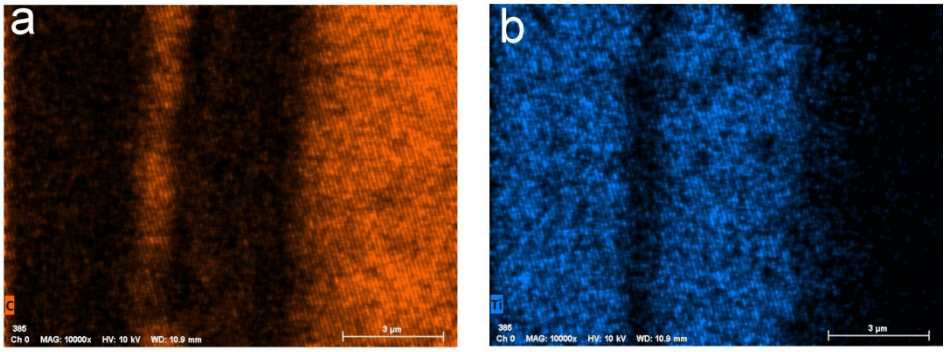


Figure S1. The element distribution of MCM thin film. (a) The C element distribution. (b) The Ti element distribution.

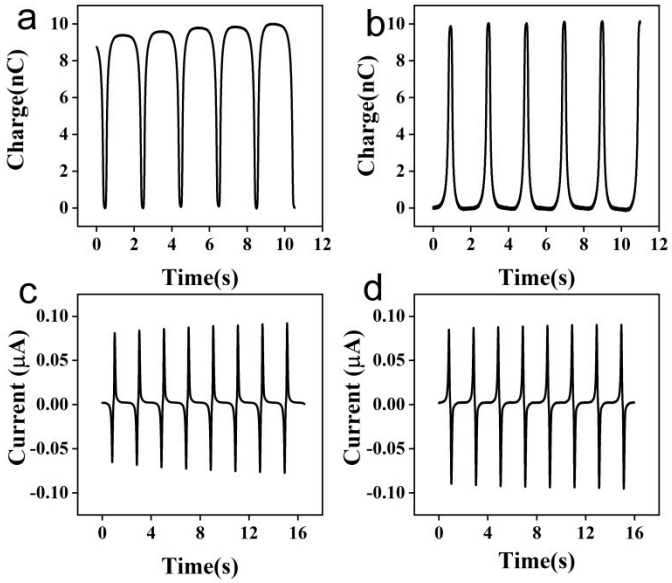


Figure S2. The switching polarity test of the transferred charges and output current of the TENG. (a-b) Transferred charges and (c-d) Output current when forward-connected (left) and reverse-connected (right) to measument system.

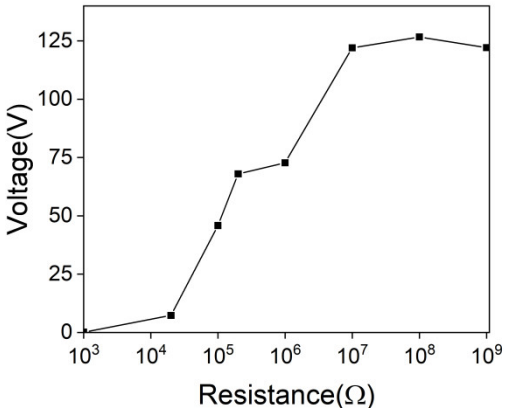


Figure S3. The relationship between the output voltage and load resistances.