

Supporting Information

**PEO/cysteine composite nanofiber-based triboelectric nanogenerator for tiny
mechanical energy harvesting**

Yijun Hao¹, Jiayi Yang¹, Xiaopeng Zhu¹, Keke Hong¹, Jiayu Su¹, Yong Qin², Wei Su¹,
Hongke Zhang¹, Chuguo Zhang^{1,*}, and Xiuhan Li^{1,*}

*1. School of Electronic and Information Engineering, Beijing Jiaotong University,
Beijing, 100044, P.R. China*

*2. State Key Laboratory of Rail Traffic Control and Safety, Beijing Jiaotong University,
Beijing, 100044, P.R. China*

**Corresponding author. E-mail: cgzhang@bjtu.edu.cn; lixuhan@bjtu.edu.cn*

Supplementary Figures

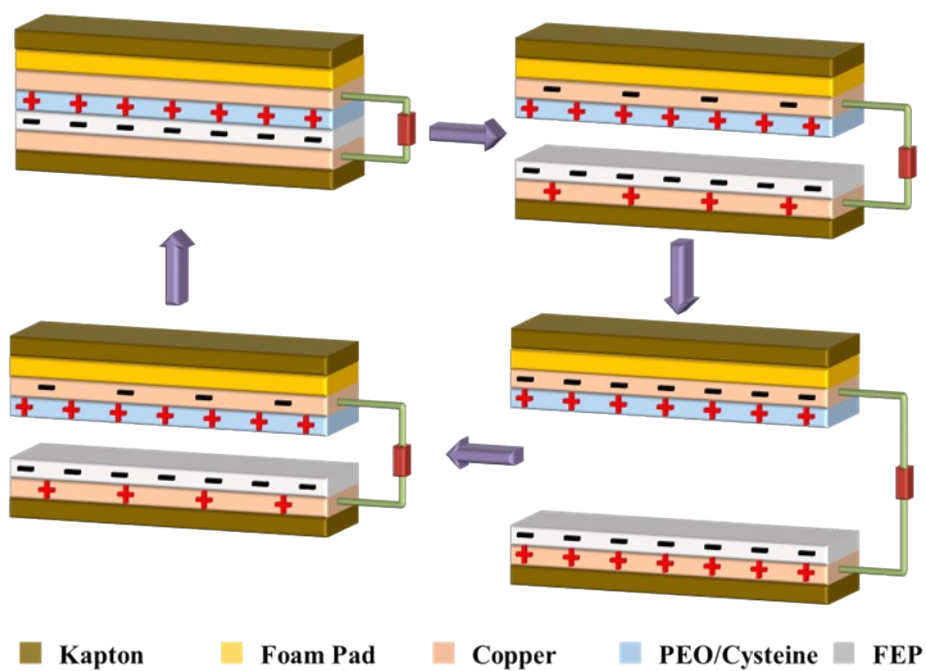


Fig. S1 Working mechanism of TENG.

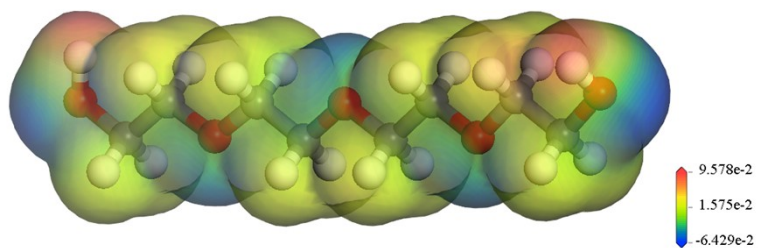


Fig. S2 PEO molecule simulation. Red and blue areas are corresponding to potential.

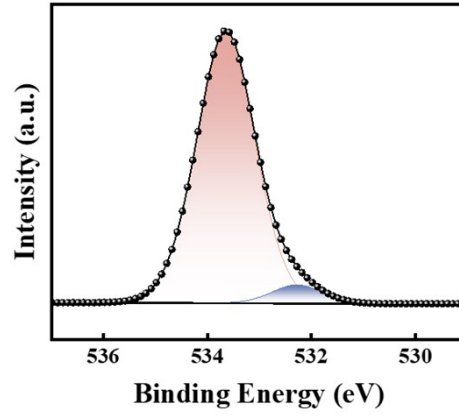


Fig. S3 O 1s core-shell spectra of PCF.

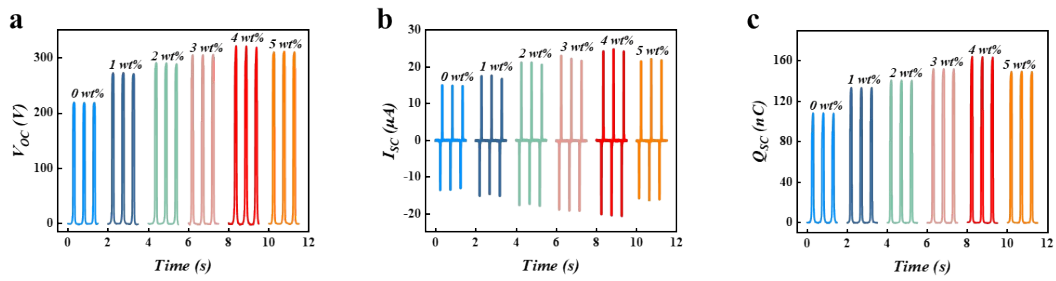


Fig. S4 PC-TENG' s electrical performance testing. (a) V_{OC} , (b) I_{SC} , and (c) Q_{SC} of the PC-TENG with varying cysteine mass percentages.

