

Electronic Supplementary Information

Enhanced sensing performance of carboxyl graphene-ionic liquid attached ionic polymer-metal nanocomposites based polymer strain sensors

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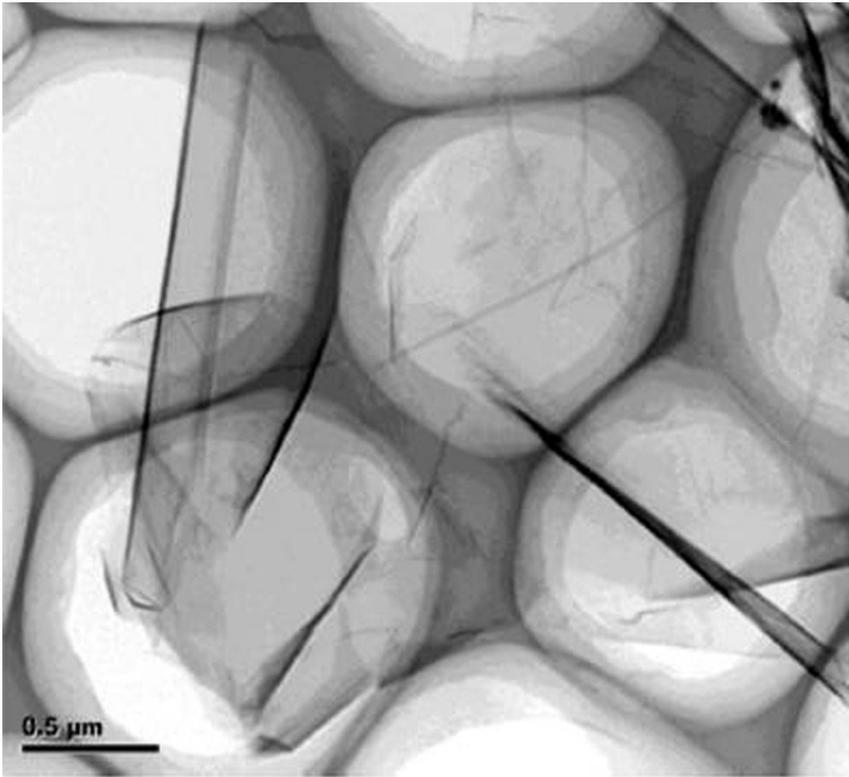


Fig. S1 TEM image of COG

Fig. S1 shows the TEM images of COG sheets.

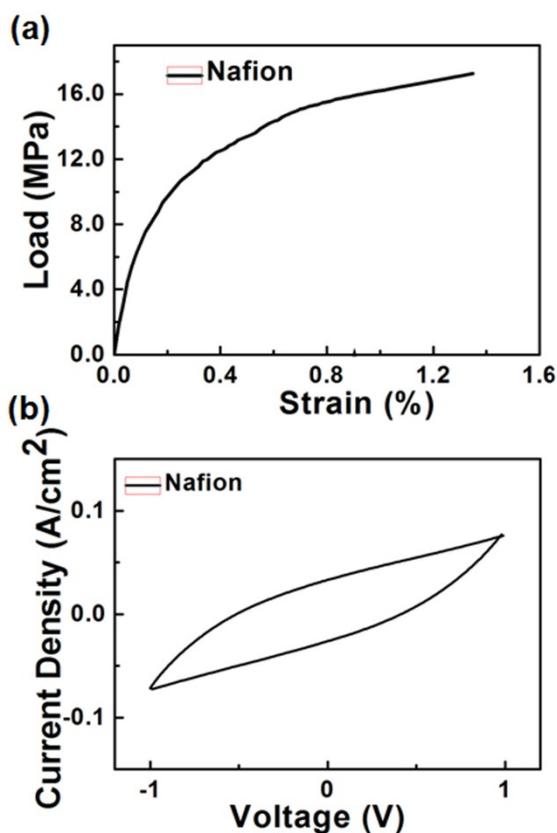


Fig. S2 (a) Load with strain spectrum of the Nafion membrane (b) Current density of the Nafion IPMC with voltage.

The load with strain of the Nafion membrane is shown in Fig. S2 (a) and Tabulated in Table S1. The current density of the Nafion based IPMNC is shown in Fig. S2 (b).

Table S1. Mechanical properties of Nafion membrane.

Membrane	Young's modulus(MPa)	Tensile strength(MPa)	Elongation at break(%)
Nafion	74	17.3	135

The sensing current of the IBM-1/COG (99.95/0.05) (IL) bending strain of 0.009 is shown in Fig. S3 (a). The sensing current of 1.9 A/cm² is obtained with bending strain. The electrical current of IBM-1/COG (99.95/0.05) (IL) is obtained with voltage and shown in Fig. S3 (b).

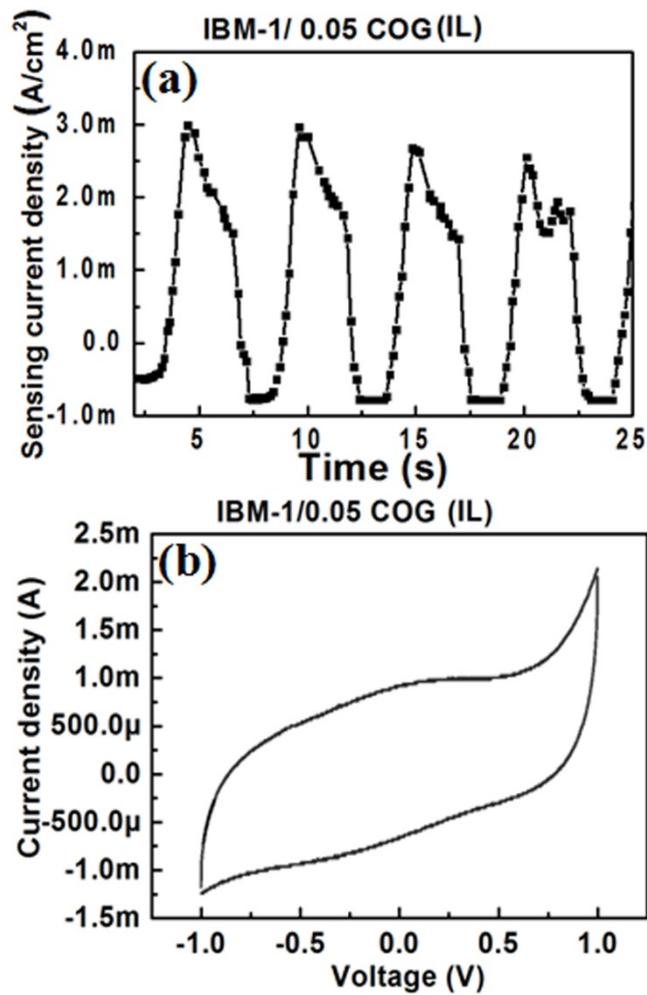


Fig. S3 (a) Sensing current of IBM/0.05 based IPMNC with bending strain (b) Electrical current of IBM/0.05 based IPMNC with voltage.