Supporting Information

Facile Fabrication of Multifunctional Polymer Composite Based on Three-dimensional Interconnected Network of Graphene and Carbon Nanotube

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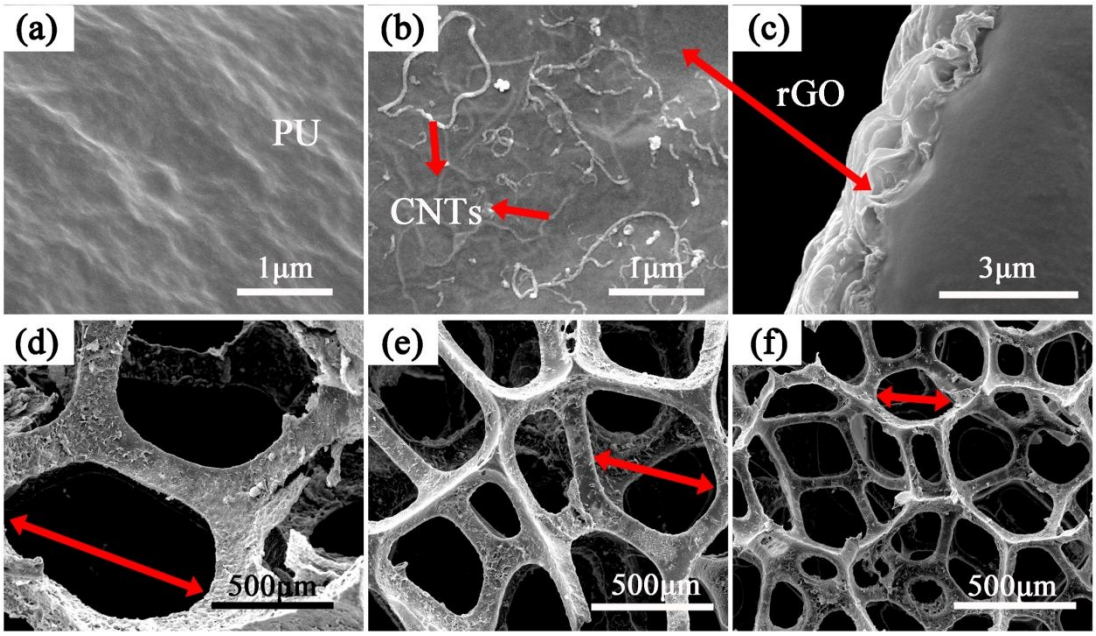

Figure S1 SEM images showing the microstructure of skeleton of (a) pure PU sponge, (b, c) rGO/CNT@PU sponge; SEM images of rGO/CNT@PU sponge with (d) large, (e) medium and (f) small diameter.

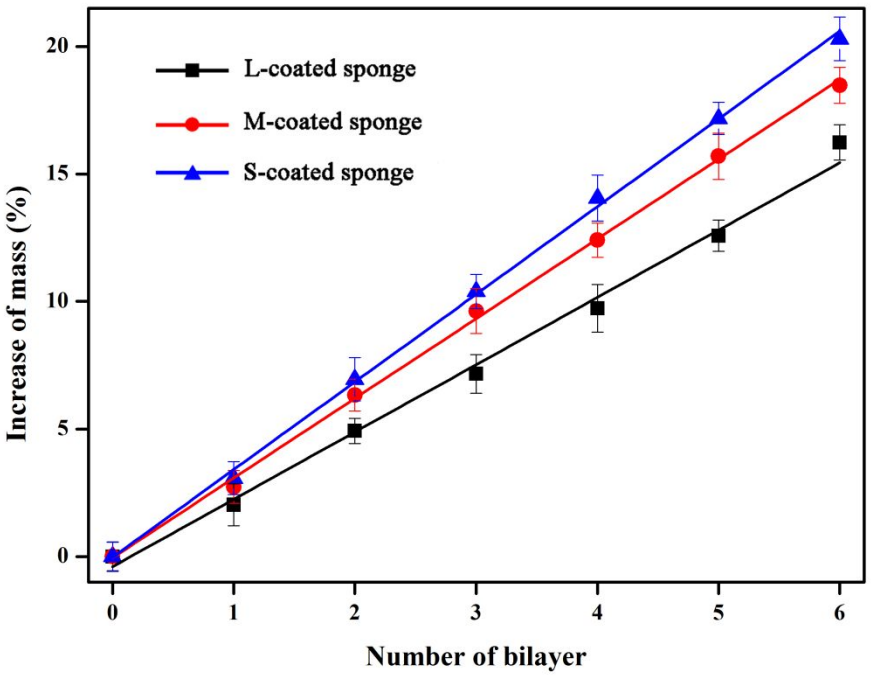

Figure S2 Relative increase of rGO/CNT coating mass on PU sponge with different number of bilayer.

