Energy Materials

Supplementary Materials

Epitaxial growth of aligned MoS_2 via One-step CVD method for realizing the ultrasonic field-driven direct current nanogenerators

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Table S1. Comparison of aligned MoS_2 parameters prepared by CVD method

Annealing time	Carrier gas	Orientation rate (%)	Precursor consumption (MoO_3)	Grain size	Ref.
1 h	Ar	Non-single orientation	6 mg	10-15 μm	1
4 h	Ar and O_2	99	/	6-10 μm	2
4 h	Ar	86	/	60 μm	3
4 h	Ar	0° and 60°	30 mg	100 μm	4
6-20 h	Ar and H_2S	88	/	1-5 μm	5
4 h	Ar and O_2	99	Mo sheets	30-50 μm	6
5 h	Ar and O_2	/	Mo foil	20-30 μm	7
1 h	Ar	70	0.5 mg	100-200 μm	This work

Table S2 Some comparisons of TENG performance

Materials	Substrate or packaging material	current	Voltage	Charge	Energy source	Ref.
MoS_2	Si/SiO_2	200 nA	/	/	Ultrasonic waves	8
polymeric films	PDMS	/	26 V	/	Ultrasonic waves	9
Parylene	F-PCB	/	20 V	/	Ultrasonic waves	10

Continue table S2

Materials	Substrate or packaging material	current	Voltage	Charge	Energy source	Ref.
MoS_2	Si_3N_4/Si	11 nA	7.3 V	/	moving NaCl droplet	11
PTFE	/	450 nA	15.6 V	4.5 nC	moving water droplet	12
PTFE	Si	10 μA	79 V	576 nC	sliding gates	13
MoS_2/PTFE	Sapphire	1 mA	120 V	1200 nC	Ultrasonic waves	This work

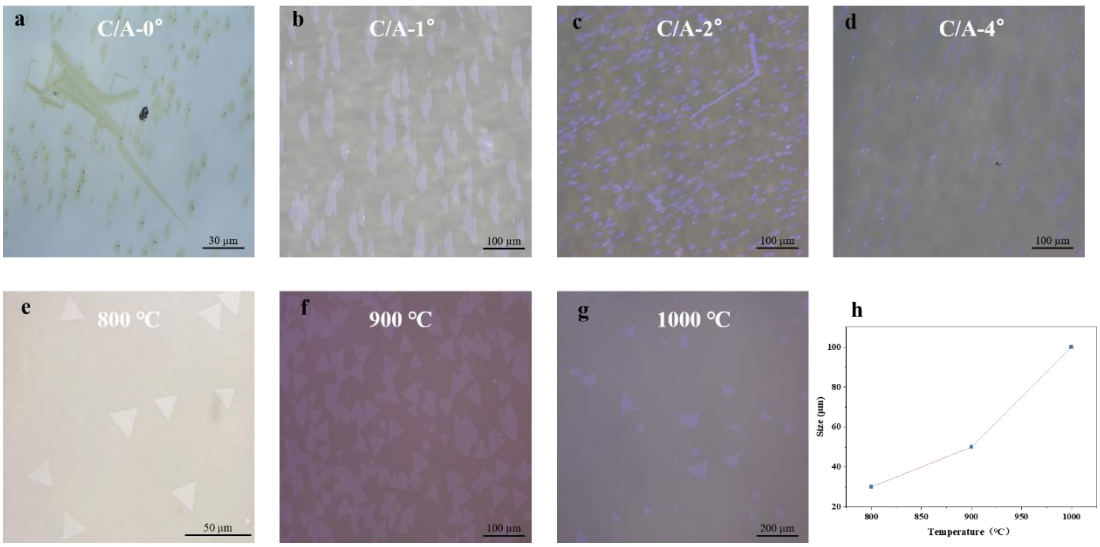

Figure S1. MoS_2 OM images of sapphire grown at different miscut angles (a-d). OM images of MoS_2 grown at different temperatures (e-g). The curve of MoS_2 grain size with temperature (h).

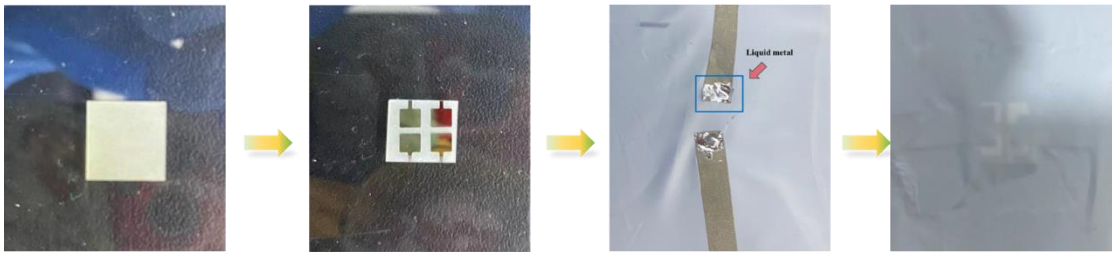

Figure S2 The photo of MoS_2-based TENG

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