

SUPPLEMENTARY INFORMATION For

Bioinspired Design and Macroscopic Assembly of Poly(vinyl alcohol)-Coated Graphene into Kilometers-Long Fibers

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Table of the content

Fig. S1. AFM images of CRG@PVA with R of 1.75 (a), 2.125 (b), 2.5 (c), 5 (d), 10 (e) and 20 (f).

Fig. S2. XPS spectra of GO, CRG, HI-CRG, GO@PVA, CRG@PVA and HI-CRG@PVA.

Fig. S3. FTIR spectra of GO, CRG and CRG@PVA.

Fig. S4. SEM image of CRG@PVA with R of 20.

Fig. S5. Raman spectra of GO, CRG, HI-CRG, GO@PVA and CRG@PVA.

Fig. S6. SEM images of CRG@PVA fibers with different diameters.

Fig. S7. SEM images of CRG@PVA fibers with R of 1.75 (A, B), 2.125 (C, D), 2.5 (E, F), 5 (G, H), and to 10 (I, J).

Fig. S8. SEM images of CRG@PVA fibers with different MW of PVA from 2K (A, B) to 16K (C, D) and to 50K (E, F).

Fig. S9. The mechanical strength and modulus of a number of nacre-mimic materials.

Fig. S10. Typical stress-strain curve of CRG@PVA paper with PVA MW of 100K.

Fig. S11. Electrical conductivities of CRG@PVA fibers and papers with different R and MW.

Fig. S1. AFM images of CRG@PVA with *R* of 1.75 (a), 2.125 (b), 2.5 (c), 5 (d), 10 (e) and 20 (f).