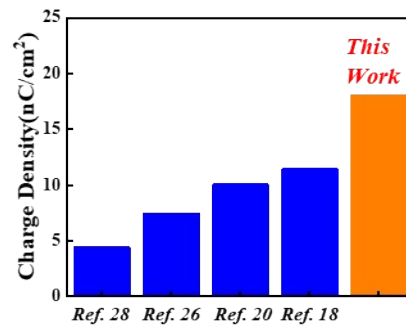


Fig. S5 Surface transferred charge density of PC-TENG and previous biodegradable material-based TENGs.

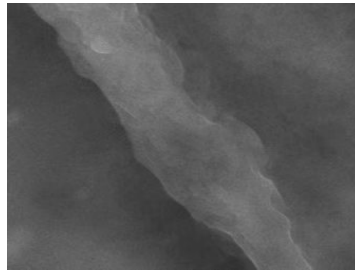


Fig. S6 SEM of single PCF fiber with 5 wt% cysteine.

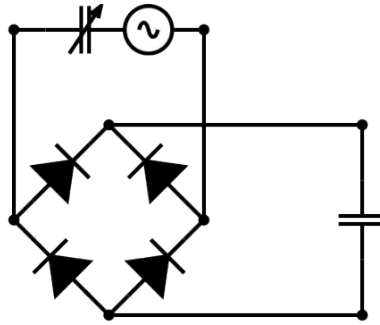


Fig. S7 Full-wave rectification circuit.

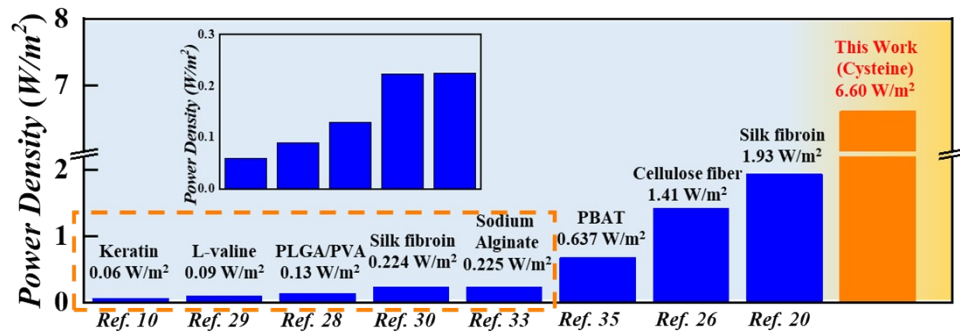


Fig. S8 Power density of PC-TENG and previous biodegradable material-based TENGs.

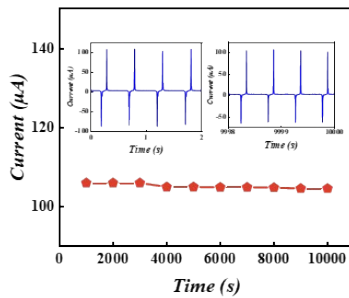


Fig. S9 10 k cycles stability test of MF-TENG.

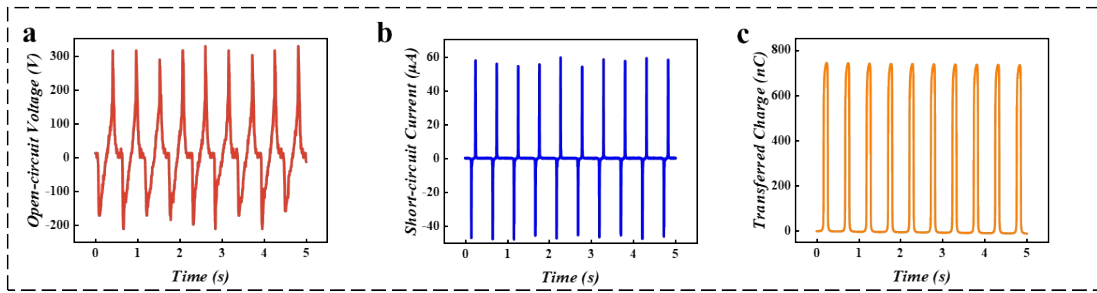


Fig. S10 MF-TENG electrical output by clapping.

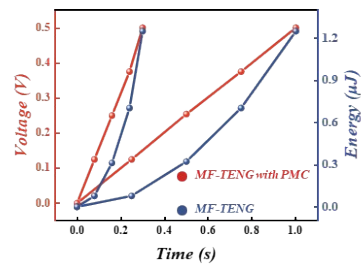


Fig. S11 Bio-mechanical power collected by MF-TENG with/without PM circuit.

Note S1: Related information about MF-TENG

The length from the first layer to the fourth layer is 2, 3, 4, 5 cm respectively, and the width of the device is 5 cm. When the device is placed on the ground, the angle with the ground is 45° .