

Electronic Supplementary Information (ESI)

Two Better Than One: Cobalt-Copper Bimetallic Yolk-Shell Nanoparticles Supported on Graphene as Excellent Cathode Catalysts for Li-O₂ Batteries

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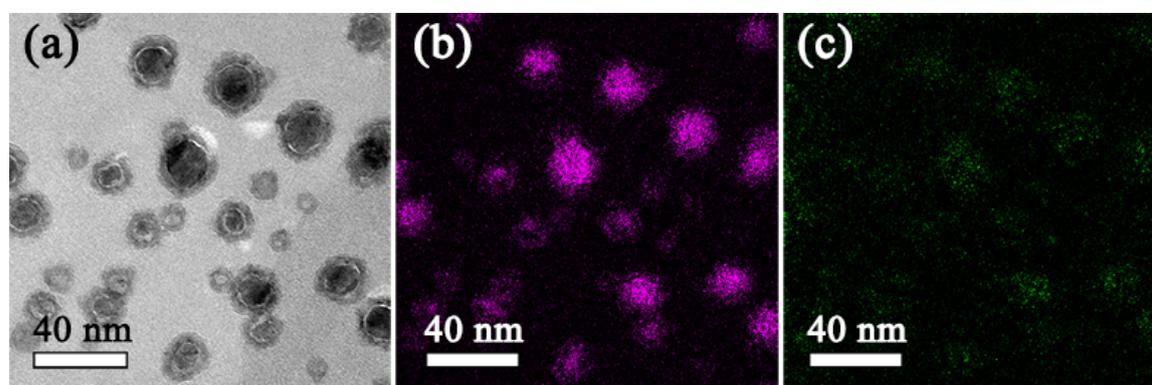


Figure S1. (a) TEM image of CoCu/graphene. EELS mapping of CoCu/graphene with the signals attributed to the different elements of Co (b) and Cu (c).

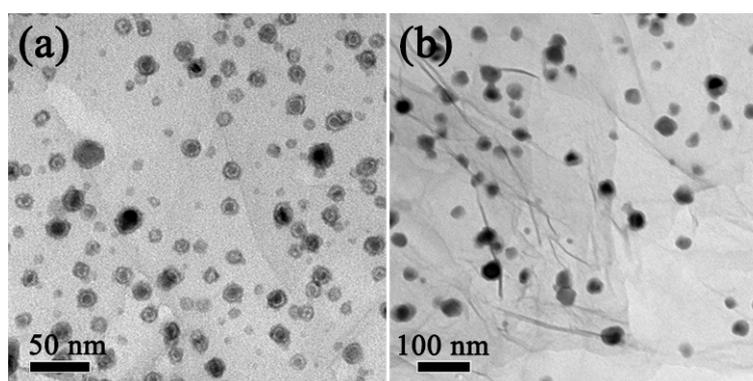


Figure S2. TEM image of Co/graphene (a) and Cu/graphene (b).

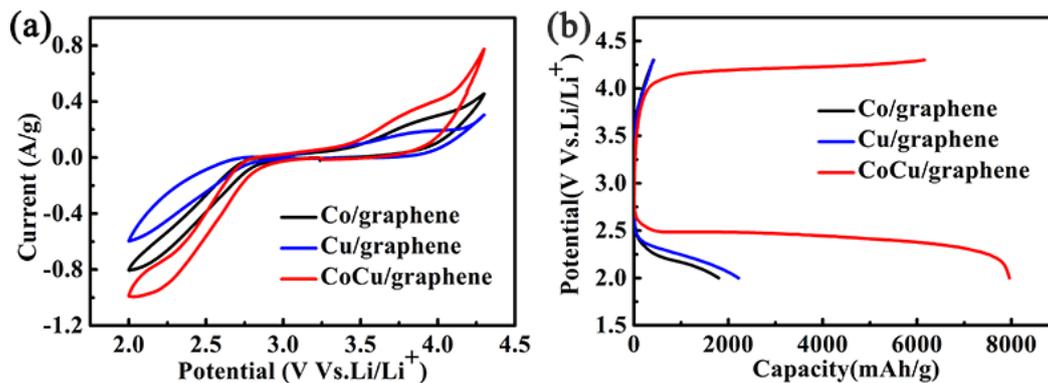


Figure S3. (a) CV curves of three cathodes recorded in O₂-saturated electrolytes at a sweep rate of 0.1 mVs⁻¹. (b) Discharge profiles of Co/graphene, Cu/graphene and CoCu/graphene cathodes at the current density of 800 mA g⁻¹.