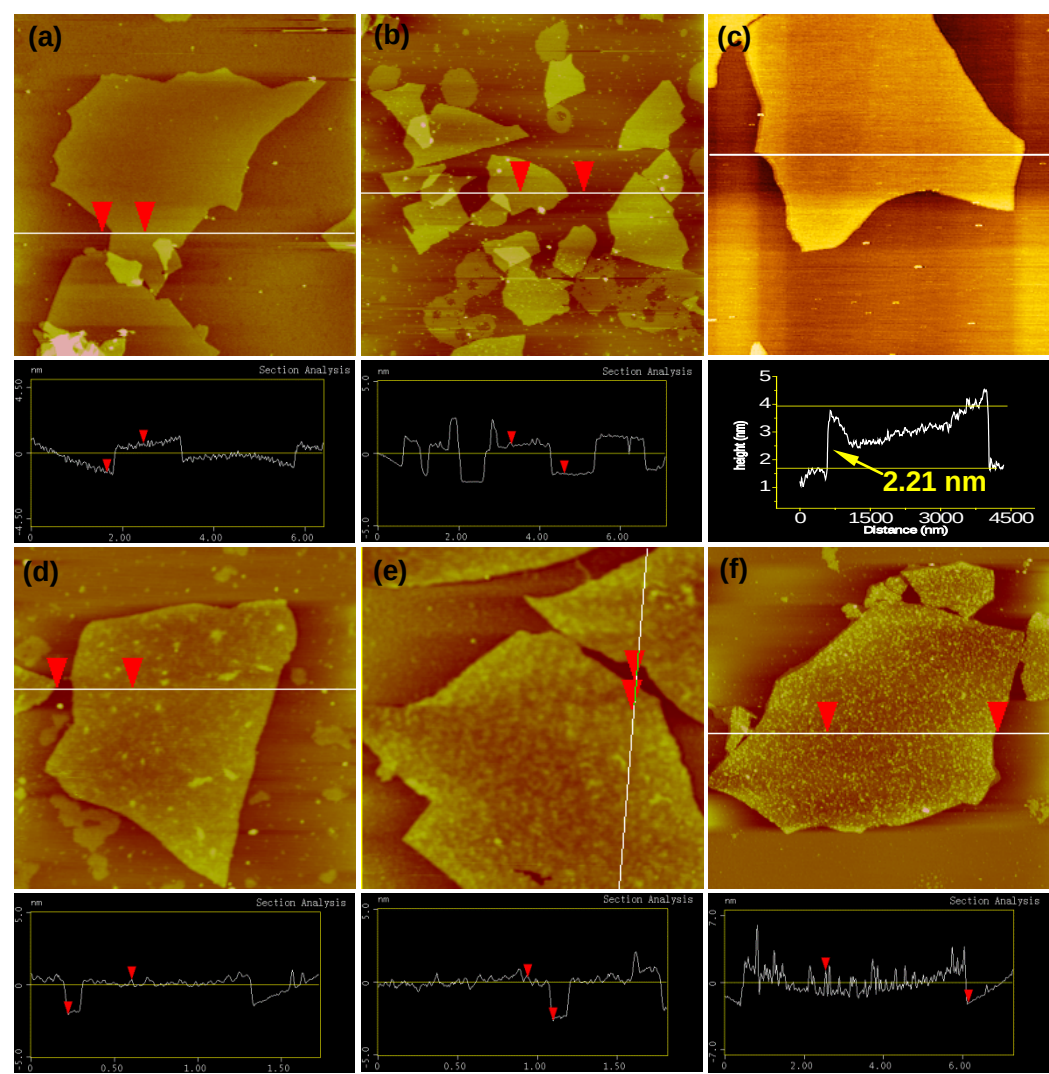


Fig. S2. XPS spectra of GO, CRG, HI-CRG, GO@PVA, CRG@PVA and HI-CRG@PVA.

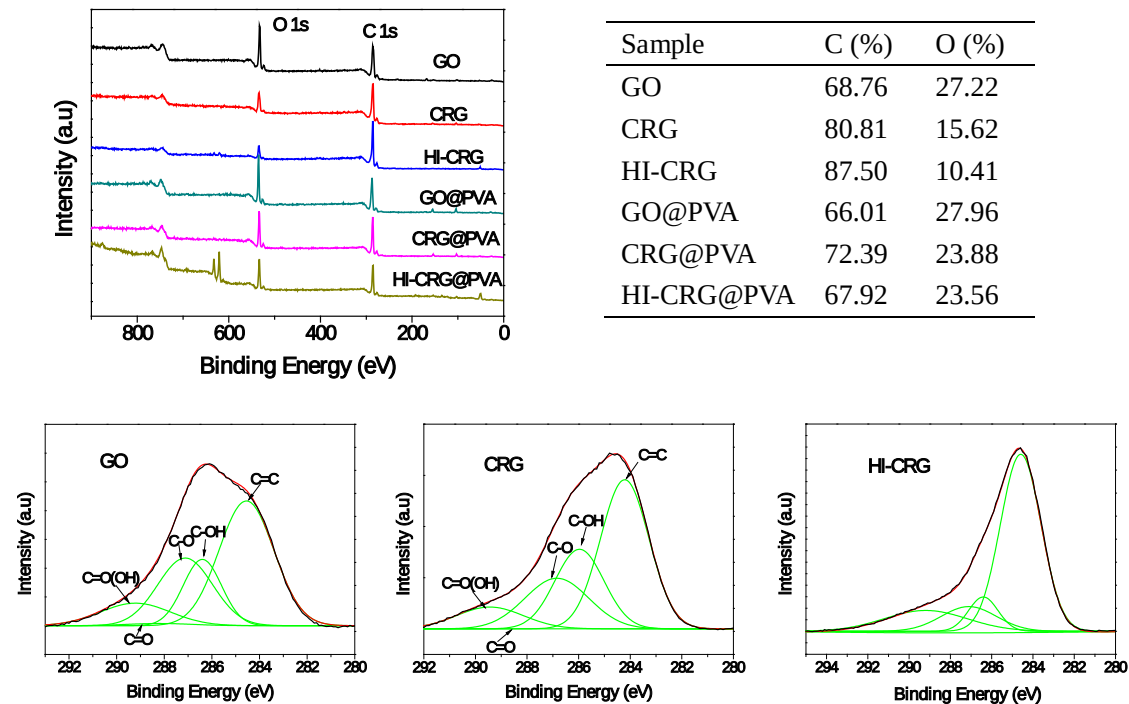


Fig. S3. FTIR spectra of GO, CRG and CRG@PVA.

