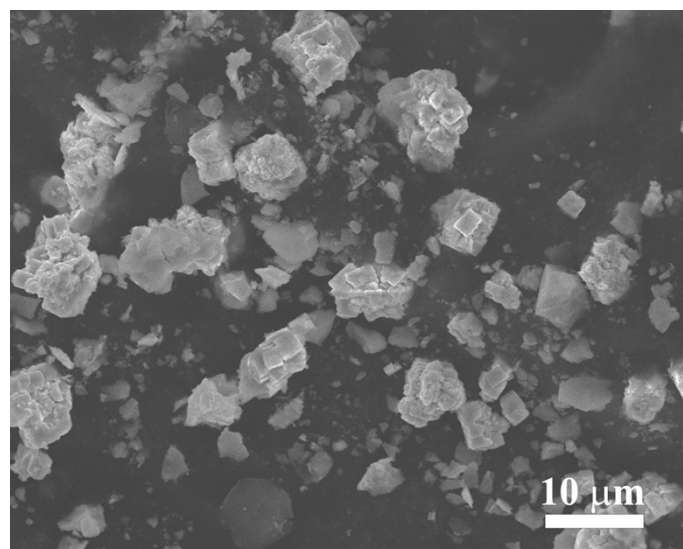
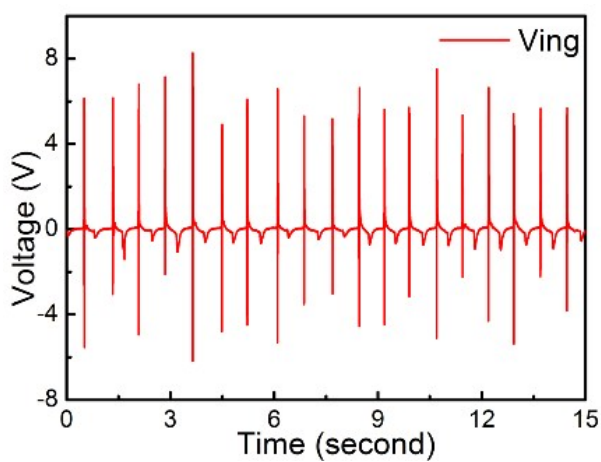


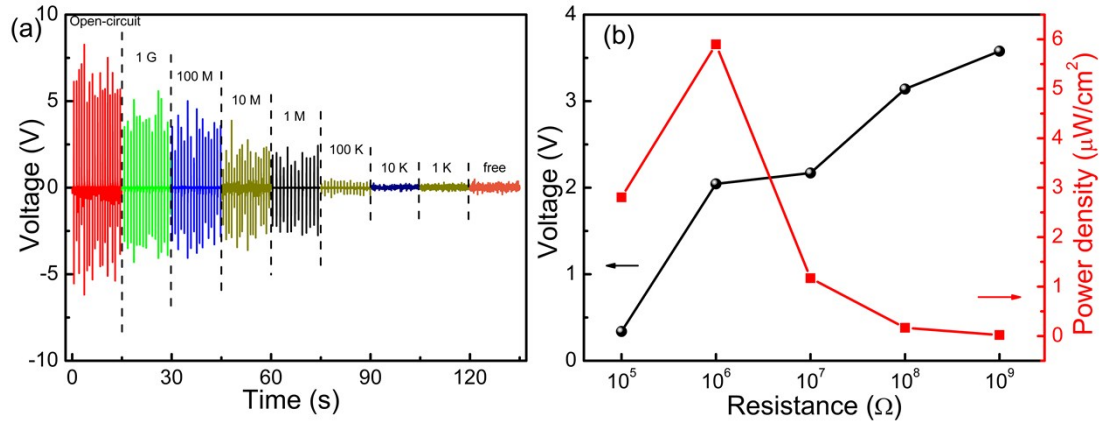
### Supplementary Information



**Figure 1S.** The SEM image of the samples which were not attached on the substrate after the hydrothermal reaction with PVA of 0.10 g.



**Figure 2S.** The open-circuit voltage generated by the PZT NRAs when the device was knocked by human fingers.



**Figure 3S.** The voltage generated by the PZT NRAs to the external electrical load with different resistance when the device was knocked by human fingers. (a) The voltage signal; (b) The variation of output voltage and average power density with the load resistance.