Supporting Information for

A hybrid Biofuel and Triboelectric Nanogenerator for Bioenergy Harvesting

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Supplementary Figures

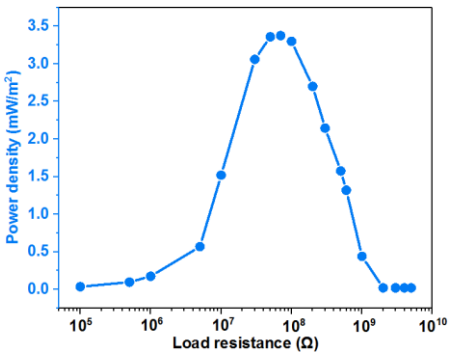

Fig. S1 The dependence of power density on the external load resistance

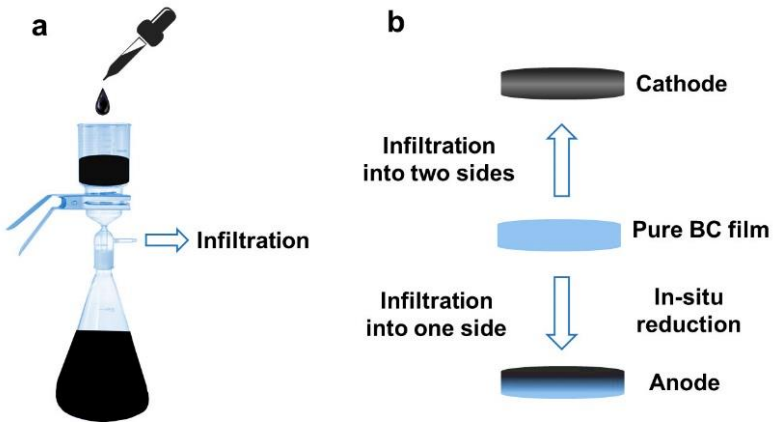

Fig. S2 Infiltration diagram of cathode and anode of GFC

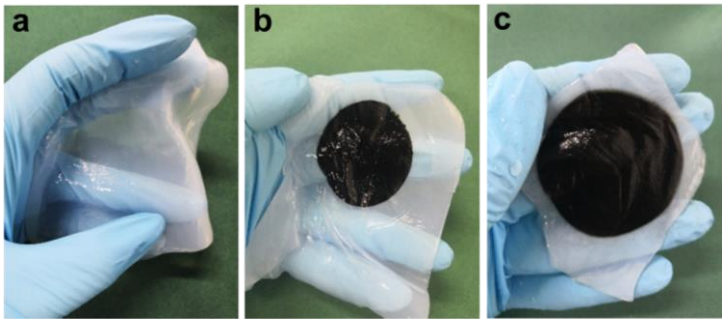

Fig. S3 Images of (**a**) pure BC film, (**b**) Pt-Pd/MWCNTs/BC film and (**c**) MWCNTs/BC/MWCNTs film

