

Supporting Information

Smart Strain Sensing Organic-Inorganic Hybrid Hydrogels with Nano Barrium Ferrite as Cross-linker

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S1. SEM Images of Barium Ferrite Nanoparticles

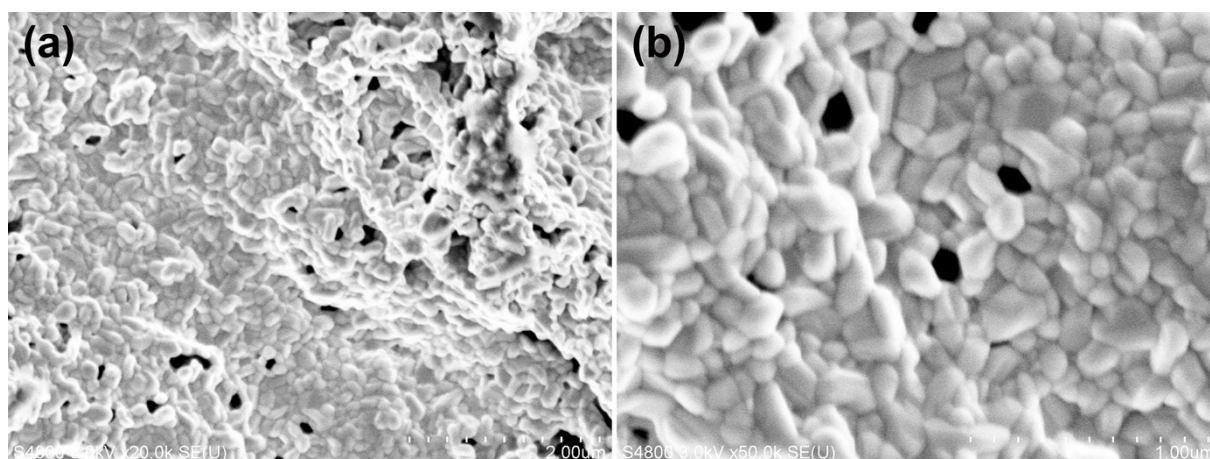


Fig. S1 SEM images of barium ferrite nanoparticles.