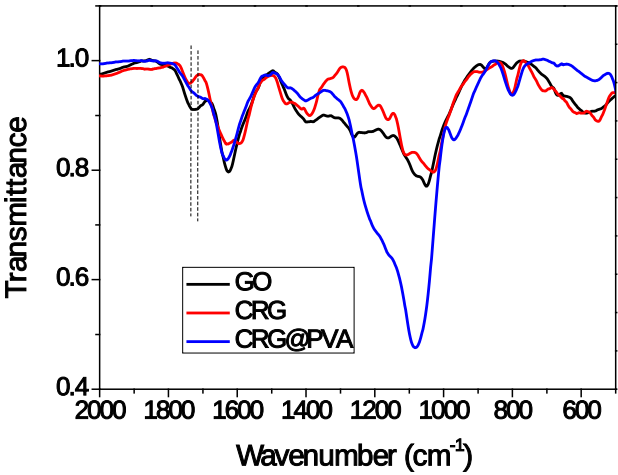


Fig. S4. SEM image of CRG@PVA with *R* of 20.

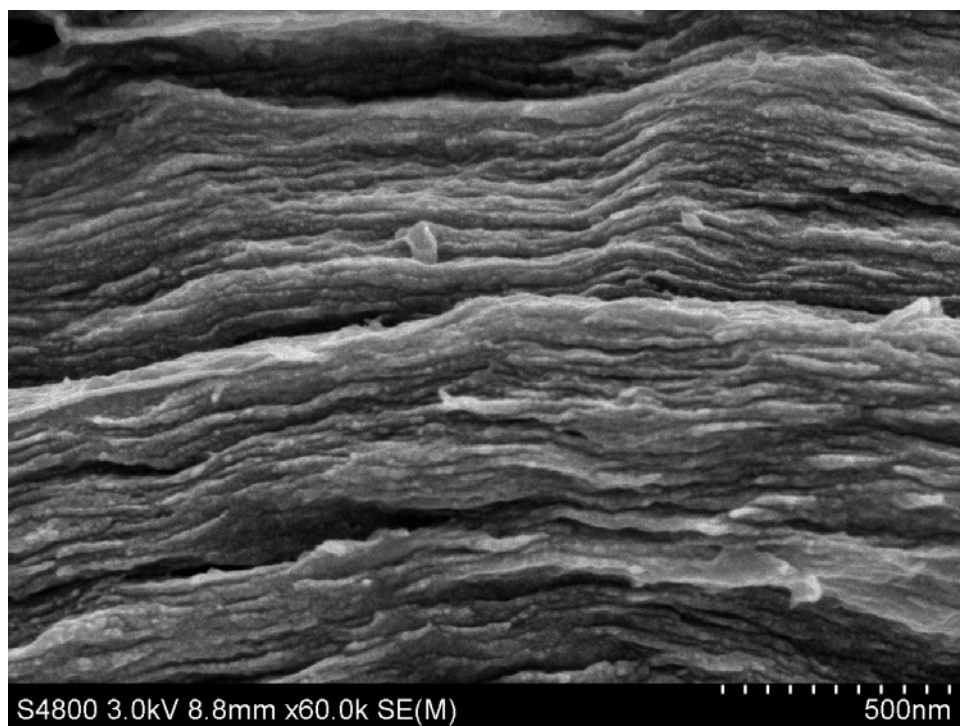


Fig. S5. Raman spectra of GO, CRG, HI-CRG, GO@PVA and CRG@PVA.

