

Supplementary Information

Bacterial cellulose/reduced graphene oxide bilayer films for moist-electric power generation

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1 Supplementary Figures

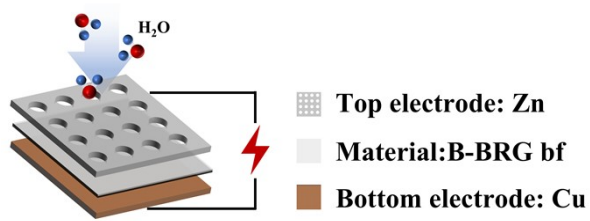


Fig. S1 Assembly diagram of B-BRG bf-based MEG

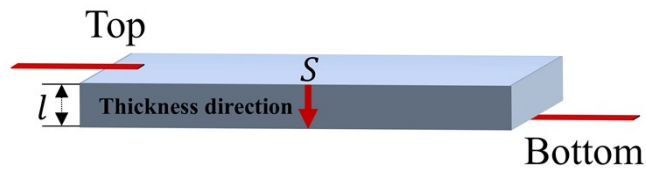


Fig. S2 Schematic diagram for conductivity tests in the thickness direction of films

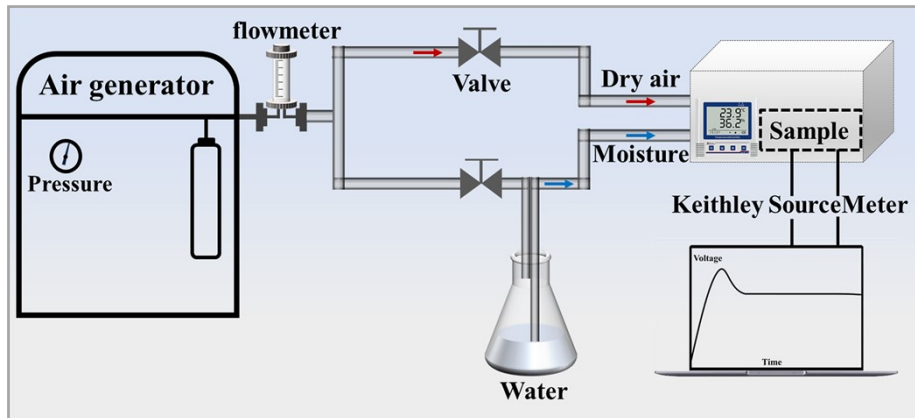


Fig. S3 Schematic diagram of homemade humidity control system

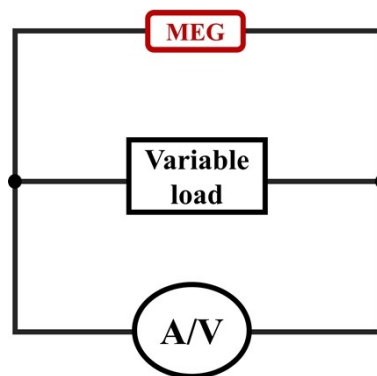


Fig. S4 Schematic diagram of the testing circuit for P_{mo} .