S2. Digital Photo of BaFe₁₂O₁₉/PAA Hydrogel with Thickness of 1 mm

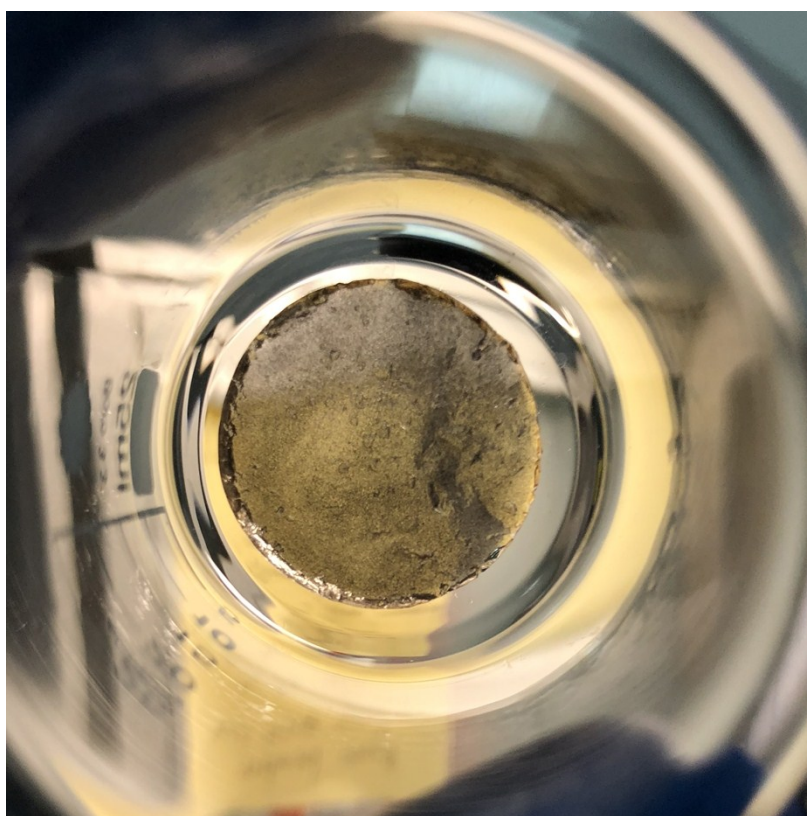


Fig. S2 Digital photo of BaFe₁₂O₁₉/PAA hydrogel with thickness of 1 mm, the transparent hydrogel illustrates the uniform dispersion of BaFe₁₂O₁₉ within PAA matrix.

S3. TGA curves of BaFe₁₂O₁₉/PAA Hydrogels

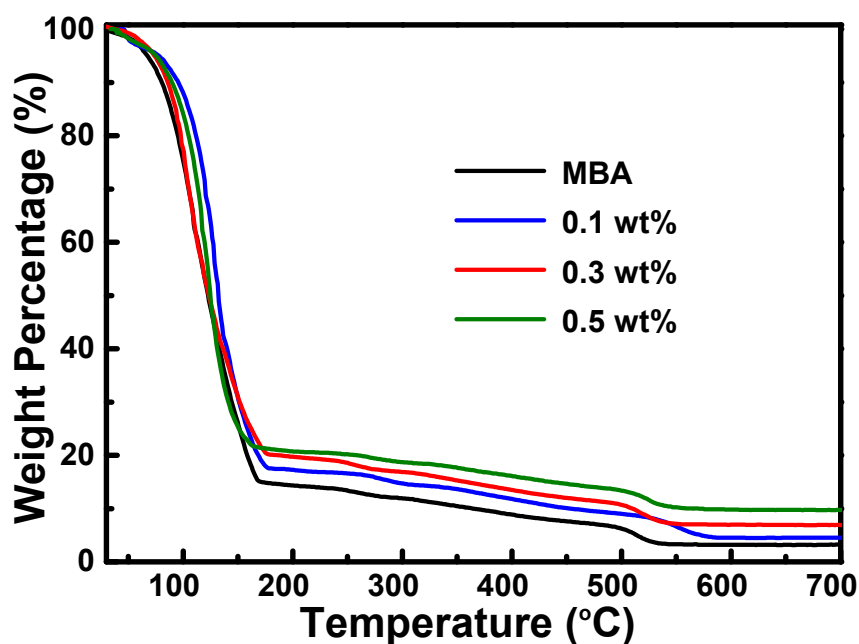


Fig. S3 TGA curves of MBA/PAA hydrogel and BaFe₁₂O₁₉/PAA hydrogels with different BaFe₁₂O₁₉ nanoparticle loadings.

S4. Strain Sensing of BaFe₁₂O₁₉/PAA Hydrogel at Cycle of 1-10.

