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Supplementary Information

Core-Shell Cu@rGO Hybrids Filled in Epoxy Composites with High Thermal Conduction

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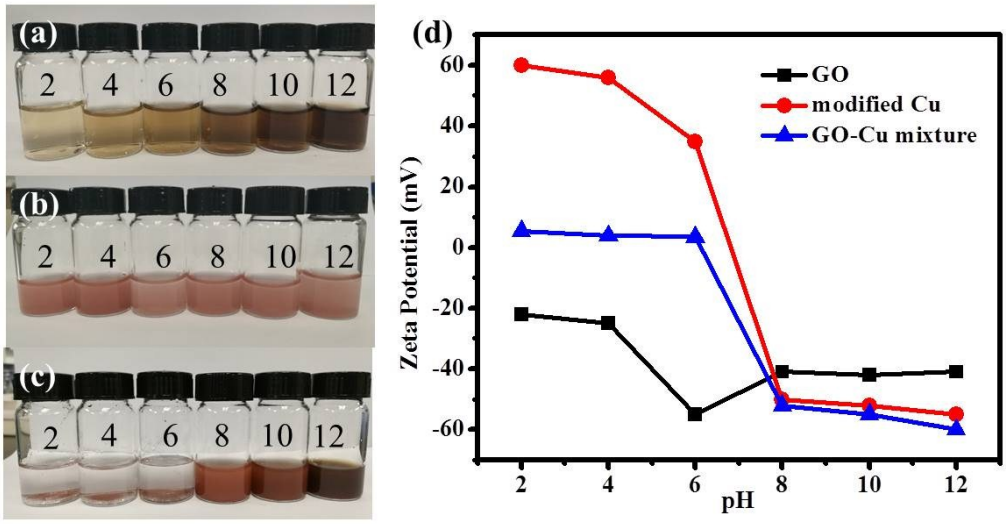

Figure S1. Digital photographs of (a) GO, (b) modified Cu and (c) modified Cu and GO mixture solution under pH=2, 4, 6, 8, 10, 12; (d) Zeta potentials of GO, modified Cu and modified Cu and GO mixture in aqueous solutions under different pH conditions.