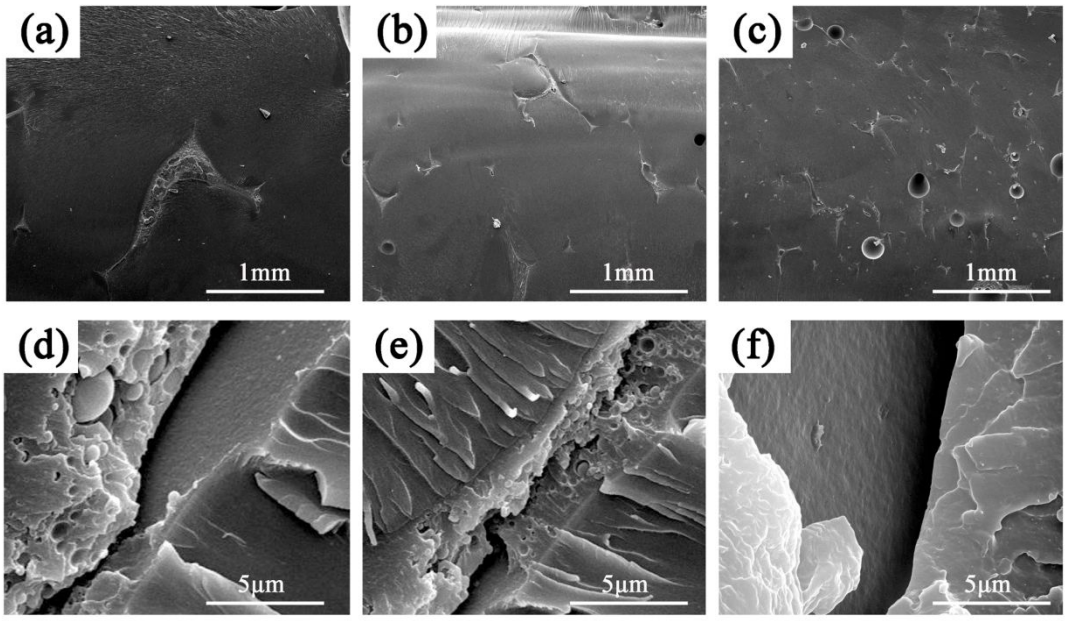

Figure S3 SEM micrographs of the fractured surface of PU@EP composite prepared using (a, d) large, (b, e) medium and (c, f) small-diameter PU sponge.

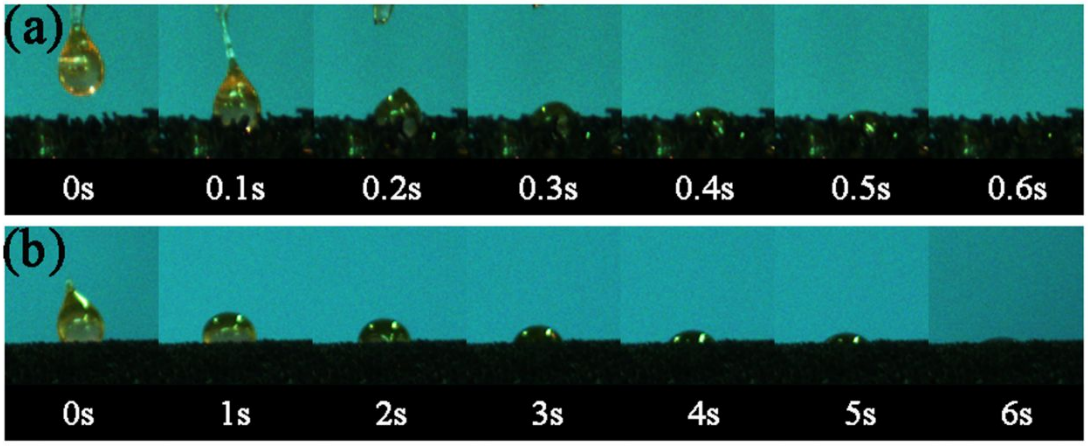

Figure S4 The infiltrating behavior of a drop of EP on the surface of rGO/CNT@PU sponge with (a) large diameter and (b) small diameter.