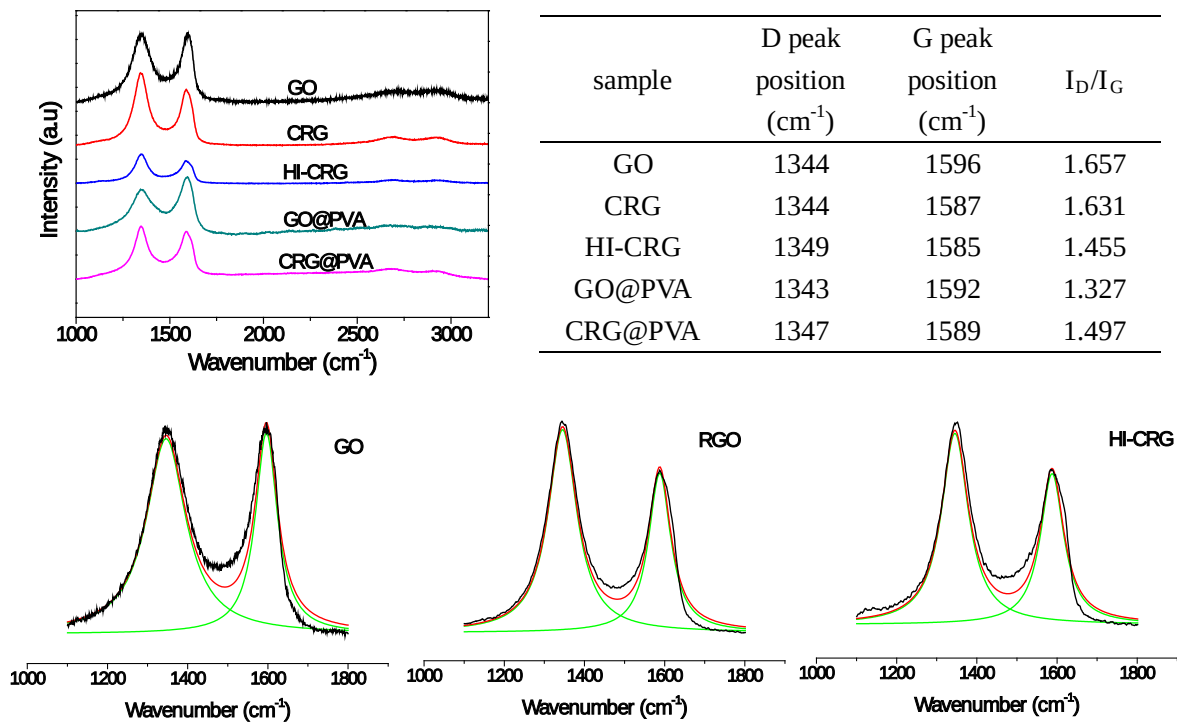


Fig. S6. SEM images of CRG@PVA fibers with different diameters.

