

## Supporting Information

### **Coaxially double helix structured fiber-based triboelectric nanogenerator for effectively mechanical energy harvesting**

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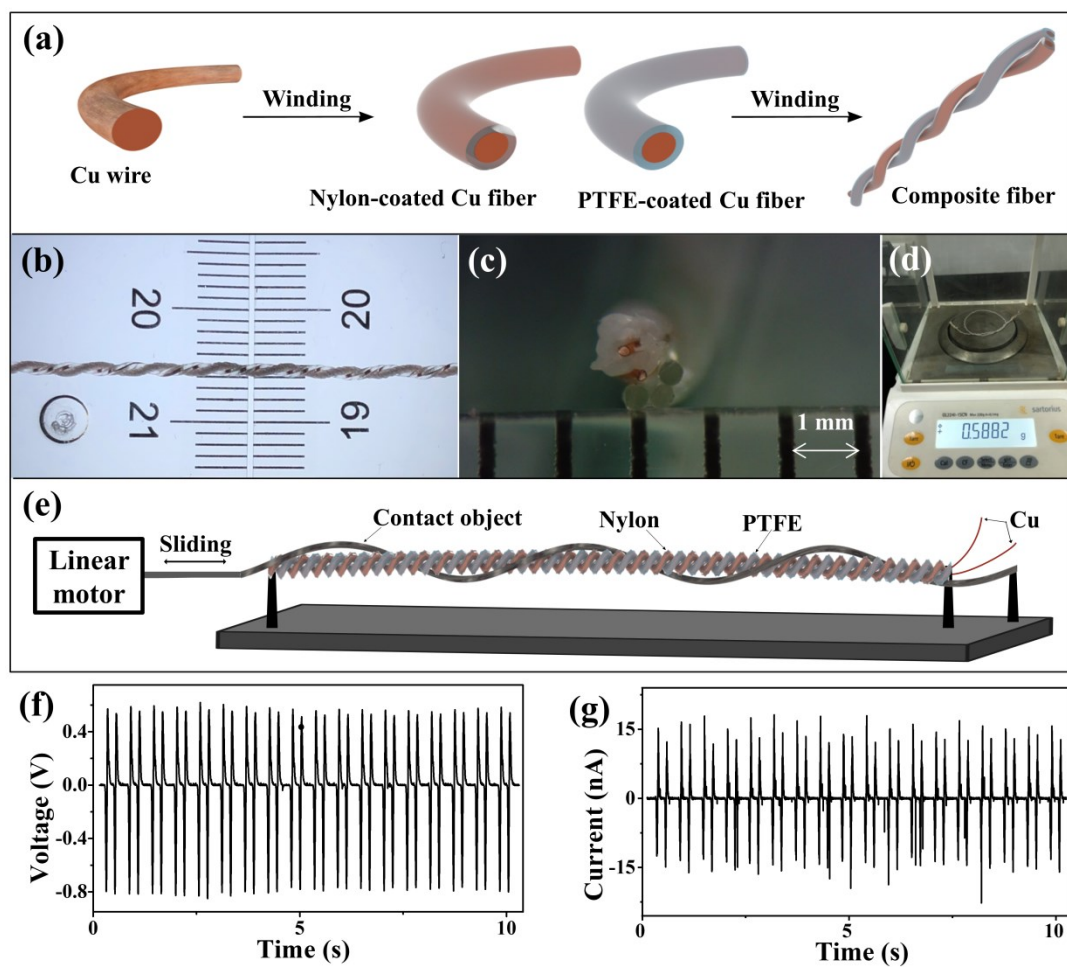
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**Table 1.** The detailed structural information of the FTNG under lateral sliding working mode.

