Graphene/ZIF-8 composites with tunable hierarchical porosity and electrical conductivity

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Electronic Supplementary Information (ESI)
Fig. S1 FT-IR spectra of graphene oxide (GO) and reduced graphene oxides (RGOs) obtained after thermal annealing of GO at 250, 450 and 650°C.
Fig. S2 PXRD spectra of GO (red) and RGOs (black).

Fig. S3 SEM images of GO and RGOs obtained after thermal annealing of GO at 250, 450 and 650°C.
**Fig. S4** FT-IR spectra of GO and RGO/ZIF-8 nanocomposites.

**Fig. S5** PXRD spectra of GO/ZIF-8 before (red) and after CO₂ pressurization at 20 bar, 253 K (black).
**Fig. S6** SEM images of (a) graphite and (b) RGO650 after their immersion into the suspension of ZIF-8 crystals and subsequent washing with MeOH to remove any physisorbed crystals. Subset of (a) is the corresponding XRD pattern after washing.

**Fig. S7** Pore size distributions of GO- and RGO/ZIF-8 nanocomposites.
Fig. S8 (a) Ar isotherm of RGO650. BET surface area analyses (b) and the comparison of CO₂ uptake capacities (c) of RGO650 and RGO650/ZIF-8 at 303 K, up to 35 bar.