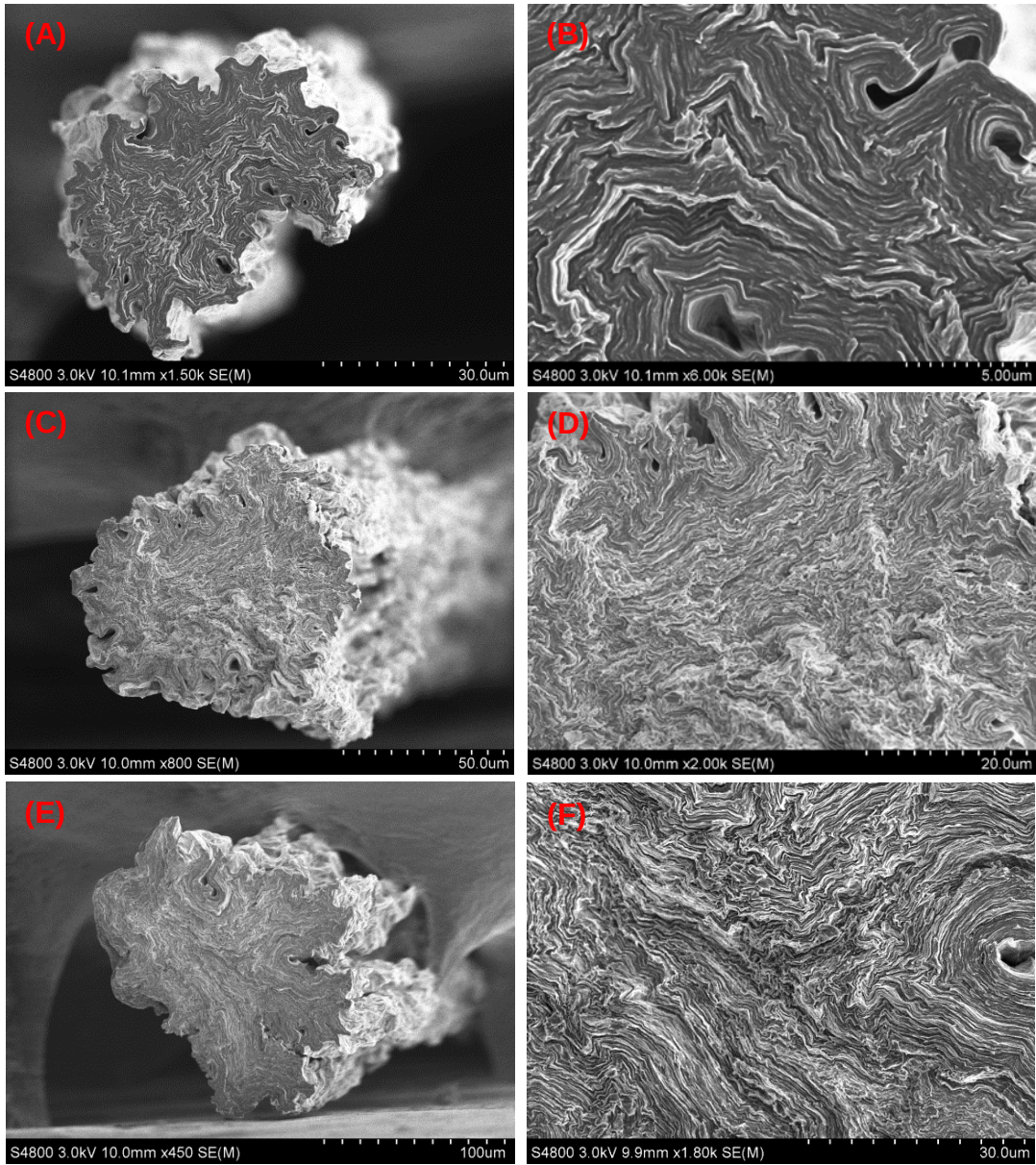


Fig. S7. SEM images of CRG@PVA fibers with R of 1.75 (A, B), 2.125 (C, D), 2.5 (E, F), 5 (G, H), and to 10 (I, J).

