

# High Power Density Tower-like Triboelectric Nanogenerator for Harvesting Arbitrary Directional Water Wave Energy

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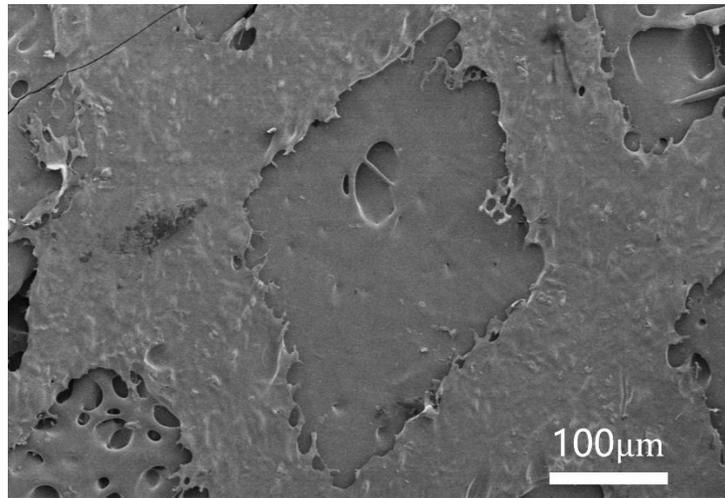
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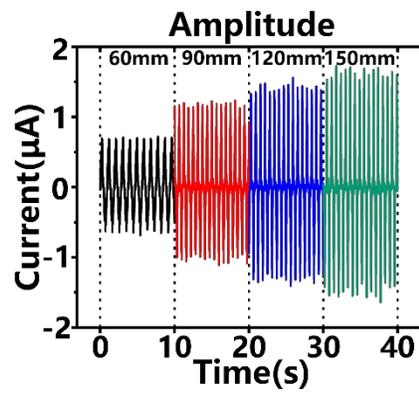
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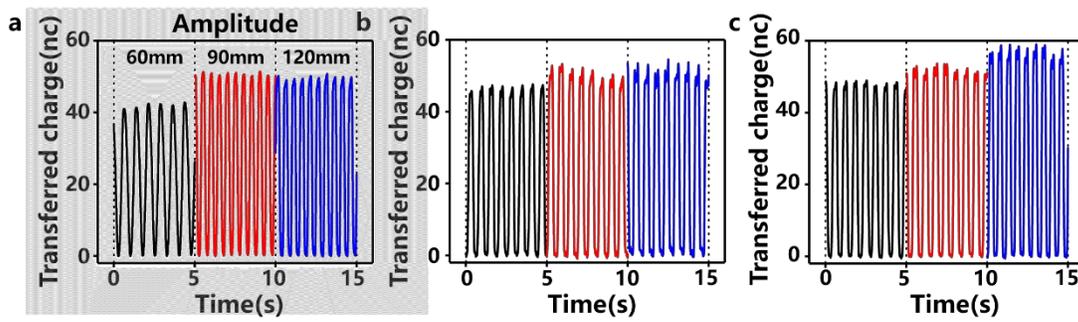
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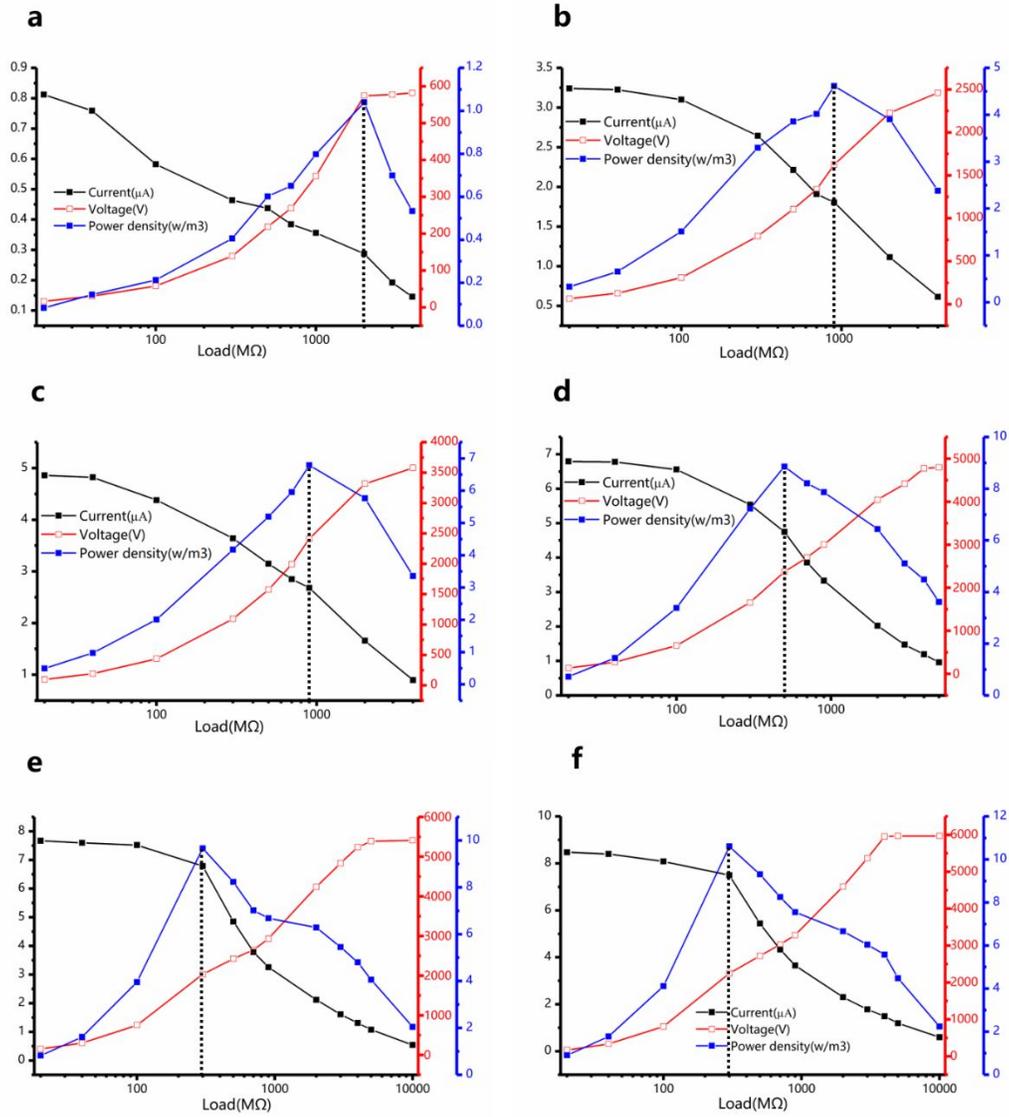
**Figure S1:** The SEM image of nylon film coated on the 3D printed arc surface.