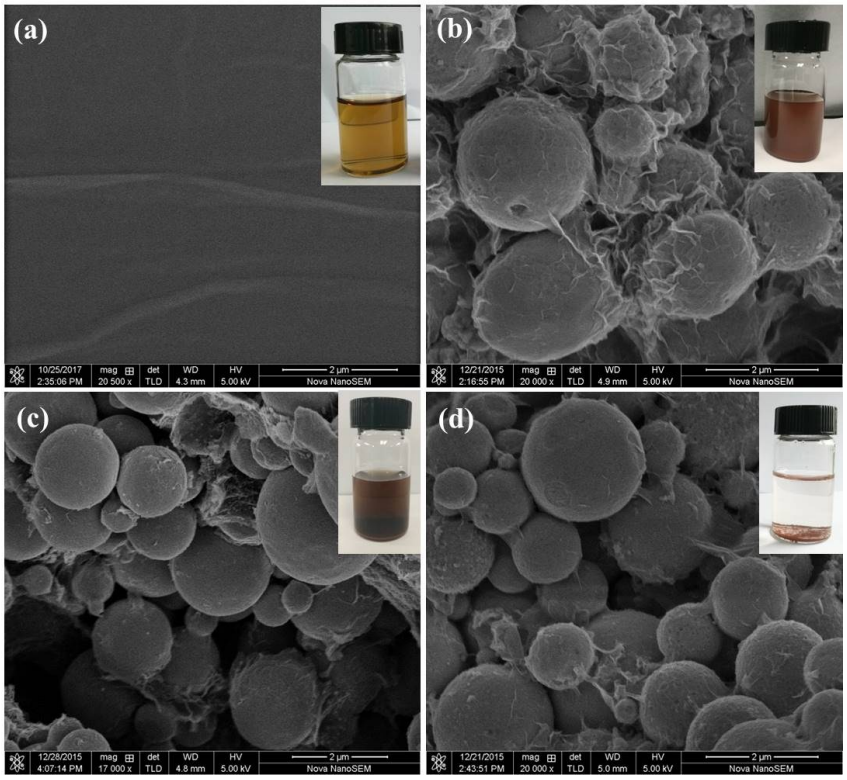

Figure S2. Images of the electrostatic assembly of GO with Cu-NH_2 at different mass ratios, (a) exfoliated GO sheets; (b) GO:Cu=1:10; (c)GO:Cu=1:30; (d) GO:Cu=1:50 (inserts are photographs of the corresponding aqueous suspension).

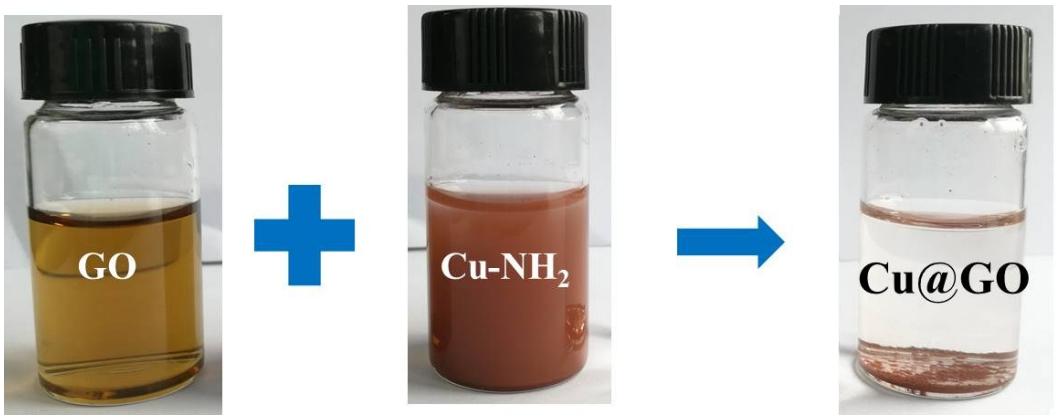

Figure S3. Photograph of the electrostatic assembly process of Cu@GO

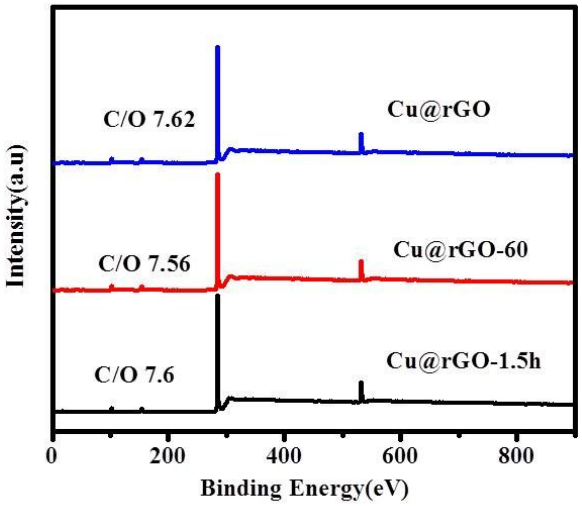

Figure S4. XPS survey spectra of the as-prepared Cu@rGO, Cu@rGO-60 and Cu@rGO-1.5h.

