

## ***Supporting Information:***

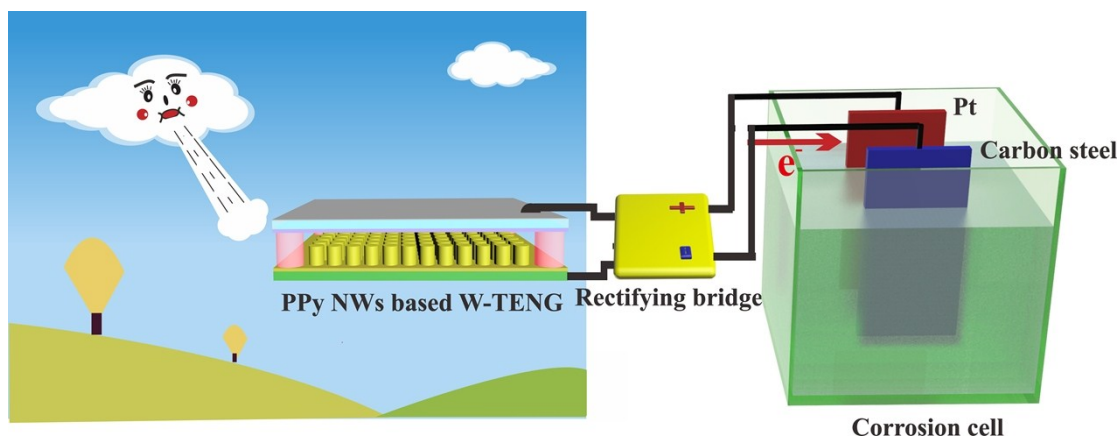
### **Conducting polymer PPy nanowires based triboelectric nanogenerator and its application for self-powered electrochemical cathodic protection**

*Siwen Cui<sup>a,b</sup>, Youbin Zheng<sup>a</sup>, Jun Liang<sup>a</sup>, Daoai Wang<sup>a,\*</sup>*

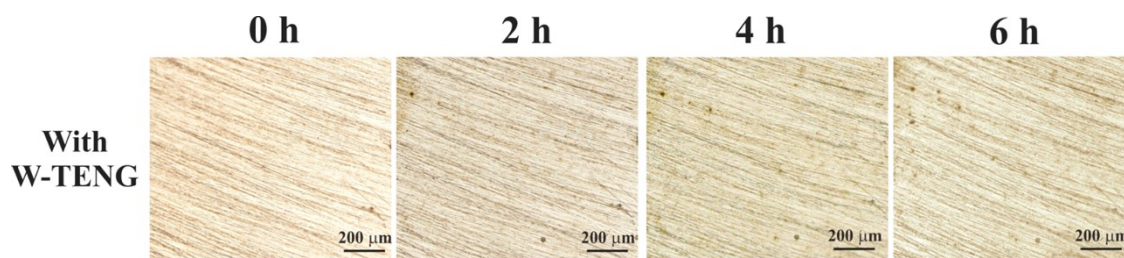
<sup>a</sup>State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics,  
Chinese Academy of Sciences, Lanzhou 730000, China;

<sup>b</sup>University of Chinese Academy of Sciences, Beijing, 100049, China

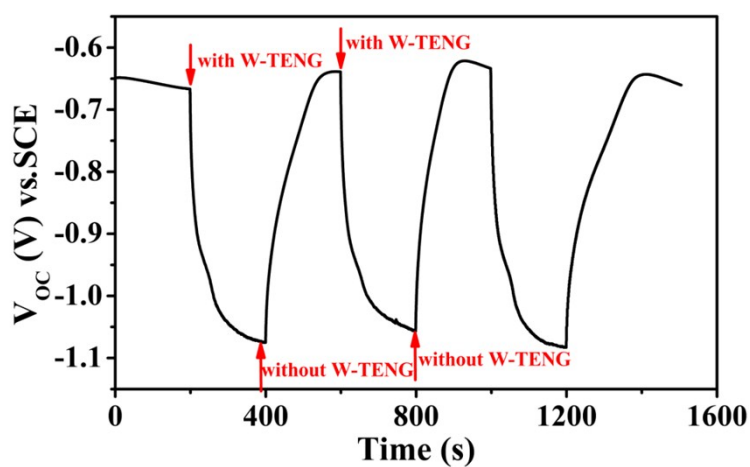
\*Corresponding Author, E-mail: [wangda@licp.cas.cn](mailto:wangda@licp.cas.cn)



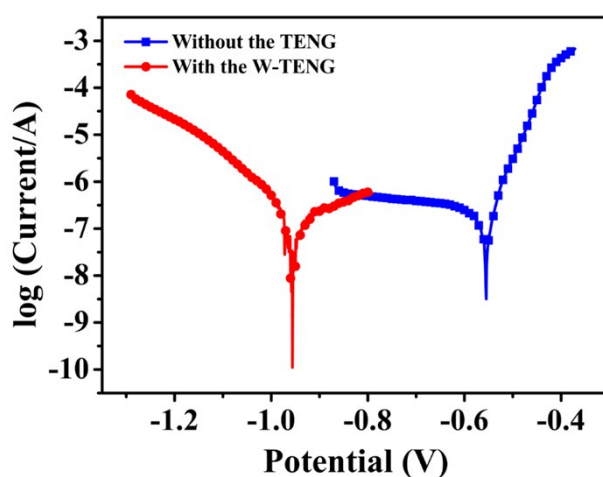
**Figure S1.** The device structure of the cathodic protection system powered by PPy NWs based W-TENG.



**Figure S2.** Microscope images of the Q235 carbon steel immersed in 3.5 wt % NaCl solution for 2 h, 4 h and 6 h, separately, which connected with PPy NWs based W-TENG.



**Figure S3.** OCP changes of Q235 carbon steel coupled with and without the PPy NWs based W-TENG.



**Figure S4** Polarization curves of Q235 carbon steel connected with and without the PPy NWs based W-TENG.