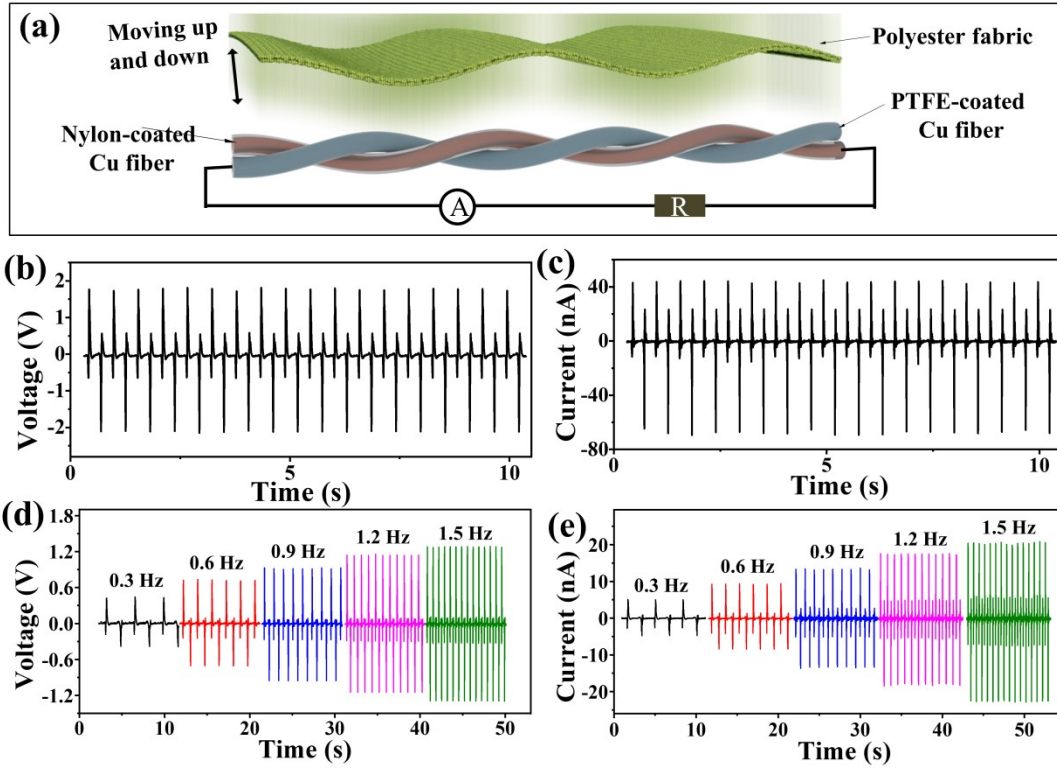
<b>FTNG</b>	<b>diameter</b>	<b>D=1.22 mm</b>
<b>polyester thread</b>	<b>wrapping number</b>	<b>n=5</b>
	<b>thread pitch</b>	<b>l=15 mm</b>
	<b>The length of the thread for one round wrapping</b>	<b><math>L' = \sqrt{(\pi D)^2 + l^2} \approx 15.48 \text{ mm}</math></b>
	<b>The total length of the thread for five round wrapping</b>	<b><math>L = 5L' \approx 77.41 \text{ mm}</math></b>
	<b>diameter</b>	<b>d=0.38 mm</b>
<b>relative sliding</b>	<b>actual contact area</b>	<b><math>S = L \cdot d \approx 29.41 \text{ mm}^2</math></b>

**Table 2.** The detailed structural information of the FTNG under vertical contact-separation working mode.

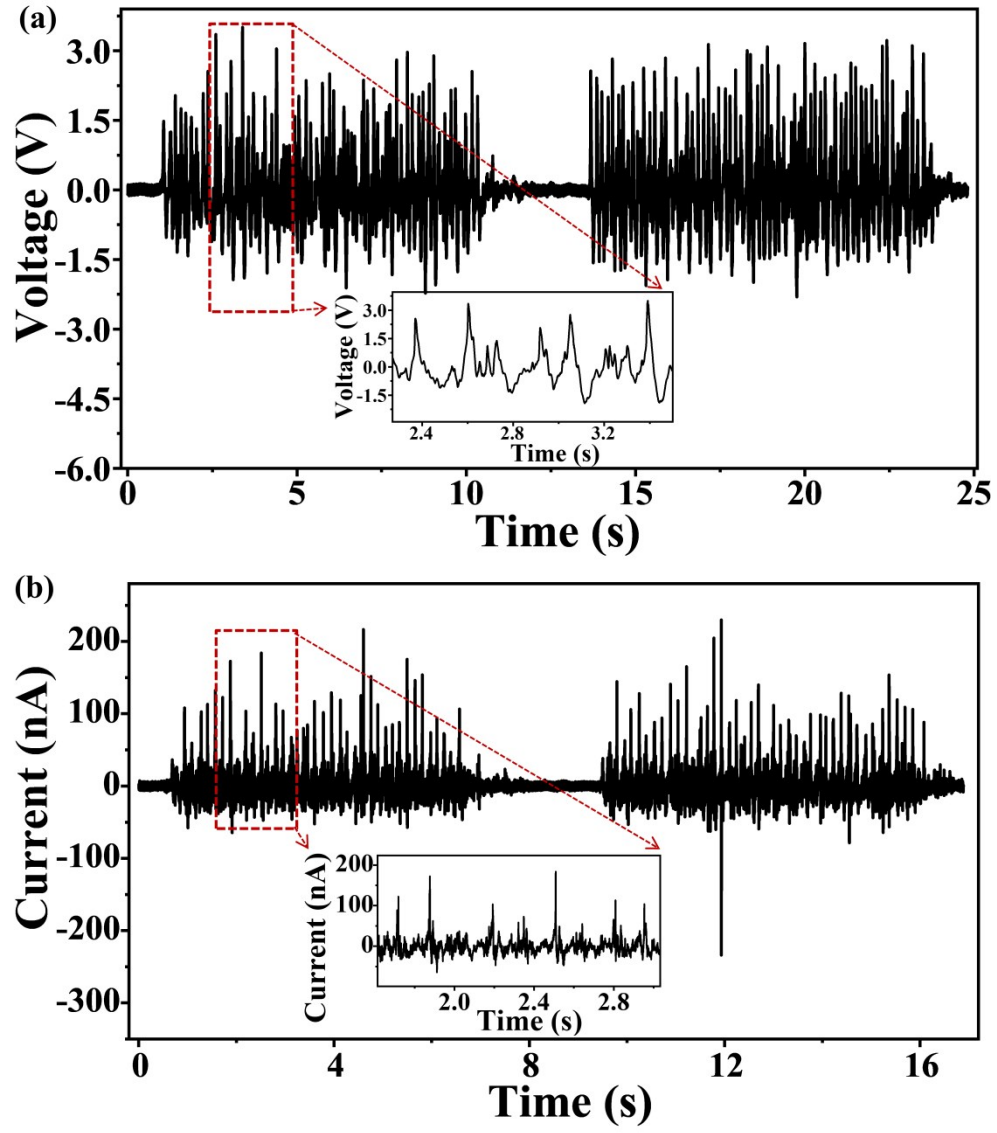
<b>FTNG</b>	<b>diameter</b>	<b>D=1.22 mm</b>
	<b>length</b>	<b>l=75 mm</b>
<b>polyester thread fabric</b>	<b>length</b>	<b>L=1.90 mm</b>
	<b>width</b>	<b>w=40 mm</b>
<b>contact-seperating</b>	<b>actual contact area</b>	<b><math>S = D \cdot w = 48.80 \text{ mm}^2</math></b>