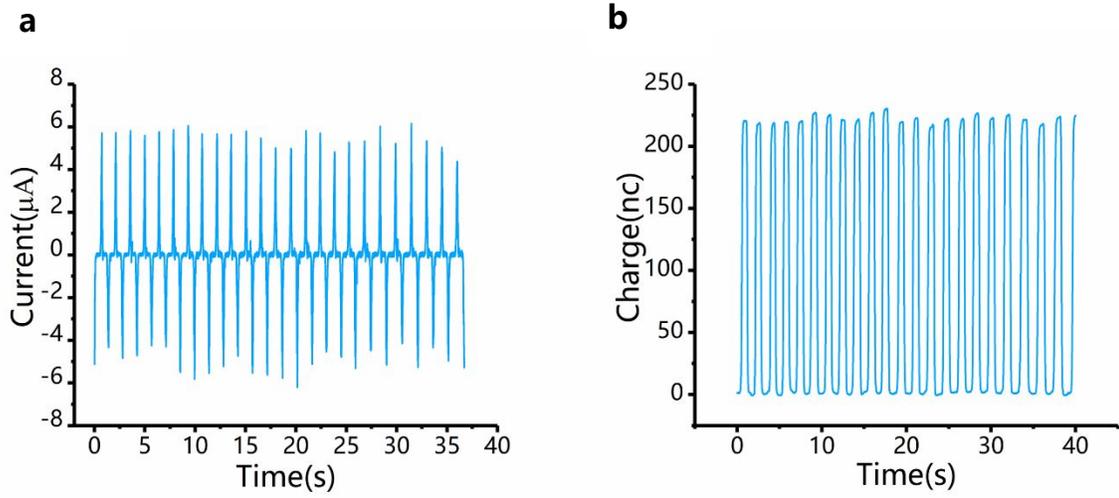
**Figure S2:** The short-circuit current of the TENG unit on the amplitude ranging from 60 mm to 150 mm at the constant frequency of 1.6 Hz.



**Figure S3:** The transferred charge of the TENG unit with the tubular block diameter of (a)  $D = 94 \text{ mm}$ , (b)  $D = 104 \text{ mm}$ , and (c)  $D = 114 \text{ mm}$ .



**Figure S4:** Dependence of the output voltage and current, and power density for T-TENG with (a) 1 units, (b) 4 units, (c) 6 units, (d) 8 units, (e) 9 units, and (f) 10 units on the resistance of the load.



**Figure S5:** The output (a) current and (b) transferred charge of the T-TENG under wave excitation in a water wave tank.