

Supporting Information

Eco-Friendly Gelatin Based Triboelectric Nanogenerator for Self-Powered PANI Nanorods/NiCo₂O₄ Nanospheres Ammonia Gas Sensor

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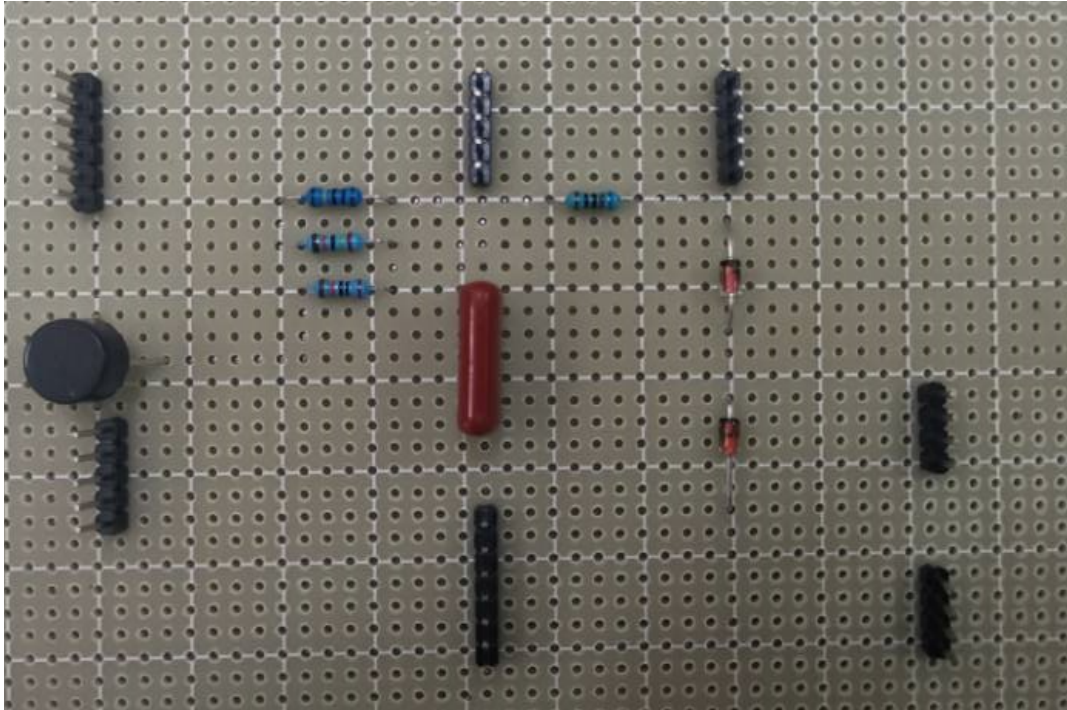


Figure S1. The physical image of the rectification and voltage regulation circuit module.

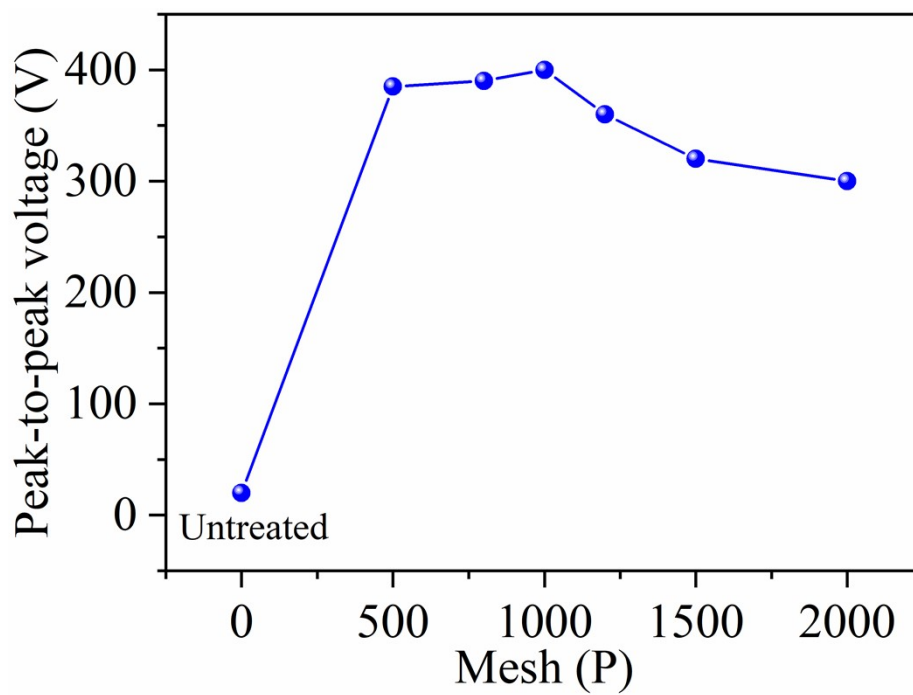


Figure S2. Output performance of the GP-TENG based on gelatin films prepared with abrasive papers of different meshes as templates.