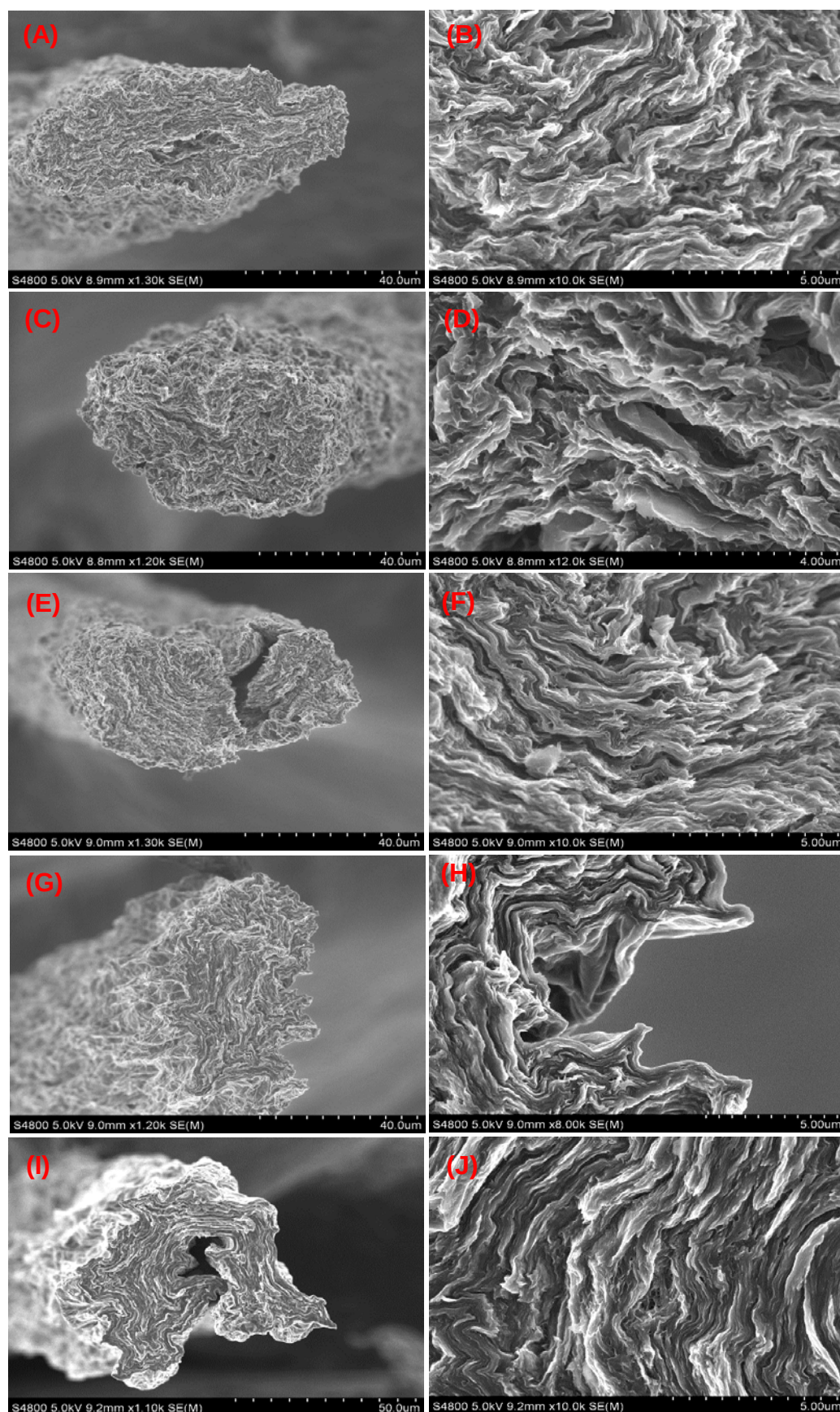


Fig. S8. SEM images of CRG@PVA fibers with different MW of PVA from 2K (A, B) to 16K (C, D) and to 50K (E, F).