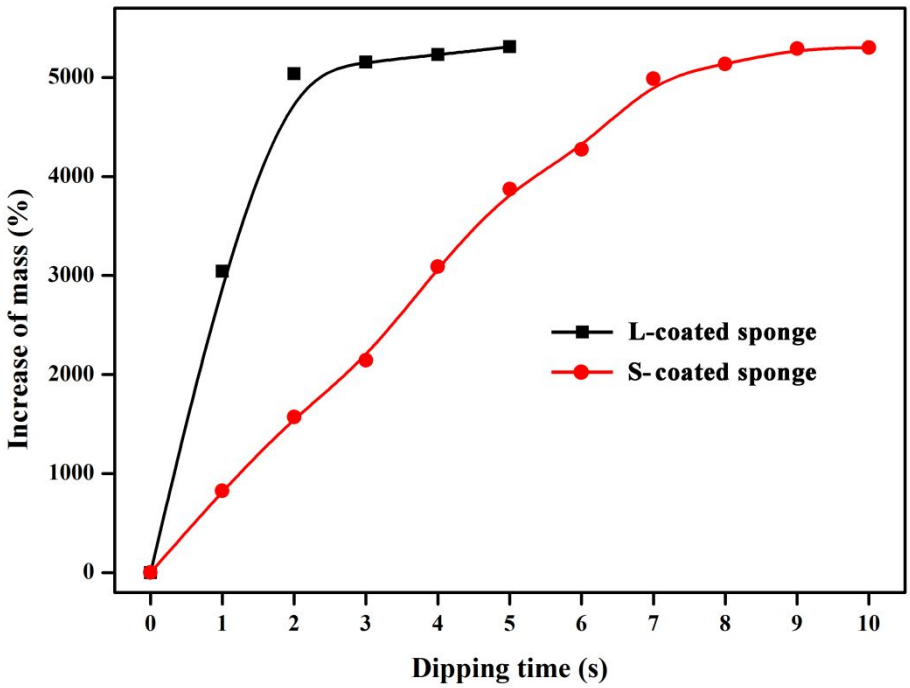

Figure S5 The increase of adhered EP mass to coated PU sponge with large and small diameter as a function of dipping time.

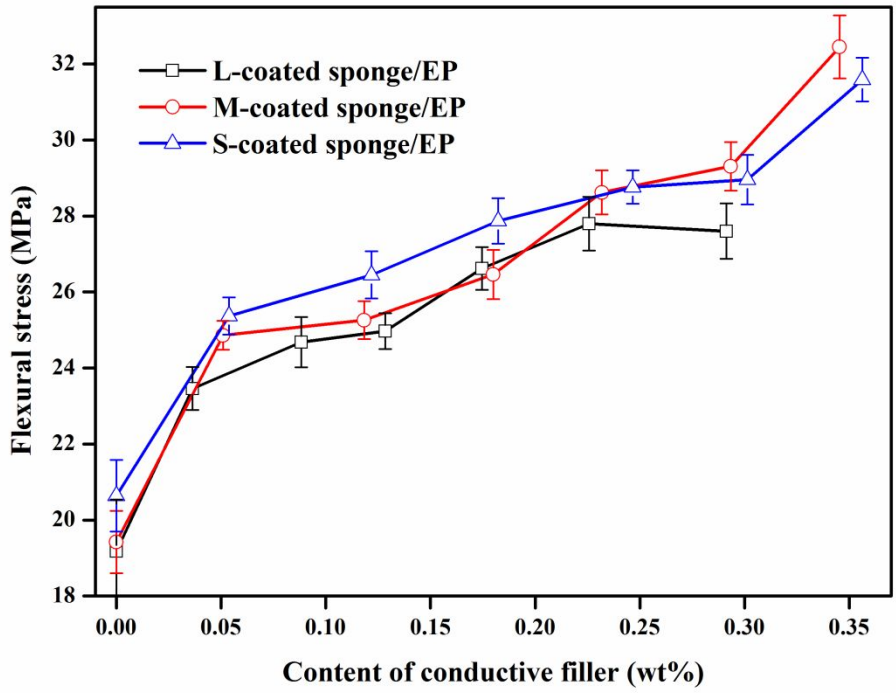

Figure S6 The flexural strength of rGO/CNT/PU@EP composite with different loading content of conductive filler.

Table S1. Percolation thresholds of different carbon nanofiller-based composites

Materials	Percolation threshold	t value	Reference
rGO/CNT/PU@EP	0.0034-0.0017 wt%	2.6-3.1	This work
CNT@PP	0.3 wt%		[1]
MWCNT@PU	0.001 wt%	2.067±0.094	[2]
Graphene@silicone rubber	1.87 wt%	1.69	[3]
CNT@PLA/PCL	0.025 wt%	4.13	[4]
GNS@TPU	0.06 wt%		[5]
CNT@PA66	0.04 wt%		[6]
CB@EMA	8.6 wt%	2.31	[7]
MWCNT@Ecoflex	0.3±0.02 wt%	1.90±0.05	[8]
PVC@MWCNT	0.11 wt%		[9]

PP: polypropylene, PU: polyurethane, PLA: poly (lactic acid), PCL: poly (caprolactone), GNS: carbon nanostructure, TPU: thermoplastic polyurethane, PA66: polyamide 66, CB: carbon black, EMA: ethylene methyl acrylate copolymer, PVC: poly (vinyl chloride), MWCNT: (multi-walled carbon nanotube).

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