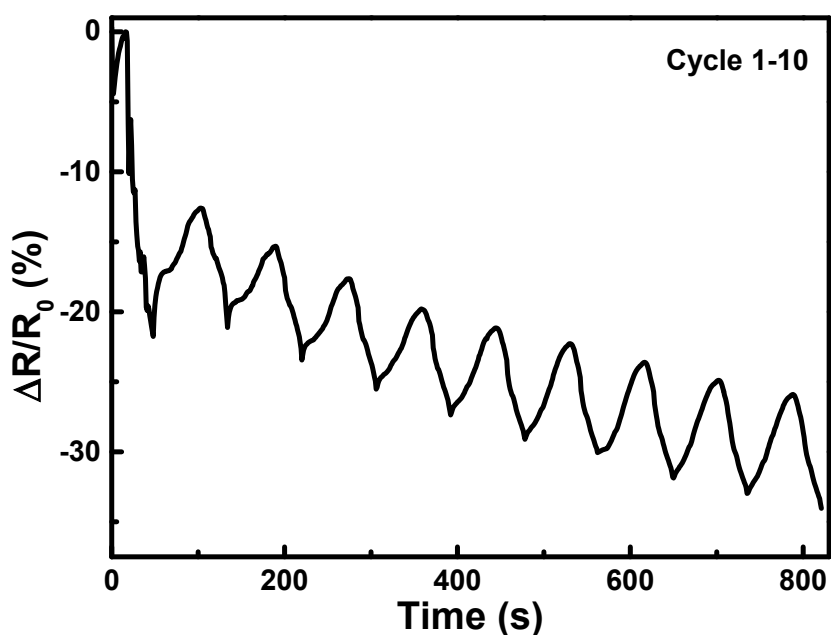


Fig. S4 Resistance variation of BaFe₁₂O₁₉/PAA hydrogel with a BaFe₁₂O₁₉ nanoparticle loading of 0.3 wt% under cyclic compression with a strain up to 40% at cycles of 1-10.

S5. Measurement set-up for BaFe₁₂O₁₉/PAA Hydrogel.

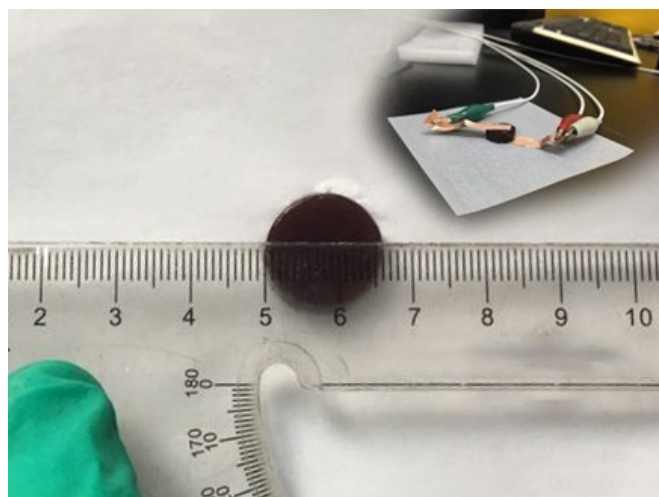


Fig. S5 Electrochemical impedance spectroscopy (EIS) measurement set-up of BaFe₁₂O₁₉/PAA hydrogel.

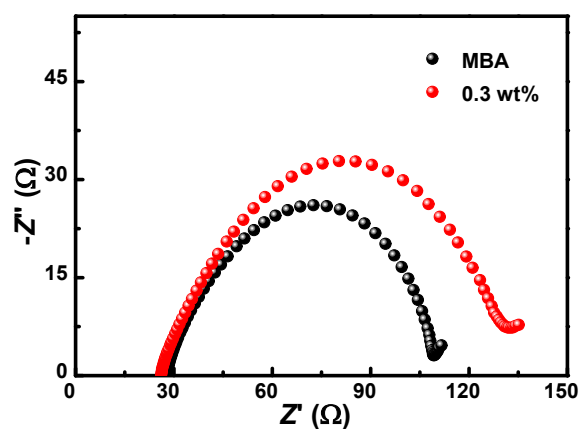


Fig. S6 Nyquist plots of MBA/PAA hydrogel and BaFe₁₂O₁₉/PAA hydrogel with BaFe₁₂O₁₉ nanoparticle loading of 0.3 wt%.

S6. Schematic of Strain Sensing Measurement

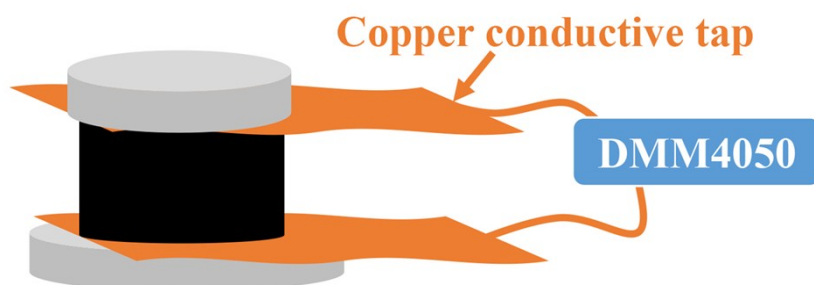


Figure S7 Schematic of the strain sensing measurement.