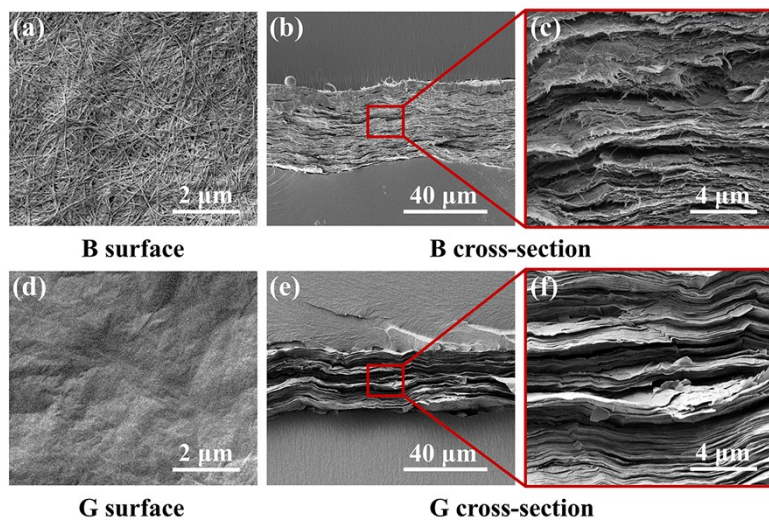


Fig. S5 SEM images of (a-c) B and (d-f) G films surface and cross-section

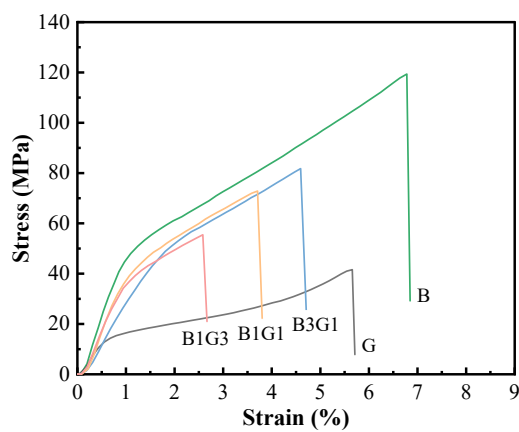


Fig. S6 Stress-strain curve of B, G, and BRG films

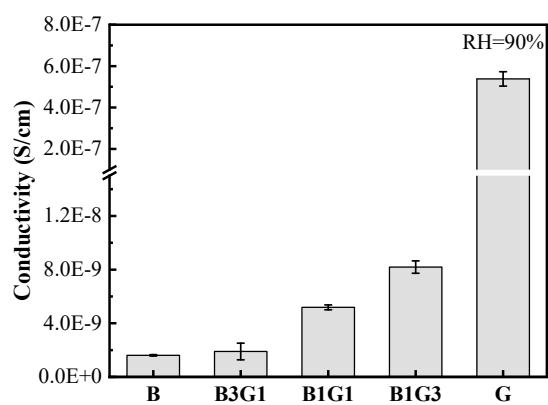


Fig. S7 Conductivity of B, G, and BRG films

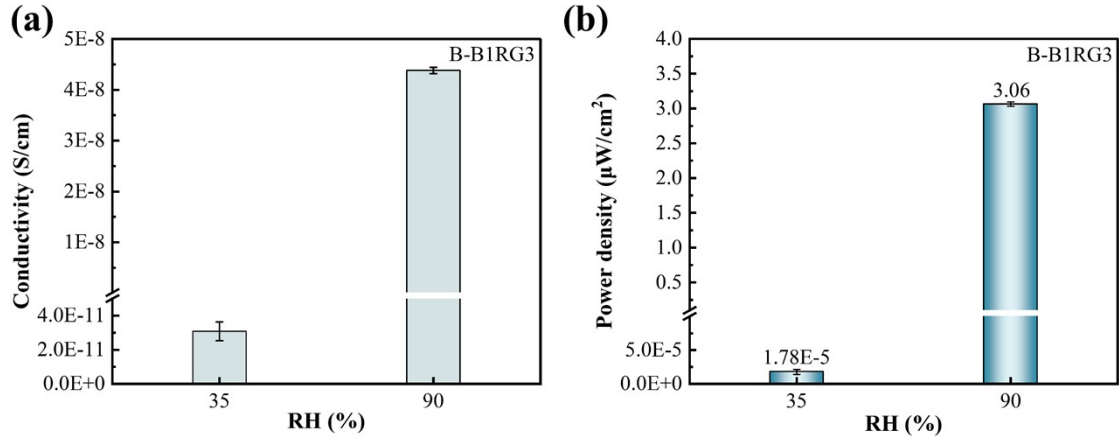


Fig. S8 (a) Conductivity and (b) P_{mo} of B-B1RG3 under different humidity conditions