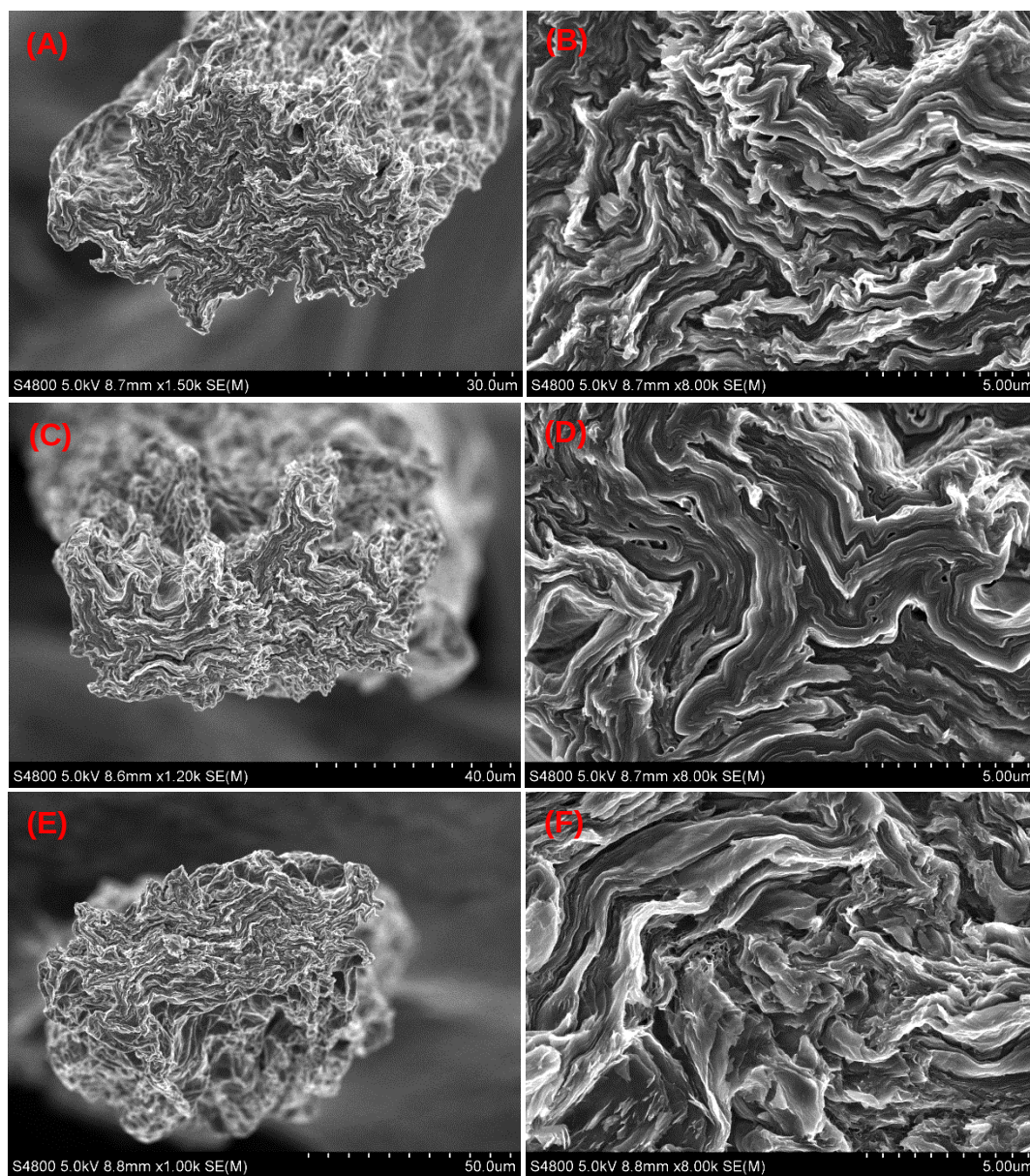


Fig. S9. The mechanical strength and modulus of a number of nacre-mimic materials.

	Stress (MPa)	Modulus (GPa)	Reference
MTM-PI	70-80	8-9	5
MTM-C	100	6.8	6
LDH-C	160	12.7	9
GO-PVA	110	4.8	17
CRG-C	206	6.5	19
TRG-HPG	145	10	22
CRG Fiber	140	7.7	34
Nacre	140	64	36
MTM-PDMA	109	13	37

Fig. S10. Typical stress-strain curve of CRG@PVA paper with PVA MW of 100K.

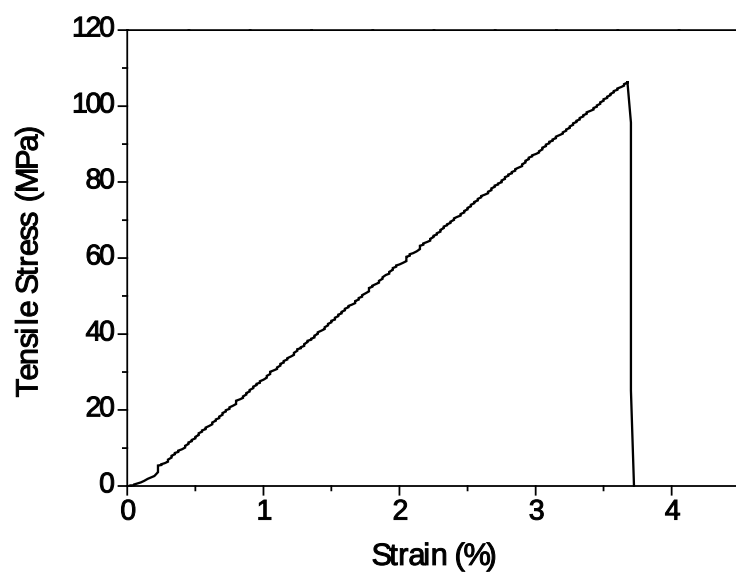


Fig. S11. Electrical conductivities of CRG@PVA fibers and papers with different *R* and MW.