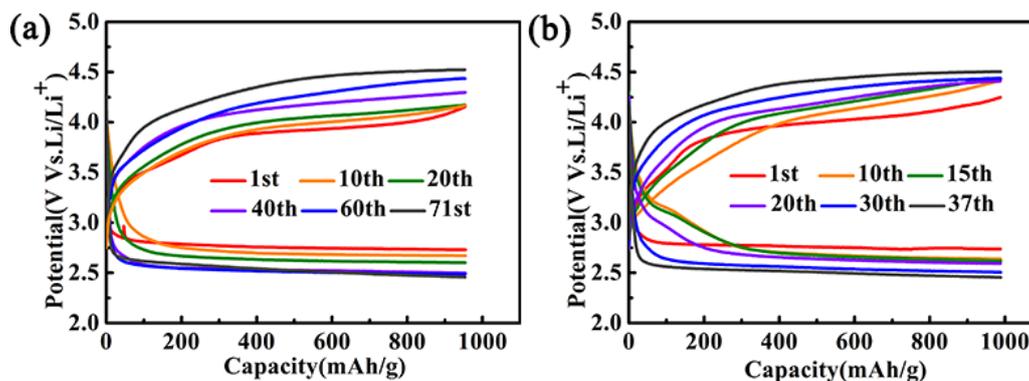


Figure S4. Cyclic performance of (a) Co/graphene and (b) Cu/graphene cathodes at a current density of 200 mA g⁻¹ under a capacity cutoff of 1000 mAh g⁻¹.

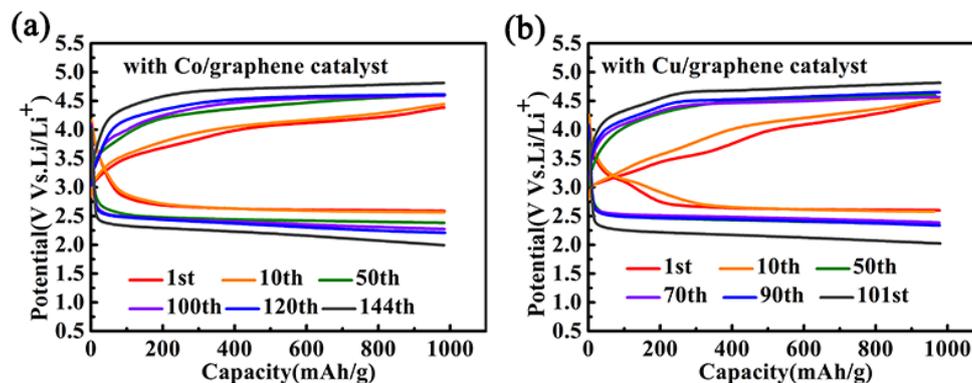


Figure S5. Cycling performance of Li-O₂ batteries with (a) Co/graphene and (b) Cu/graphene cathodes at a current density of 500 mA g⁻¹ under capacity cutoff of 1000 mAh g⁻¹ with terminal voltage of 2.0 V.

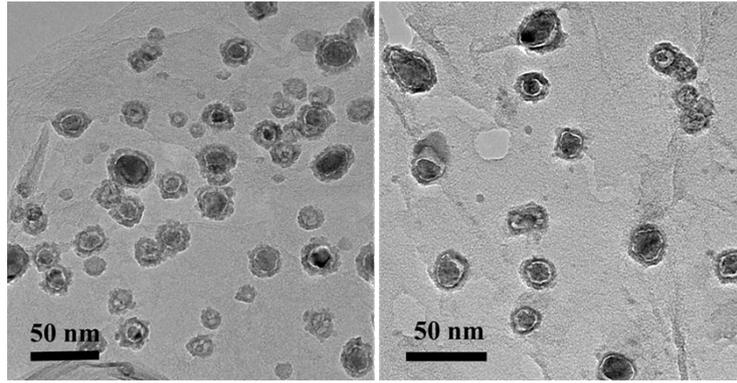


Figure S6. TEM images of CoCu/graphene cathodes before discharge (left) and after charge.

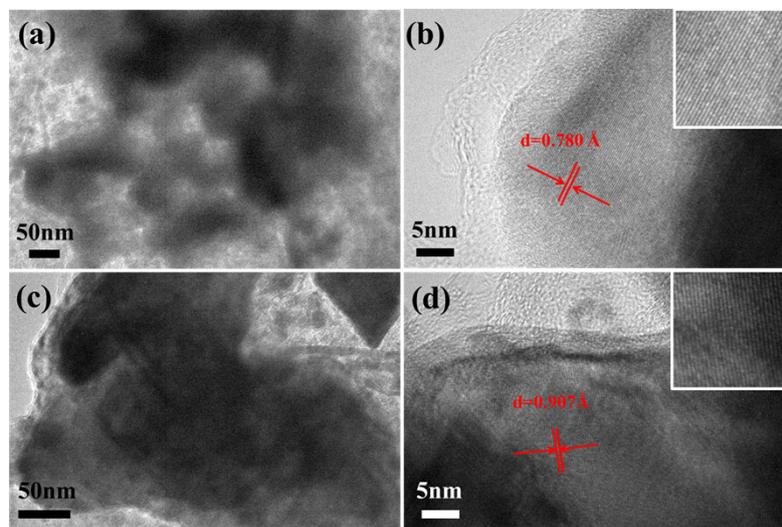


Figure S7. TEM images of discharged Co/graphene (a and b) and Cu/graphene (c and d) cathodes. The images at the top-right corner in (b) and (d) are enlarged lattice fringes. The d -spacing (0.780 Å in (c) and 0.907 Å in (d)) of adjacent lattice fringes agrees well with the (220) and (214) planes of Li_2O_2 (PDF #9-355), respectively.