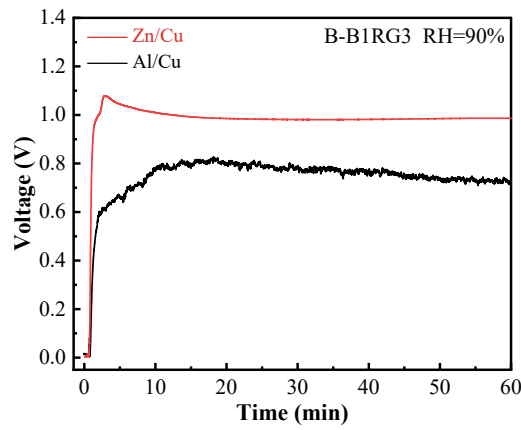


Fig. S9 Dynamic voltage of the B-B1RG3 MEG with Zn/Cu and Al/Cu electrode

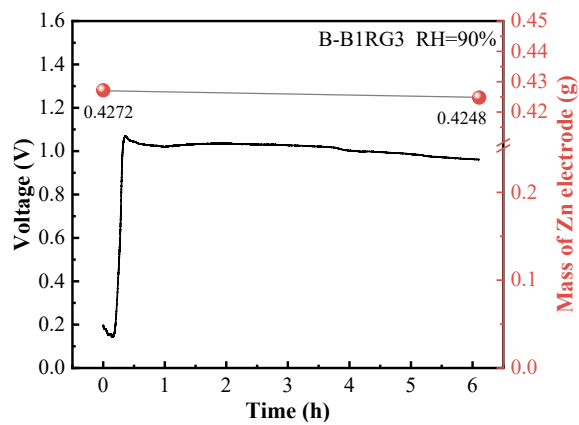


Fig. S10 Dynamic voltage and Zn electrode mass changes of the B-B1RG3 MEG

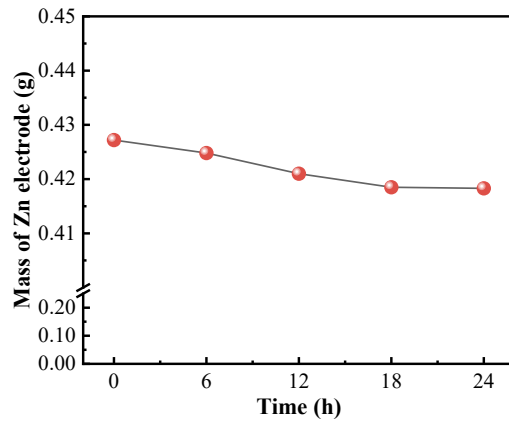


Fig. S11 The mass changes of the Zn electrode

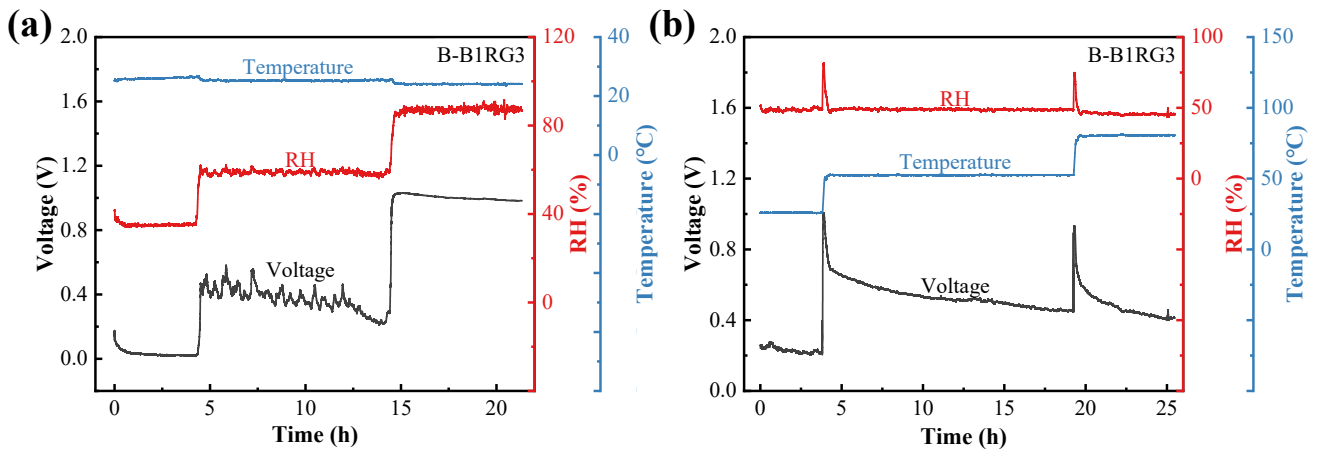


Fig. S12 Dynamic voltage of the B-B1RG3 MEG in different (a) RH and (b) temperature environments.

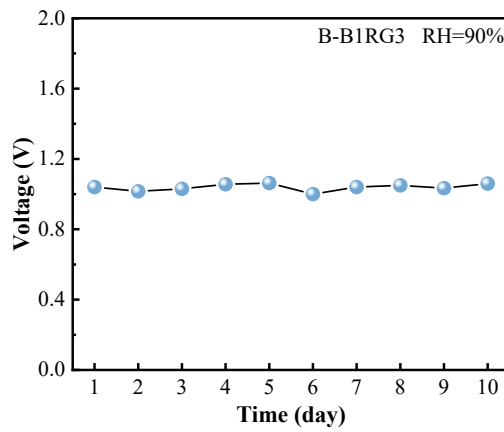


Fig. S13 Voltage output stability of the B-B1RG3 MEG within 10 days

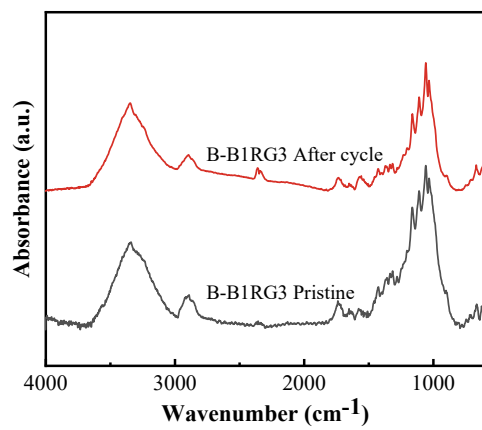


Fig. S14 FTIR of B-B1RG3 film before and after 3 cycles under dry air and moisture (1 h) stimulation.

2 Supplementary Tables

Table S1 The compositions of different BG mf and B-BG bf.

Type	Sample	Total solution mass (g)	Bottom (B)layer solution mass (g)	Top (BG) layer solution mass (g)	Thickness (μm)
BG mf	B	30	30	-	55 ± 1
	G	30	-	30	45 ± 1
	B3G1	30	-	30	60 ± 1
	B1G1	30	-	30	50 ± 1
	B1G3	30	-	30	47 ± 1
B-BG bf	B-B3G1	30	15	15	58 ± 1
	B-B1G1	30	15	15	48 ± 1
	B-B1G3	30	15	15	45 ± 1
	B-B1G3	20	10	10	33 ± 1
	B-B1G3	40	20	20	60 ± 1

Table S2 EDS results of BRG mf

Relative atomic ratio (%)	B	G	B3RG1	B1RG1	B1RG3
C	56.42	63.70	61.47	64.11	67.66
O	43.58	36.30	38.53	35.89	32.34

Table S3 EDS results of B-BRG bf

Relative atomic ratio (%)	B-B3RG1	B-B1RG1	B-B1RG3
C	56.16	59.58	69.60
O	43.84	40.42	30.40