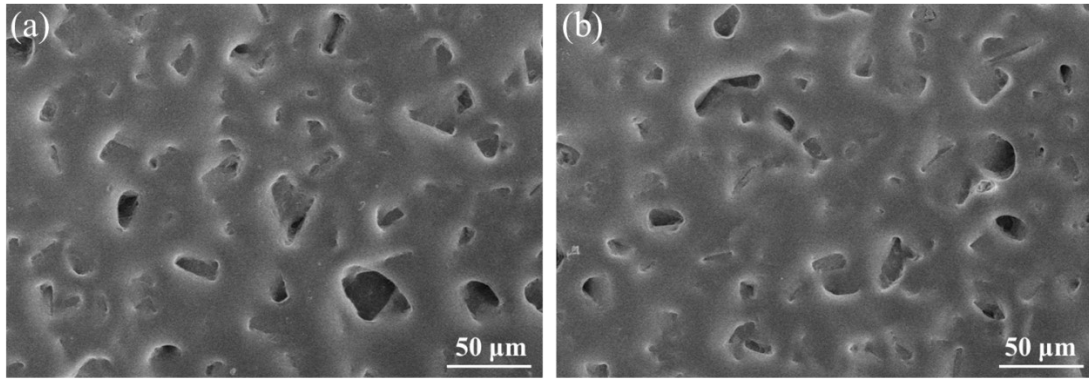


Figure S3. (a-b) SEM images of the nanostructured gelatin film prepared with P1000 abrasive paper.

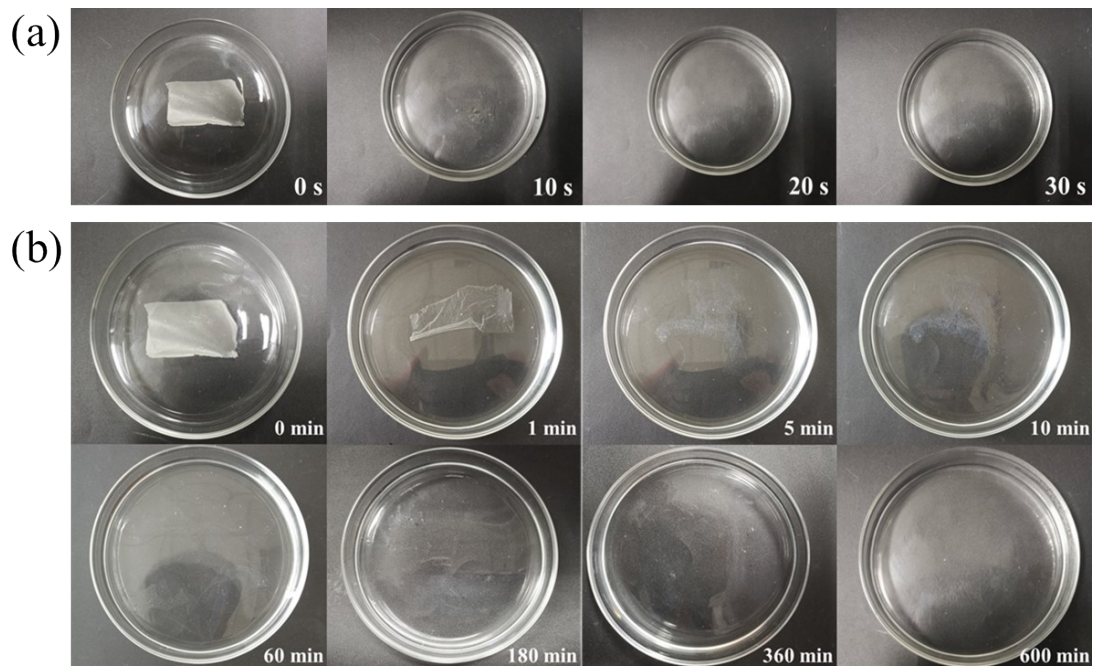


Figure S4. The degradation process of gelatin films in (a) hot water and (b) cold water.