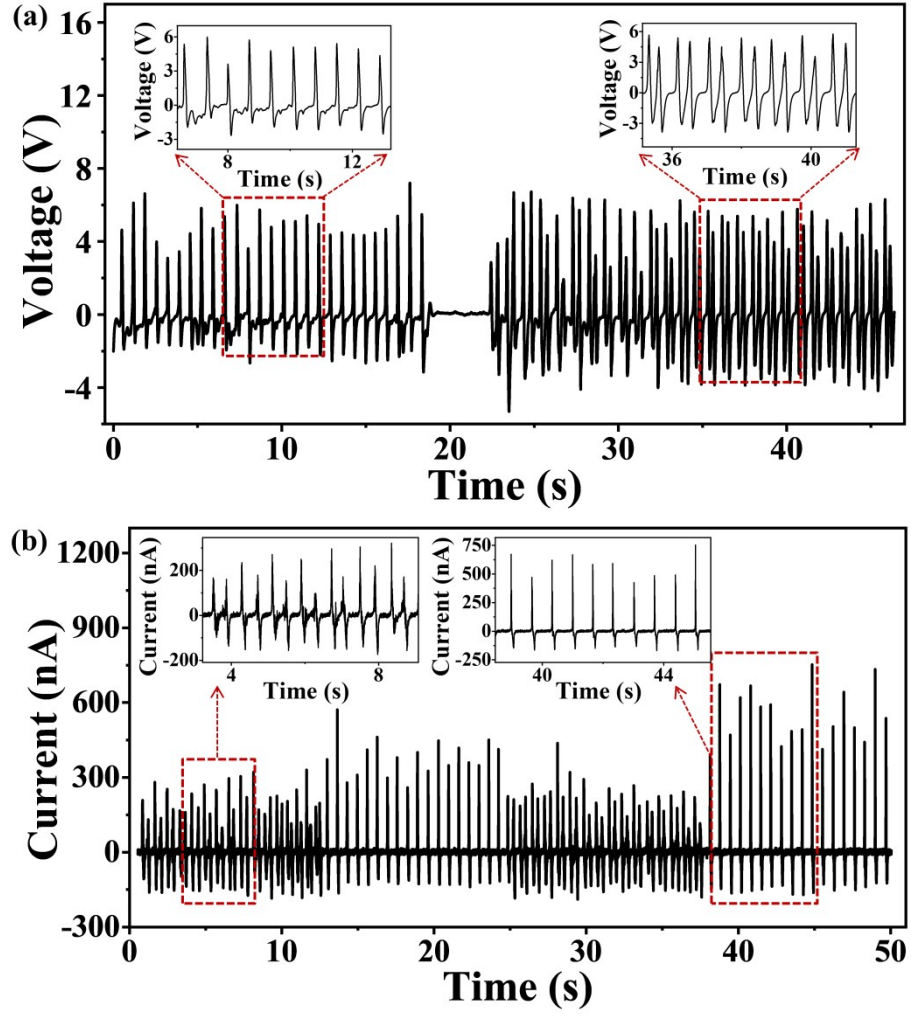
**Figure S1.** (a) Schematic diagram illustrating the fabricating process of the FTNG. (b) The lateral image and (c) the cross-sectional image of the FTNG. (d) The weight of a FTNG. (e) Structure and working process of the FTNG under lateral sliding mode. (f) Output voltage and (g) output current of the FTNG under frequency of 1.8 Hz with the displacement of 10 mm.



**Figure S2.** (a) Vertical contact-separation working mode of the FTNG. (b) Output voltage and (c) output current of the FTNG sliding under frequency of 1.8 Hz with the displacement of 20 mm. (d) Output voltage and (e) output current of the FTNG under different contact-separating frequency.



**Figure S3.** Enlarged view of the (a) output voltage and (b) output current of the FTNG working on the wrist.



**Figure S4.** Enlarged view of the (a) output voltage and (b) output current of the FTNG working on the cloth.