Flexible interdigital-electrodes based triboelectric generators for harvesting

sliding and rotating mechanical energy

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Online Supporting Information



Figure S1. The schematic diagram of the measuring system.



Figure S2. The potential distribution between electrode A and electrode B stimulated by the COMSOL Multiphysics software corresponding to Figure 2. (a) The initial state, (b) the intermediate state, (c) the electrode B overlapped by PTFE strip, (d) the PTFE strip slides away from electrode B, (e) the final state (the initial state). (f) The potential difference (voltage) plot versus time corresponding to (a)-(c).



Figure S3. The voltage tendency with the load of 700 M Ω in 0.3s.



Figure S4. The output current at velocity of 1.45 m/s after three thousand cycles. The performance is almost as perfect as the beginning.



Figure S5. The integral method for calculation of charge transfer quantity. The charge transfer quantity of certain time is calculated by the integral method.

The calculation of the output power

The output power is calculated by the following equation:

 $P = I^2 R$

Take the maximum output power as example. When the external load is 2 M Ω , the power value reaches the maximum. *I*=88.35 μ A, *R*=2 M Ω , *S_{effective}*=120 cm² where *S_{effective}* is the total effective action area.

$$P_{max} = I^2 R = (88.35 \times 10^{-6})^2 \times 2 \times 10^6 = 1.561 \times 10^{-1} (W)$$
$$P_{max} / S_{effective} = 13.01 (W/m^2)$$