Electronic Supplementary Material (ESI) for RSC Advances

Electronic Supplementary Information

Strong reduced graphene oxide-polymer composites: hydrogels and wires

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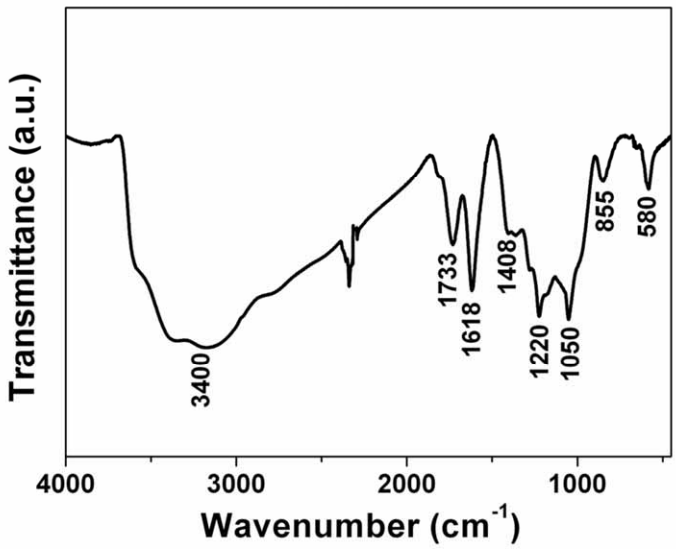

Figure S1 FTIR spectrum of graphite oxide.

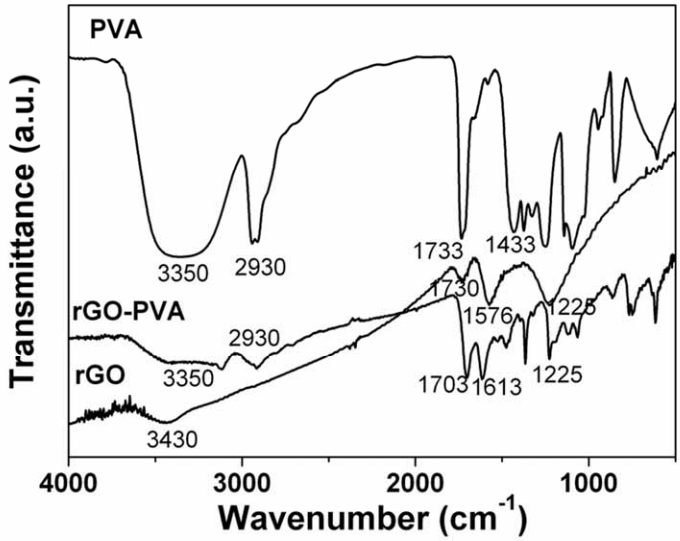

Figure S2 FTIR spectra of PVA, rGO and rGO-PVA composite.

Table S1 Raman peak positions of graphene and rGO-PVA composite, as well as GO and GO-PVA composite, and the wavenumbers difference between D and G peaks.

Materials	D band peak (cm^{-1})	G band peak (cm^{-1})	△(G-D)
GO	1338	1597	259
GO-PVA	1330	1603	273
rGO	1336	1590	254
rGO-PVA	1329	1598	269

Table S2 Comparison of elemental analysis results of GO, rGO, GO/PVA and rGO-PVA.

	GO	rGO	GO/PVA (1.8 vol%)	rGO/PVA (1.8 vol%)
O/wt%	31.29	12.35	31.38	12.78
C/wt%	68.71	87.65	68.62	87.22

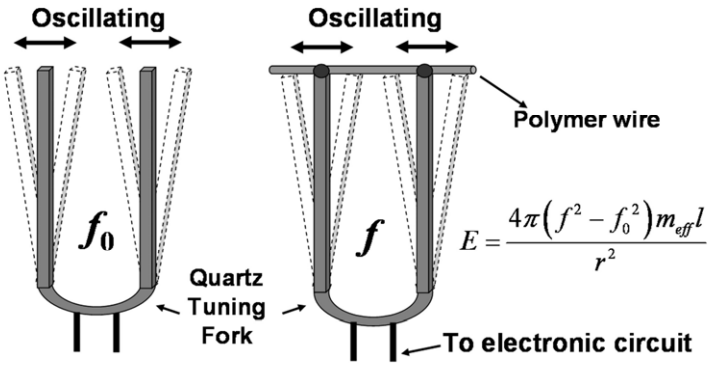

Figure S3 The mechanism of the mechanical properties measurement using the microfabricated tuning fork with the polymer wire

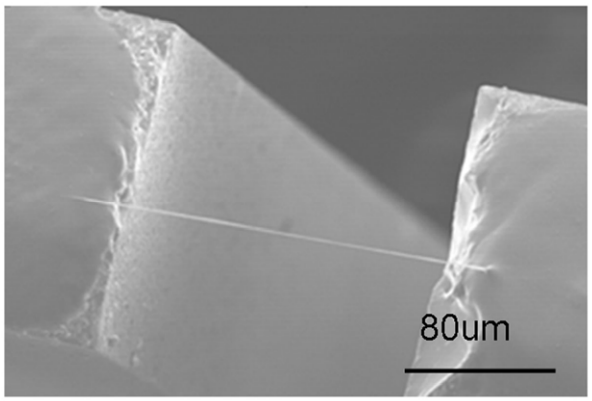

Figure S4 SEM images of the modified tuning fork with a single polymer wire.