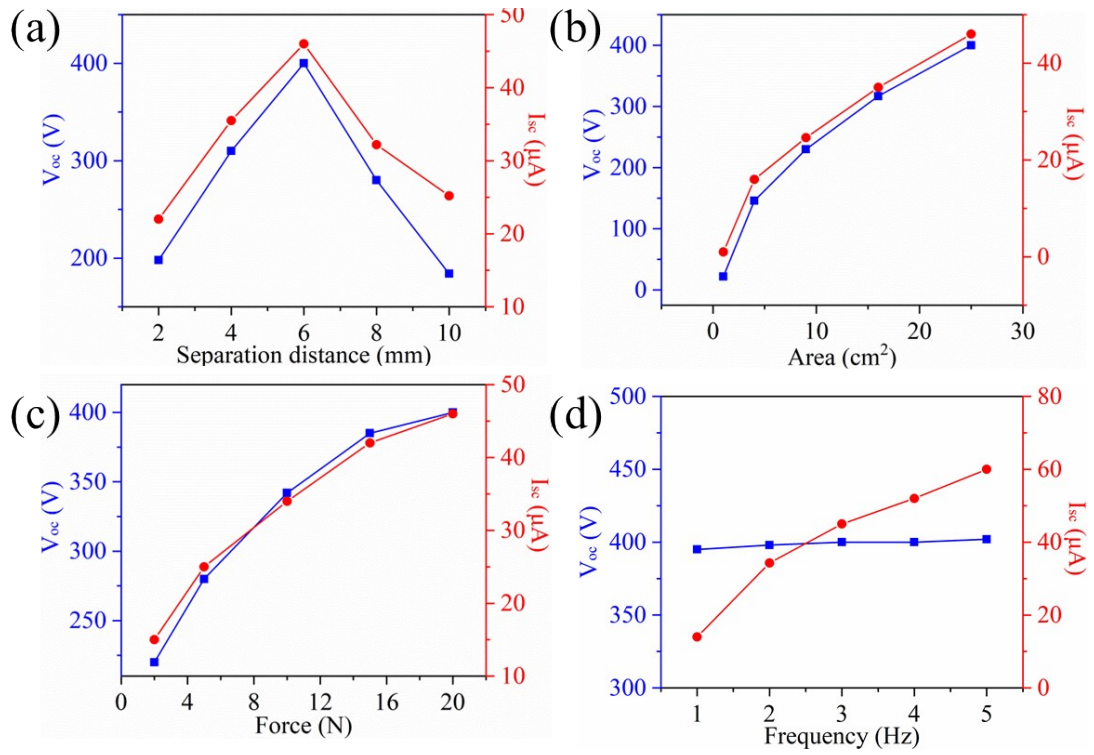


Figure S5. Performance optimization of the GP-TENG by varying: (a) initial separation distance, (b) device area, (c) force, and (d) vibration frequency.

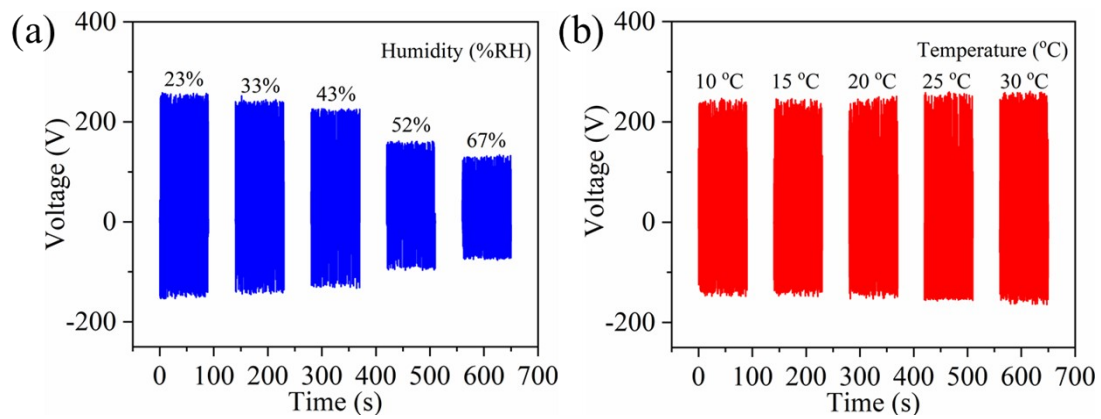


Figure S6. (a) The cycling stability of the GP-TENG at different relative humidity and 25°C. (b) The cycling stability of the GP-TENG at different temperatures and 23% RH.