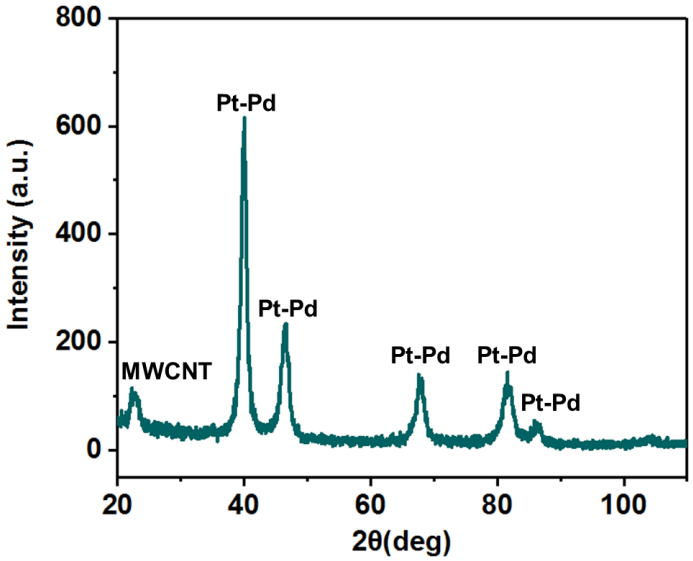

Fig. S4 XRD pattern of Pt-Pd/MWNCTs/BC

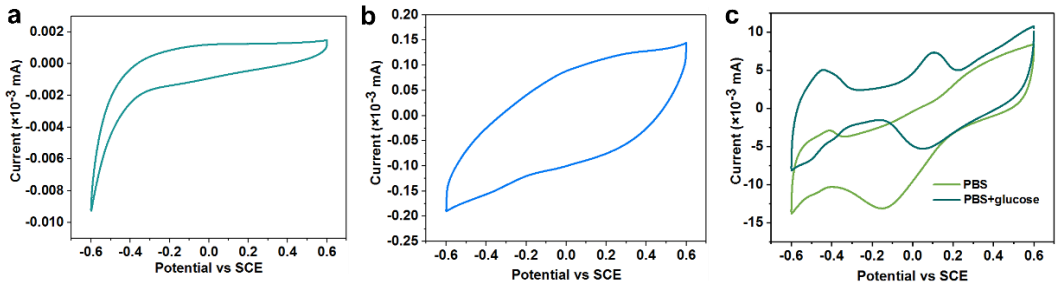

Fig. S5 CV test of (**a**) pure BC film and (**b**) MWCNTs/BC film in PBS solution at 10 mV s^{-1} with glucose. (**c**) CV test of Pt-Pd/MWNCTs/BC film in PBS solution at 10 mV s^{-1} in the absence (green curve) and the presence (cyan curve) of glucose

The CV curves of the pure BC film and MWCNTs/BC film showed capacitive characteristics without redox peaks under external applied voltage from -0.6 to +0.6 V (Fig. S5a, b). The CV curves of Pt-Pd/MWCNTs/BC film showed pseudocapacitive characteristics with redox peaks (Fig. S5c), which proved its ability of oxidizing glucose molecules.

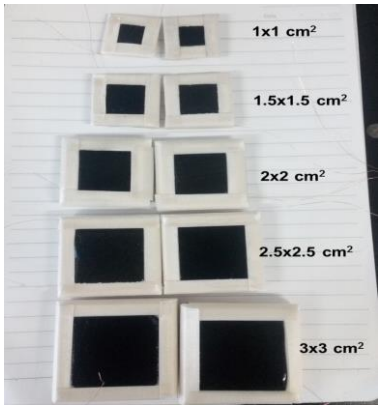

Fig. S6 Independent GFCs with different sizes from 1 × 1 to 3 × 3 cm^2 for performance test

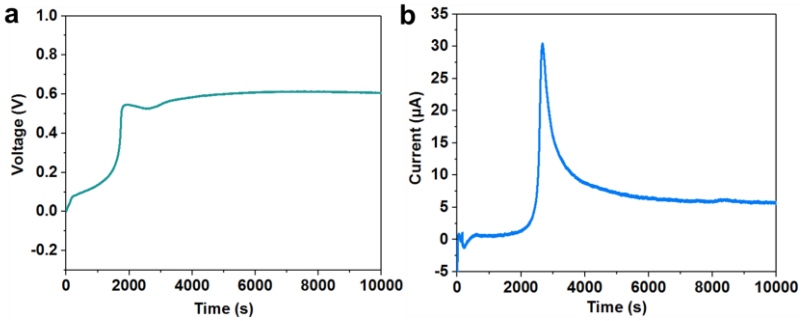

Fig. S7 (**a**) A typical output voltage curve and (**b**) a current curve of GFC with a size of 2 cm ×2 cm. The voltage value and current value were obtained at its stable stage after 5000 s (e.g., 0.6 V and 6 μA)

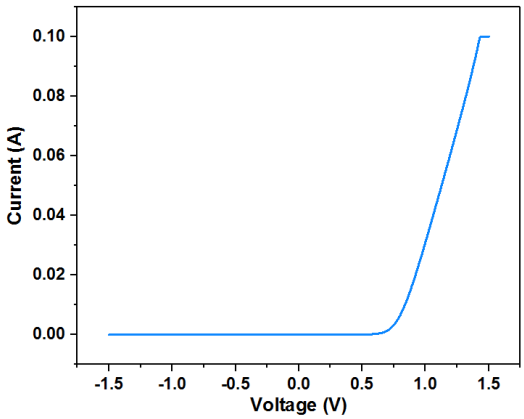

Fig. S8 Rectification character of the used unilateral diode. When the applied voltage was between -1.5 V to 0 V, the current was near to zero. When the applied voltage was between +0.5 V to + 1.5 V, the current rapidly increased to amperes. This asymmetric I-V curve indicated a good rectifying ability of the unilateral diode, which can effectively prevent the reverse charging

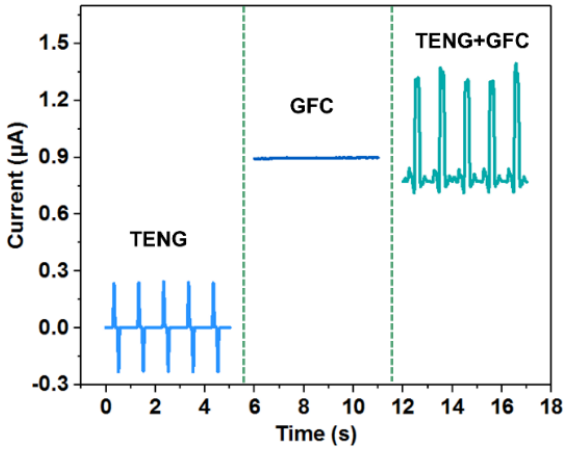

Fig. S9 Output current of unrectified TENG, GFC, and their hybrid device