thermal-electric energy conversion measurements.

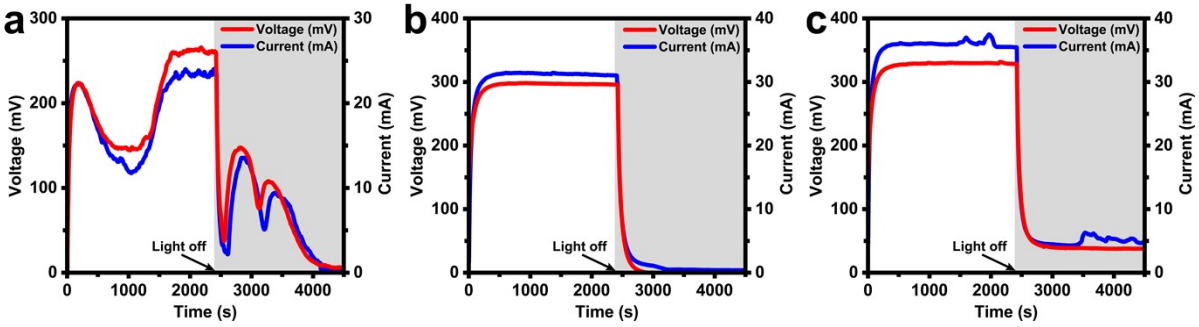

Fig. S11 Voltage-time curves and current-time curves of the STE generator under a solar light intensity of 100 mW cm^{-2} when the aluminum fins were placed in (a) air, (b) water and (c) ice water.

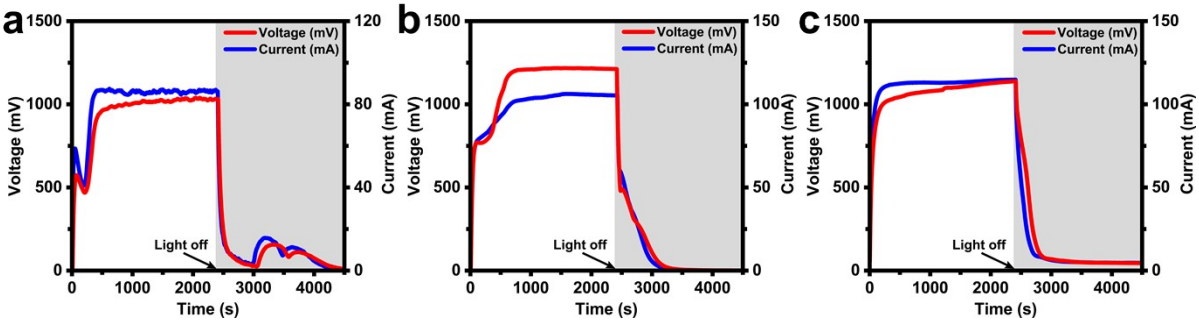

Fig. S12 Voltage-time curves and current-time curves of the STE generator under a solar light intensity of 500 mW cm^{-2} when the aluminum fins were placed in (a) air, (b) water and (c) ice water.

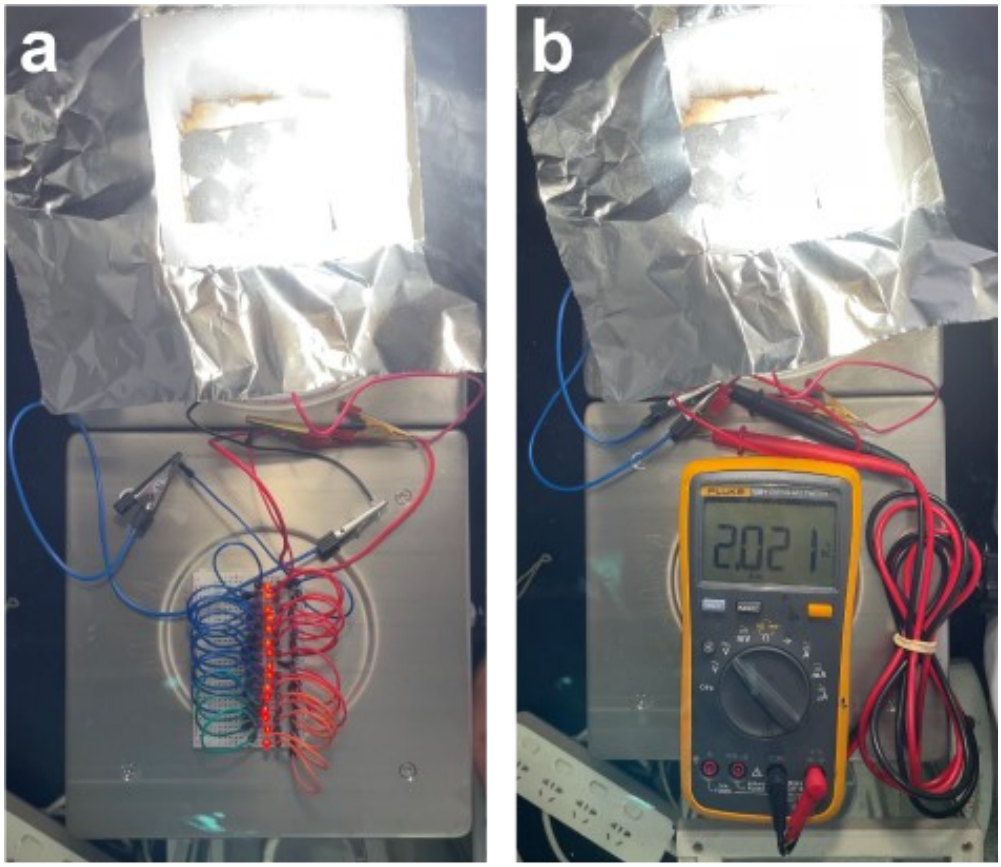

Fig. S13 Digital photographs of (a) LED bulbs lit by the STE generator under a solar light intensity of 1200 mW cm^{-2}, and (b) the output voltage at that moment.

Table S1 T_m, ΔH_m, T_c and ΔH_c of tetradecanol, HCGA1/tetradecanol and HCGA2/tetradecanol.

Samples	T_m (°C)	ΔH_m (J g^{-1})	T_c (°C)	ΔH_c (J g^{-1})
Tetradecanol	35.6	218.0	35.8	212.3
HCGA1/tetradecanol	35.4	212.8	36.0	206.2
HCGA2/tetradecanol	35.8	206.1	36.2	198.4

Table S2 Comparison of maximum output voltages and output currents of the STE generators under certain solar light intensities in this work with those reported in the literature.

Light intensity (mW cm^{-2})	Maximum output voltage (mV)	Maximum output current (mA)	Ref.
Concentrated light by a convex lens	251	64.2	1
Concentrated light by a convex lens	3410	191	2
400	/	~25	3
800	/	~44	3
800	/	~27	4
800	/	~32	5
100	160	/	6
150	210	/	6
300	/	~23	7
400	/	~27	7
800	/	~28	7
200	~144	~14.8	8
100	**~330**	**~36**	**This work**
500	**~1214**	**~114**	**This work**

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