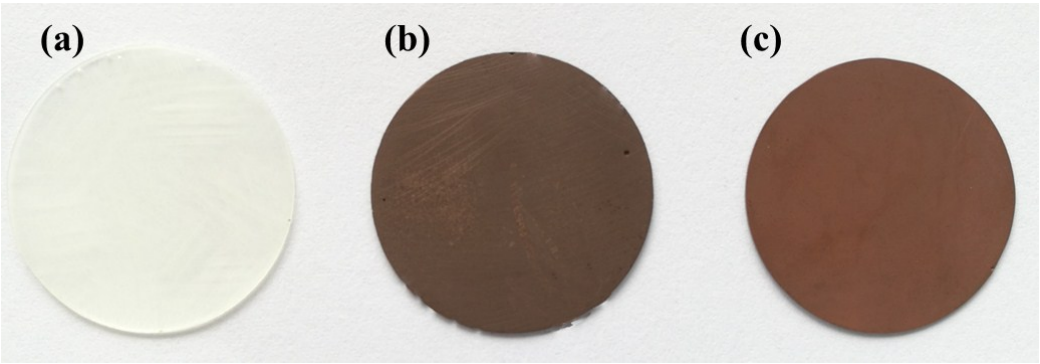

Figure S5. Optical morphologies of (a) Pure epoxy, (b) Cu@rGO/epoxy composites and c) Cu@rGO/epoxy composites.

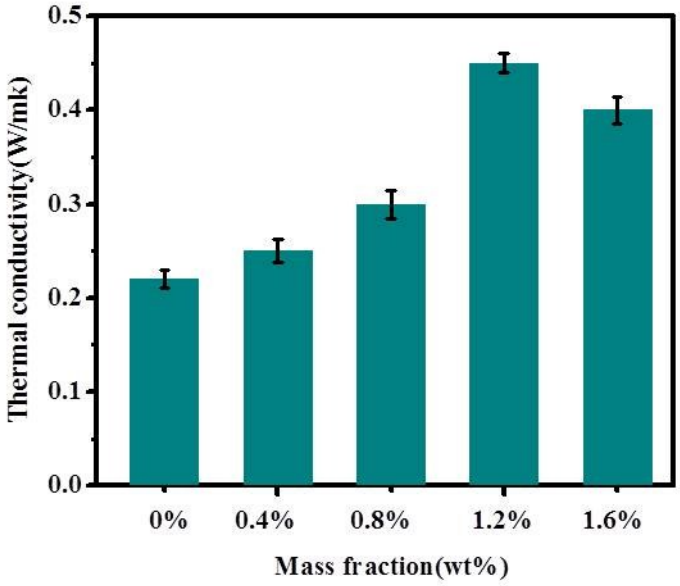

Figure S6. Thermal conductivity of rGO/epoxy composites with different mass fractions.

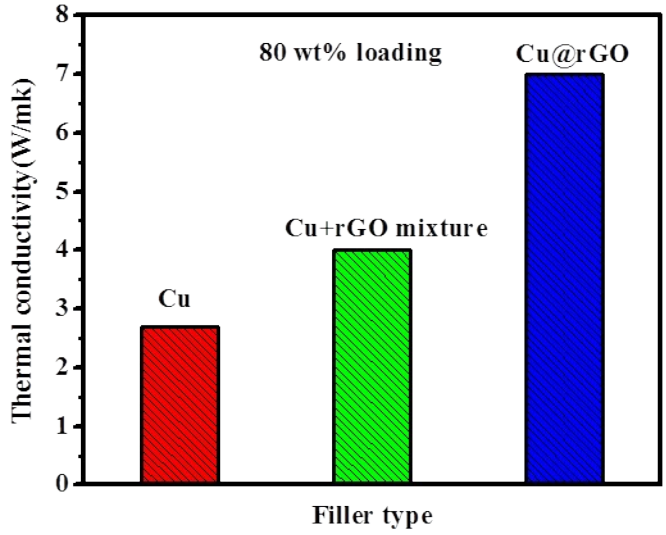

Figure S7. Comparison of the thermal conductivity of the epoxy composites with three kinds of filler.

Table S1. CTE values of different fillers

Samples	CTE1(ppm ºC $^{-1}$)	CTE2(ppm ºC $^{-1}$)
Pure epoxy	74.4	200.5
80 wt% Cu/epoxy	51.6	128.6
80 wt% Cu@rGO/epoxy	48	124.3