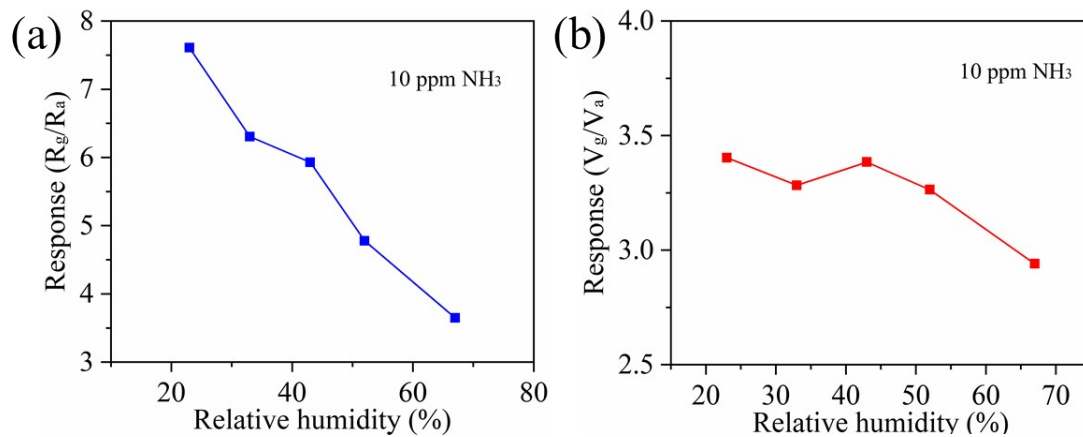


Figure S7. (a) The response (R_g/R_a) of the PANI/NiCo₂O₄ gas sensor towards 10 ppm NH₃ under different humidity environments (23-67% RH). (b) The response (V_g/V_a) of the GPAS under different humidity environments (23-67% RH).

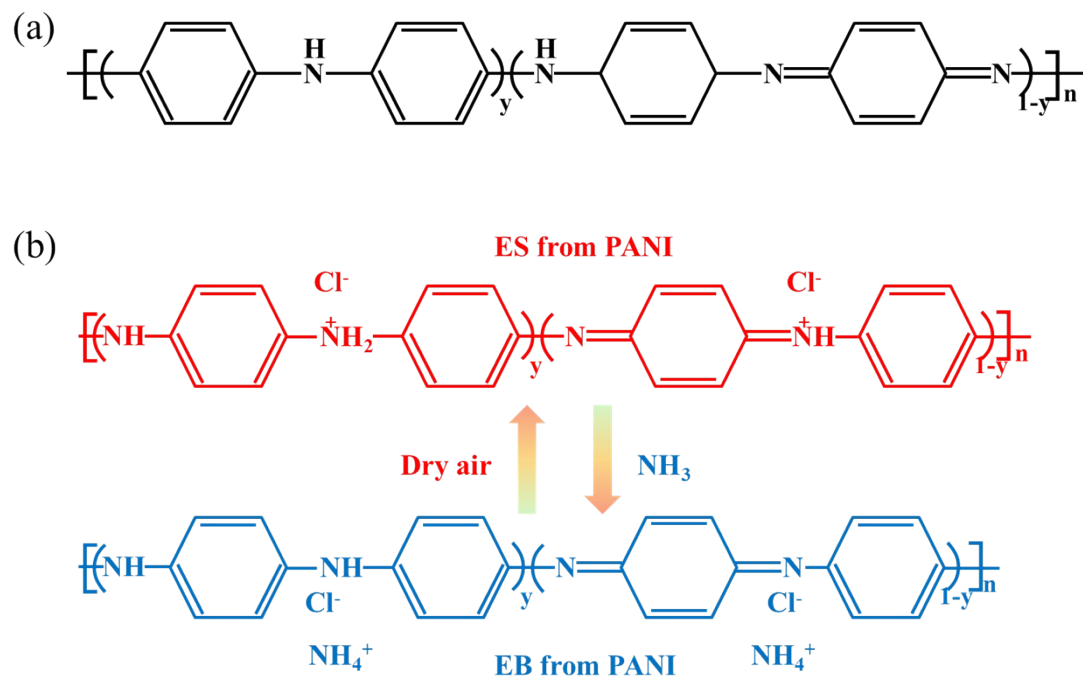


Figure S8. (a) Molecular structure model of eigenstate polyaniline. (b) The reaction mechanism model of HCl doped ES form PANI with NH_3 molecules to EB form PANI.